Investigating Research Trends on Ambidexterity: Bibliometric Analysis

Bayu Prayudo[1], Tubagus Ismail[2], Imam Abu Hanifah[3], Munawar Muchlish[4]

Abstract

The research was conducted to find out trends related to ambidexterity, which is the company's ability to exploit and explore simultaneously. The company's ability to perform two opposite activities is a key factor in the company's success to adapt and survive. Companies must be able to meet current market needs and anticipate future market needs.

The database used is the Scopus database. Researchers used articles published in the last 5 years and obtained 239 articles. The tools used are Publish or Perish and Vos viewer to develop maps and research trends. The most cited articles are articles with titles Dynamic Capabilities, Creativity and Innovation Capability and Their Impact on Competitive Advantage and Firm Performance: The Moderating Role of Entrepreneurial Orientation.

The research has limitations in that there is no consistent measurement of ambidexterity. In addition, there are difficulties in mapping activities that are more dominant in organizational success.

Keywords: *ambidexterity, exploration, exploitation, bibliometric analysis.*

1. Introduction

Increasingly fierce competition means that companies must be able to continue to survive through the development of exploitation and exploration activities carried out in a balanced manner (March, 1991). Ambidexterity, which means the ability to use both hands equally well, to describe a company's ability to carry out exploitation and exploration simultaneously (Kafetzopoulos et al., 2023) is an ability that companies need to survive. (Junni et al., 2020). Organizations with strong ambidexterity can identify new opportunities and develop new products quickly, while maintaining efficient operations for existing products (Wenke et al., 2021).

Companies can make changes and innovations while maintaining smooth operations with ambidexterity (Xin et al., 2023). Companies utilize existing resources and knowledge and seek new knowledge to gain competitive advantage (Roth & Corsi, 2023). Ambidexterity enables companies to simultaneously develop new innovations and maintain advantages (Pietsch et al., 2023; Xin et al., 2023).

The aim of this research is to find out and investigate research trends related to ambidexterity, how companies carry out exploitation and exploration simultaneously. Research also identifies factors that influence organizational ambidexterity, as well as

[1] Sultan Ageng Tirtayasa University, Indonesia, 7783220025@untirta.ac.id
[2] Sultan Ageng Tirtayasa University, Indonesia, adeismail73@gmail.com
[3] Sultan Ageng Tirtayasa University, Indonesia, imamabuhanifah@untirta.ac.id
[4] Sultan Ageng Tirtayasa University, Indonesia, muchlish_ak@untirta.ac.id

implementing strategies that can encourage the achievement of ambidexterity in the organizational context. The research questions in this study are:

1.   What are the trends in research on ambidexterity based on the number of publications in a certain period?

2.   What are the dominant main topics in ambidexterity research?

3.   What role do publications by specific countries play in the development of ambidexterity research?

4.   How does ambidexterity research relate to related topics such as exploration and exploitation?

2.   Literature Review

Ambidexterity has been a subject under the spotlight in organizational leadership and management stud-ies (Mielcarek, 2023). Organizational ambidexterity is the capacity of an organization to simultaneously exploit its existing processes and resources and simultaneously explore new opportunities and radically innovate its products (Mura et al., 2021). Exploration refers to an organization's ability to create new knowledge, explore new opportunities, and pave the way towards innovation while exploitation is often associated with stability, routine, and efficiency (Pietsch et al., 2023; Xin et al., 2023).

Companies that embrace ambidexterity perform better than those that only focus on exploration or ex-ploitation (Raisch & Birkinshaw, 2008). Companies have the ability to achieve sustainable innovation and long-term growth. However, companies face challenges in achieving ambidexterity. A focus on ex-ploitation can suppress an organization's ability to explore. Similarly, too much focus on exploration may neglect the potential synergies of exploitation (March, 1991). Research also shows that organizational context and external factors can influence the relationship between ambidexterity, exploration and ex-ploitation. Fast-paced, changing environments can have a positive effect on the use of ambidexterity (Bezabih & Sarr, 2013).

Overall, the literature suggests that there is a complex relationship between ambidexterity, exploration and exploitation. While ambidexterity can lead to better performance in the long run, its implementation can also require careful management and attention to the context and external factors affecting the organization.

2.1.   Bibliometric Analysis

Bibliometric analysis is a method used in research to analyze and measure the characteristics, interrelationships, and impact of scientific papers published in a particular field or subject. The purpose of using bibliometric analysis is mapping the state of the art of various literature (Pasko et al., 2021) (van Eck & Waltman, 2010). Then assess the growth and trend of research, illustrating the history and evolution of research over time. Finally, distinguishing citations and impact, visualizing and mapping scientific research networks, and identifying research gaps (Aytaç & Khayet, 2023).

