

Advancing the Study of Entrepreneurial Leadership and Innovative Behavior: Insights from a Bibliometric Review

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Abstract. Despite the growing recognition of the importance of entrepreneurial leadership and innovative behavior in today's dynamic business environment, there is a lack of comprehensive bibliometric research on the intellectual structure and evolution of this field. This study conducts a systematic bibliometric analysis of research on entrepreneurial leadership and innovative behavior published from 1987 to 2023, using the VOSviewer software. Based on a sample of 90 documents, the analysis reveals key trends and patterns in publication activity, research themes, influential authors and institutions, and keyword co-occurrence networks. The results show a significant growth in research on this topic in recent years, with the emergence of four main thematic clusters focusing on entrepreneurial orientation, intrinsic motivation, knowledge sharing, and competitive advantage. The bibliometric maps also highlight the central role of key scholars and institutions in shaping the intellectual landscape of the field. The findings provide a valuable foundation for future research on entrepreneurial leadership and innovative behavior, by identifying important gaps, trends, and directions for theoretical and empirical advancement. The study also offers practical implications for fostering innovation and leadership in organizations, and suggests avenues for cross-disciplinary collaboration and international comparative research.

Keywords: Entrepreneurial Leadership, Innovative Behavior, Bibliometric Analysis, Vosviewer

1. Introduction

In a rapidly changing business environment where technologies, consumer preferences, and market dynamics continually evolve, organisations try to adapt quickly to