3.   Methods

3.1.   Search Strategy

The article search used a database from the Scopus core collection on October 15, 2023, a detailed search string using topics in the Scopus database which is useful for extracting publication data based on titles, abstracts, and keywords (Rons, 2018). In terms of criteria, there are no specific criteria in limiting the time span, discipline, source documents and data, this is because the topic of ambidexterity specifically has not been

studied much, because basically the scope of ambidexterity includes its relationship with exploration and exploitation (Rons, 2018). In this study, the topics used in the search were TITLE("ambidexterity" and "exploration" and "exploitation" AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (year)) AND (LIMIT-TO (subject, "j")) AND (LIMIT-TO (Keyword, "ar")) with a total of 921 articles found. The application of criteria using only the last 5 years of data, obtained 239 articles.
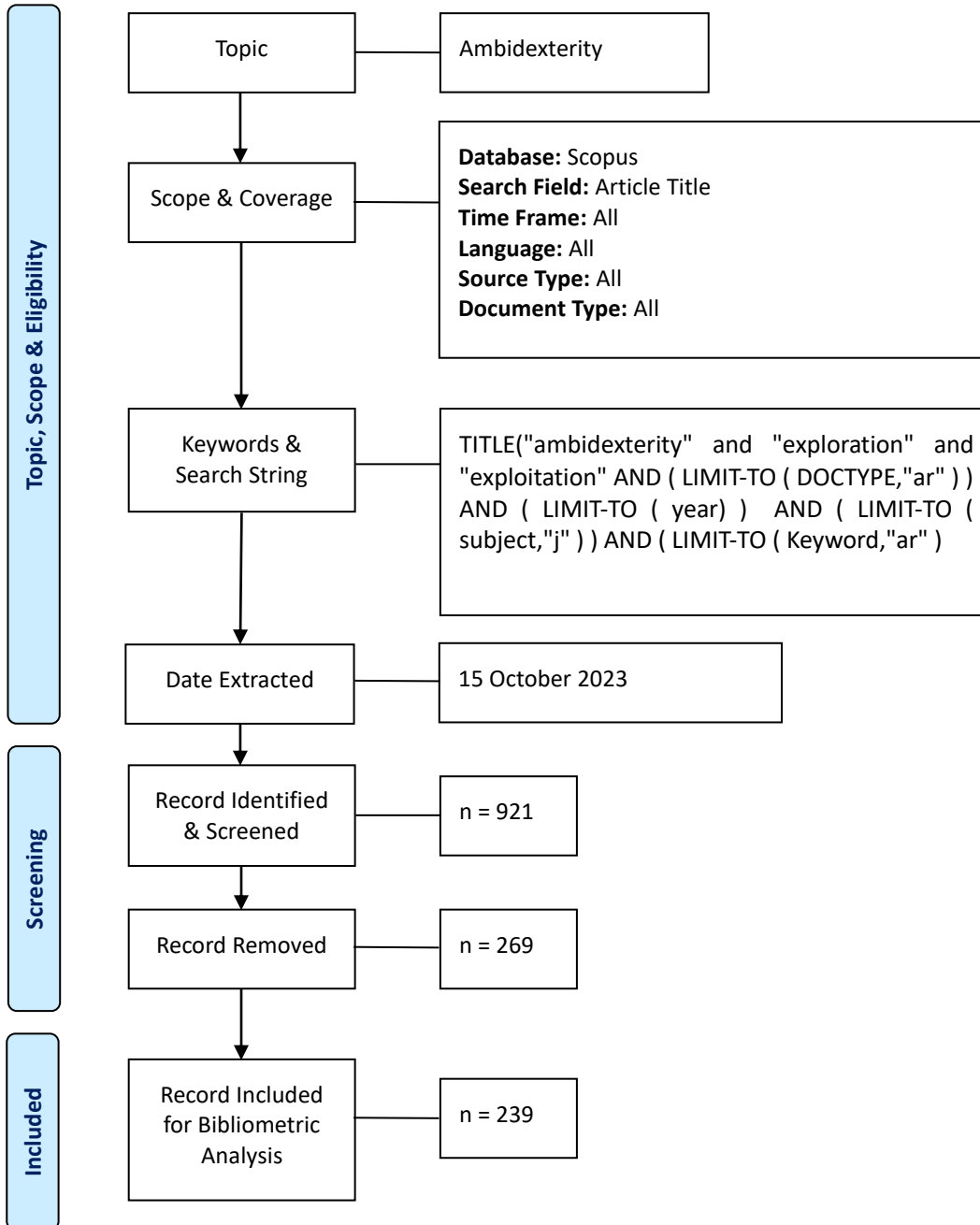
Topic	Ambidexterity

Topic, Scope & Eligibility

Scope & Coverage	**Database:** Scopus **Search Field:** Article Title **Time Frame:** All **Language:** All **Source Type:** All **Document Type:** All

Keywords & Search String	TITLE("ambidexterity" and "exploration" and "exploitation" AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (year)) AND (LIMIT-TO (subject,"j")) AND (LIMIT-TO (Keyword,"ar")

Date Extracted	15 October 2023

Screening

Record Identified & Screened	n = 921

Record Removed	n = 269

Included

Record Included for Bibliometric Analysis	n = 239

Figure 1. Flow Diagram of The Search Strategy

Source: Zakaria et al. (2020), Moher et al. (2009)

3.2.   Data Analysis

In this study, the research question formulation is using the PICO Framework (Population, intervention, comparison and outcome). PICO framework helps researchers to identify the important elements in the research question, namely population, intervention, comparison, and outcome. This helps optimize search results and ensure the

relevance of articles included in the review, helping to reduce bias in the review process, as a clear and focused research question can avoid the selection of articles that are irrelevant or incompatible with the research objectives (Pasko et al., 2021).

Identification and selection of suitable databases to collect publications related to Ambidexterity (Luo et al., 2022). The database used in this study is Scopus. Then make a list of keywords relevant to ambidex-terity, such as "exploration," "exploitation," and so on. These keywords will be used in the database search to identify relevant publications, then collect publications that match y, including journal articles, books, conferences, reports, and others (Zhang et al., 2016). Next, we sort the publications based on the inclusion and exclusion criteria set previously. This may include reviewing abstracts, titles, and keywords to ensure relevance to the research topic.

4.   Results

4.1.   Publication Trends

Publication trend analysis allows researchers to identify research topics that are gaining significant attention in a field. The analysis is conducted on the titles, keywords, or subjects of publications that appear within a certain time frame.

Table 1. Year of Publication

Year	TP	%	Cumm. %
2023	41	17.15%	17.15%
2022	53	22.18%	39.33%
2021	48	20.08%	59.41%
2020	49	20.50%	79.92%
2019	48	20.08%	100.00%

In table 1, we can see the publication trend based on the year of publication of the research, from the last five years the topic of ambidexterity has developed a lot along with the emergence of innovation in products, services and processes. The publication trend that discusses ambidexterity the most in 2019 issued 48 publications or 20.08% with a total citation of 70, then in 2020 (49) publications, 2021 (48) publications, 2022 (53) publications and 2023 (41) publications.

4.2.   Publications by Countries

The analysis involves collecting and analyzing publication data from authors affiliated with specific countries, enabling an evaluation of the productivity, quality and impact of research from each country. This information can be used to compare and map the research contributions of different countries, as well as gain an understanding of the level of scientific development in each country.

Table 2. Top 10 Countries Contributed to The Publications.

Country	TP	NCP	TC	C/P	C/CP	h	g
United States	265	340	7404	15.73	21.79	41	77
United Kingdom	127	90	367	1.83	4.08	9	14
Spain	125	87	1177	9.27	13.53	20	32
Brazil	64	55	1623	21.08	29.51	16	40
Portugal	52	39	246	3.84	6.31	7	13

Country	TP	NCP	TC	C/P	C/CP	h	g
Germany	48	36	209	3.60	5.81	7	12
Italy	46	33	520	10.20	15.76	11	22
France	39	29	353	7.06	12.17	10	18
Japan	34	34	386	8.04	11.35	8	19
Australia	33	25	201	4.28	8.04	7	13
Norway	27	20	61	1.65	3.05	4	6
Greece	26	12	113	3.53	9.42	3	10
South Korea	26	19	333	11.10	17.53	8	18
Austria	24	13	30	1.07	2.31	3	4
China	21	11	47	2.04	4.27	4	6

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

The regional distribution of publications in geographical areas can be done by looking at the author's affiliation or place of publication. In this analysis, geographical areas can be identified by country, region, or institution of the author or publisher. The data can be used to analyze the geographical distribution of publications on ambidexterity.

4.3. Publications by Source Titles

Publication by source titles helps in evaluating the quality of a particular journal or publication source based on the number of publications produced by researchers. By considering factors such as journal impact factor, citations, or academic reputation, this analysis helps in identifying journals or publication sources that have high quality and significant influence in a particular research field.

In table 3, the most influential source title related to ambidexterity is the International Journal of Productivity and Performance Management with a total publication of 115 with a total citation of 3518, although the International Journal of Operations and Production Management has a total publication of only 75 publications but received a total citation of 10248. then followed by Measuring Business Excellence with a total publication of 62 with a total citation of 1634, thus it can be concluded that the number of publications obtained is not followed by a large number of citations.

Table 3. Most Active Source Titles

Row Labels	TP	NCP	TC	C/P	C/CP	h-index	g-index	m-index
International Journal of Productivity and Performance Management	115	107	3518	30.59	32.88	35	55	0.0290
International Journal of Operations and Production Management	75	73	10248	136.64	140.38	43	75	0.0345
Measuring Business Excellence	62	57	1634	26.35	28.67	24	39	0.0281
International Journal of Business Performance Management	47	44	828	17.62	18.82	14	27	0.0171
Production Planning and Control	39	35	1473	37.77	42.09	23	38	0.0465

Row Labels	TP	NCP	TC	C/P	C/CP	h-index	g-index	m-index
International Journal of Production Research	39	38	2366	60.67	62.26	25	39	0.0491
Management Accounting Research	35	34	3566	101.89	104.88	27	35	0.0462
Public Money and Management	35	35	835	23.86	23.86	15	28	0.0209
International Journal of Production Economics	35	35	4544	129.83	129.83	27	35	0.0450
Total Quality Management and Business Excellence	24	22	411	17.13	18.68	14	20	0.0428

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

4.4. Citation Metrics

Citation metrics are used to measure the extent to which a scientific publication has influenced existing research and literature. By looking at the number of citations received by a publication, it can be seen how often the work is cited by other researchers, an objective comparison between different publications (Boyack & Klavans, 2010; Garfield, 1979). Figure 2 shows that the total papers published over a period of 5 years are 239 articles and there are 3807 citations, this shows that research related to ambidexterity is still little researched.
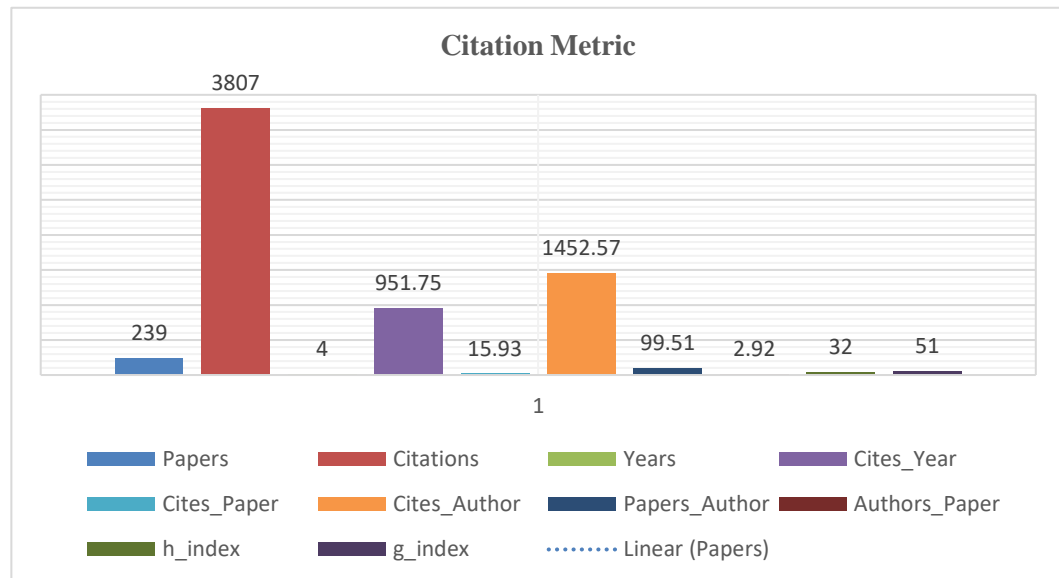

Figure 2. Diagram citation metric

4.5. Highly Cited Documents

Highly Cited Documents are used to identify research that has had a significant impact. Articles are widely cited by other researchers, indicating that the research makes an important and valuable contribution to the development of knowledge and understanding in the relevant field (Shiau et al., 2017). Table 4 shows the 10 most cited articles out of 239 articles published within 5 years. The most influential authors are J. Ferreira, A. Coelho, L. Moutinho (2020) with the title Dynamic capabilities, creativity and innovation capability and their impact on competitive advantage and firm performance: The moderating role of entrepreneurial orientation with 250 citations, followed by M. Gu, L.

Yang, B. Huo (2021) with the title The impact of information technology usage on supply chain resilience and performance: An ambidextrous view with 132 citations.

Table 4. Top 10 Highly Cited Articles

No.	Author(s)	Title	TC	C/Y
1	J. Ferreira, A. Coelho, L. Moutinho (2020)	Dynamic capabilities, creativity and innovation capability and their impact on competitive advantage and firm performance: The moderating role of entrepreneurial orientation	250	83.33
2	M. Gu, L. Yang, B. Huo (2021)	The impact of information technology usage on supply chain resilience and performance: An ambidextrous view	132	66
3	L. Ardito, A. Messeni Petruzzelli, L. Dezi, S. Castellano (2020)	The influence of inbound open innovation on ambidexterity performance: Does it pay to source knowledge from supply chain stakeholders?	113	37.67
4	G. Santoro, A. Thrassou, S. Bresciani, M.D. Giudice (2021)	Do Knowledge Management and Dynamic Capabilities Affect Ambidextrous Entrepreneurial Intensity and Firms' Performance?	102	51
5	N.C. Jackson (2019)	Managing for competency with innovation change in higher education: Examining the pitfalls and pivots of digital transformation	101	25.25
6	M. Del Giudice, V. Scuotto, A. Papa, S.Y. Tarba, S. Bresciani, M. Warkentin (2021)	A Self-Tuning Model for Smart Manufacturing SMEs: Effects on Digital Innovation	97	48.5
7	W. Coreynen, P. Matthyssens, J. Vanderstraeten, A. van Witteloostuijn (2020)	Unravelling the internal and external drivers of digital servitization: A dynamic capabilities and contingency perspective on firm strategy	88	29.33
8	L. Dezi, A. Ferraris, A. Papa, D. Vrontis (2021)	The Role of External Embeddedness and Knowledge Management as Antecedents of Ambidexterity and Performances in Italian SMEs	81	40.5
9	D.S. Bedford, J. Bisbe, B. Sweeney (2019)	Performance measurement systems as generators of cognitive conflict in ambidextrous firms	77	19.25
10	S. Lennerts, A. Schulze, T. Tomczak (2020)	The asymmetric effects of exploitation and exploration on radical and incremental innovation performance: An uneven affair	71	23.67

4.6. Top Keywords

Top keywords analysis is conducted to identify the most frequently used keywords in scientific publications. Through this analysis, research trends and popular topics can be identified, serving as a guide in searching for information in scientific databases or other sources. Table 5 shows that the most used keywords are Ambidexterity (173), Exploration (119), Exploitation (116), Innovation (39), Exploration and Exploitation (36), Organizational Ambidexterity (24), Natural Resources Exploration (16), Organizational Learning (15), Performance (15).

Table 5. Top author's keywords

Keywords	TP	%
Ambidexterity	173	72.38%
Exploration	119	49.79%
Exploitation	116	48.54%
Innovation	39	16.32%
Exploration And Exploitation	36	15.06%
Organizational Ambidexterity	24	10.04%
Natural Resources Exploration	16	6.69%
Organizational Learning	15	6.28%
Performance	15	6.28%
Dynamic Capabilities	12	5.02%
Competition	9	3.77%
Exploitation And Explorations	9	3.77%
Firm Performance	9	3.77%
Collaboration	8	3.35%
Knowledge Management	7	2.93%
Absorptive Capacity	6	2.51%
Conceptual Framework	6	2.51%

4.7. Co-occurrence Analysis

4.7.1. Co-occurrence analysis of author's keywords

Co-occurrence networks are used to describe the relationship between keywords or terms that frequently co-occur in scientific publications. Each keyword is considered a node in the network, and the presence of lines or connections between the nodes indicates that the keywords often co-occur in the same publi-cation. Figure 2 shows that there are 8 clusters with a total of 94 keyword items, a total link strength of 1905 with a network distribution of 878.

The clusters contained in this visualization are divided into 8, namely:

1.   Cluster 1 (red) consists of Organizational Ambidexterity items with a total network distribution of 31 with 24 occurrences consisting of exploration and exploitation, ambidexterity, organizational learning, knowledge management, performance, individual ambidexterity, envi- ronmental uncertainty.

2.   Cluster 2 (green) consists of dynamic capabilities items with a network distribution of 25 with an occurrence of 12 consisting of ambi-dexterity, entrepreneurship, performance, knowledge management, exploitation and exploitation, manufacturing.

3.   Cluster 3 (blue) consists of enterprice resource planning items with a network distribution of 20 with an occurrence of 4 consisting of individual ambidexterity, finance, micro foundation, leadership.

4.   Cluster 4 (yellow) consists of innovation management items with a network distribution of 13 with an occurrence of 4 consisting of management, literature, theoretical study, management.

5.   Cluster 5 (purple) consists of organizational learning with a network distribution of 26 with oc-currence 15 consisting of contex-tual ambidexterity, knowledge management, dynamic capabilities, competitive advantage.

6.   Cluster 6 (tosca) consists of radical innovation items with a network distribution of 7 with ac-curance 4 which consists of exploration and exploitation, ambidexterity, organizational level, organiza-tional learning.

7.   Cluster 7 (orange) consists of innovation ambidexterity items with a network distribution of 10 with an assurance of 5 consisting of entrepreneurial orientation, technological innovation, collaboration, ambidexterity.

8.   Cluster 8 (chocolate) is a cluster with the most distribution and the largest item, namely ambidex-terity, a network distribution of 90 with 173 accurance, this item is spread to all parts of clusters 1 to 7, meaning that the ambidexterity item has the greatest influence of all visualization items.
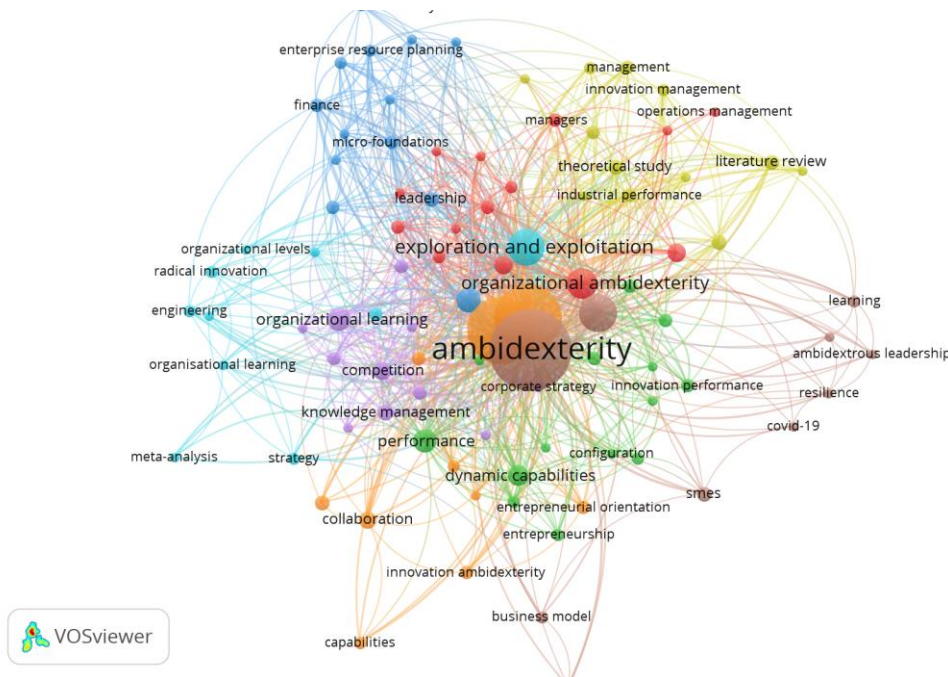
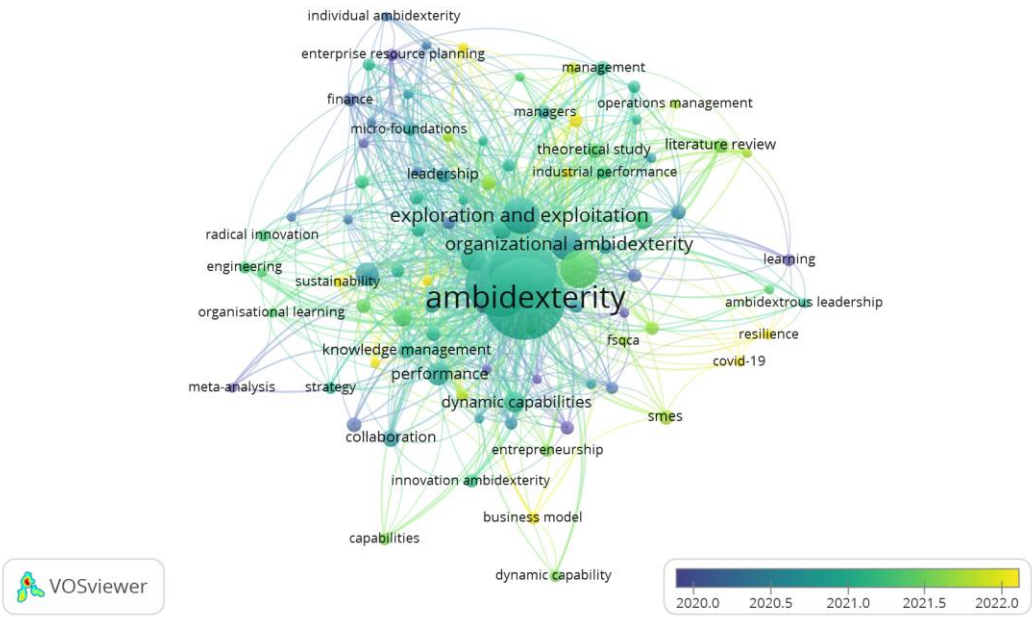Figure 2. Network Visualisation of The Author's Keywords

Figure 3. Overlay Visualisation of The Author's Keywords

4.8.   Citation Analysis
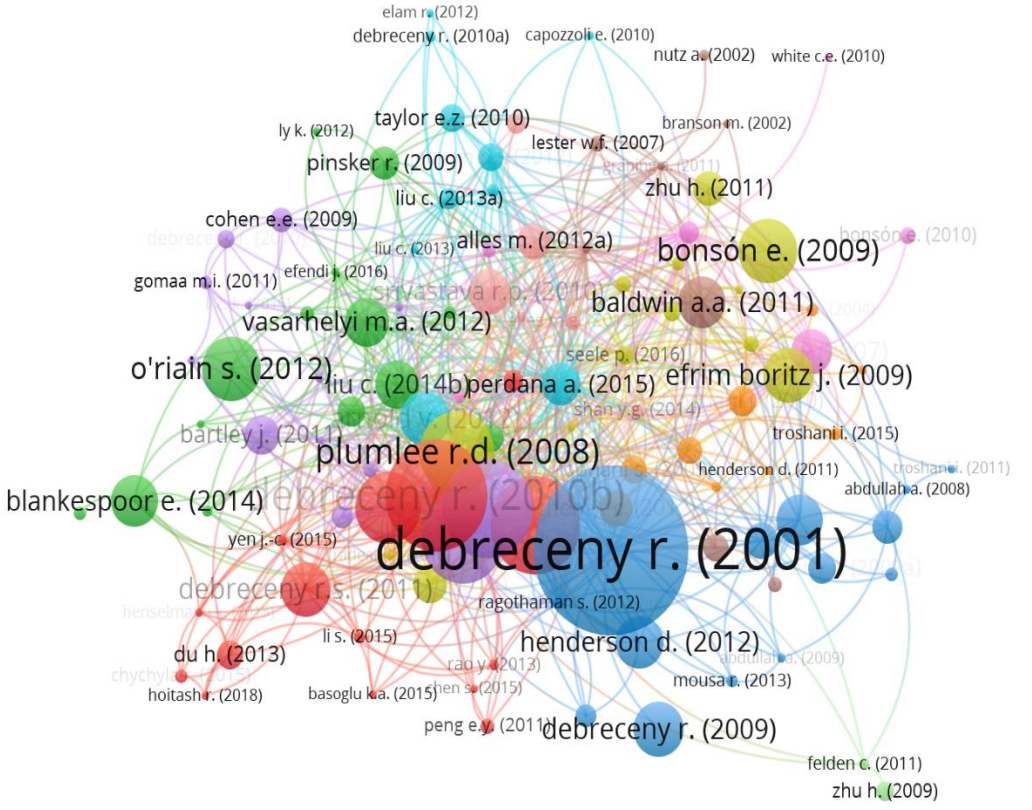
4.8.1.   Citation analysis by documents

Figure 4. Network Visualisation Map of The Citation by Documents

5. Discussion

The most publication trends regarding ambidexterity occurred in 2019, there were 48 articles or 20.08% with a total citation of 70. Then in 2020 (49) publications, 2021 (48) publications, 2022 (53) publications and 2023 (41) publications but from 2019-2023 the number of citations from published articles is not much, this is because there are not many research trends related to ambidexterity.

While the dominant main topics in ambidexterity research are Ambidexterity (173), Exploration (119), Exploitation (116), Innovation (39), Exploration And Exploitation (36), Organizational Ambidexterity (24), Natural Resources Exploration (16), Organizational Learning (15), Performance (15). This is reinforced by the number of cluster distributions of 8 items connected to keywords related to ambidexterity.

The role of publication contributions by certain countries in the development of ambidexterity research can be known from the distribution of publication areas in the geographical area of the author's affiliation or place of publication. Geographical areas can be identified by country, region, or institution of the author or publisher. The country with the largest total contribution is the United States as much as 265. Then the relationship between ambidexterity research and related topics such as exploration and exploitation is very much, this is evidenced by the distribution of 8 clusters where all keywords have ambidexterity and exploration and exploitation items.

The scientific contribution of ambidexterity is that it refers to the ability of organizations to simultaneously integrate and manage exploration (innovation) and exploitation (efficiency). In technology companies, ambidexterity can be seen in the development of innovative and revolutionary new products, while also maintaining existing efficiency and competitive advantage. Organizations with strong ambidexterity are able to identify new opportunities and develop new products quickly.

Future research is suggested to include the relationship of ambidexterity with exploration and exploitation can involve various fields, such as management, innovation, and psychology. Research can be conducted to understand how ambidexterity affects the ability of individuals or organizations to explore and exploit. Next is how ambidexterity influences decision-making. This study could involve experiments to see if ambidextrous individuals tend to be more flexible in choosing between exploration and exploitation options.

6. Conclusions

The limitation of this study is that there is no clear measurement of how to measure ambidexterity objectively and consistently, it is difficult to determine whether ambidexterity causes changes in explora-tion and exploitation, or vice versa. Research using experimental or longitudinal designs can help over-come these limitations.

References

Aytaç, E., & Khayet, M. (2023). A deep dive into membrane distillation literature with data analysis, bibliometric methods, and machine learning. Desalination, 553, 116482. https://doi.org/10.1016/J.DESAL.2023.116482

Bezabih, M., & Sarr, M. (2013). Risk Preferences and Environmental Uncertainty: Implications for Crop Diversification Decisions in Ethiopia Risk Preferences and Environmental Uncertainty: Im-plications for Crop Diversification Decisions in Ethiopia *.

Boyack, K. W., & Klavans, R. (2010). Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately? Journal of the American Society for Information Science and Technology, 61(12), 2389–2404. https://doi.org/10.1002/ASI.21419

Garfield, E. (1979). Is citation analysis a legitimate evaluation tool? Scientometrics, 1(4), 359–375. https://doi.org/10.1007/BF02019306

Junni, P., Chang, Y. Y., & Sarala, R. M. (2020). Ambidextrous orientation and performance in corpo-rate venture units: A multilevel analysis of CV units in emerging market multinationals. Long Range Planning, 53(6). https://doi.org/10.1016/j.lrp.2019.101930

Kafetzopoulos, P., Psomas, E., & Kafetzopoulos, D. (2023). An SLR of firm ambidexterity: organiz-ing a future research path forward. In Journal of Management Development. Emerald Publishing. https://doi.org/10.1108/JMD-05-2022-0104

Luo, W., Tian, Z., Zhong, S., Lyu, Q., & Deng, M. (2022). Global Evolution of Research on Sustaina-ble Finance from 2000 to 2021: A Bibliometric Analysis on WoS Database. In Sustainability (Switzerland) (Vol. 14, Issue 15). MDPI. https://doi.org/10.3390/su14159435

March, J. G. (1991). Exploration and Exploitation in Organizational Learning*. Organization Science, 2(1), 71–87.

Mielcarek, P. (2023). Strategic Coherence and Company Ambidexterity – a Necessity or a Delusion? Management and Production Engineering Review, 14(2), 61–69. https://doi.org/10.24425/mper.2023.146023

Mura, M., Micheli, P., & Longo, M. (2021). The effects of performance measurement system uses on organizational ambidexterity and firm performance. International Journal of Operations and Pro-duction Management, 41(13), 127–151. https://doi.org/10.1108/IJOPM-02-2021-0101

Pasko, O., Chen, F., Oriekhova, A., Brychko, A., & Shalyhina, I. (2021). Mapping the literature on sustainability reporting: A bibliometric analysis grounded in scopus and web of science core col-lection. European Journal of Sustainable Development, 10(1), 303–322. https://doi.org/10.14207/ejsd.2021.v10n1p303

Pietsch, M., Tulowitzki, P., & Cramer, C. (2023). Innovating teaching and instruction in turbulent times: The dynamics of principals' exploration and exploitation activities. Journal of Educational Change, 24(3), 549–581. https://doi.org/10.1007/s10833-022-09458-2

Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and mod-erators. In Journal of Management (Vol. 34, Issue 3, pp. 375–409). https://doi.org/10.1177/0149206308316058

Rons, N. (2018). Bibliometric approximation of a scientific specialty by combining key sources, title words, authors and references. Journal of Informetrics, 12(1), 113–132. https://doi.org/10.1016/J.JOI.2017.12.003

Roth, L., & Corsi, S. (2023). Ambidexterity in a geographic context: A systematic literature review on international exploration and exploitation of knowledge. Technovation, 124, 102744. https://doi.org/10.1016/J.TECHNOVATION.2023.102744

Shiau, W. L., Dwivedi, Y. K., & Yang, H. S. (2017). Co-citation and cluster analyses of extant litera-ture on social networks. International Journal of Information Management, 37(5), 390–399. https://doi.org/10.1016/j.ijinfomgt.2017.04.007

van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for biblio-metric mapping. Scientometrics, 84(2), 523–538. https://doi.org/10.1007/S11192-009-0146-3

Wenke, K., Zapkau, F. B., & Schwens, C. (2021). Too small to do it all? A meta-analysis on the rela-tive relationships of exploration, exploitation, and ambidexterity with SME performance. Journal of Business Research, 132, 653–665. https://doi.org/10.1016/J.JBUSRES.2020.10.018

Xin, B., Zhang, W., Zhang, W., Lou, C. X., & Shee, H. K. (2023). Strategic Entrepreneurship and Sus-tainable Supply Chain Innovation from the Perspective of Collaborative Advantage. Sustainability (Switzerland), 15(17). https://doi.org/10.3390/su151712879

Zhang, K., Wang, Q., Liang, Q. M., & Chen, H. (2016). A bibliometric analysis of research on carbon tax from 1989 to 2014. Renewable and Sustainable Energy Reviews, 58, 297–310. https://doi.org/10.1016/j.rser.2015.12.089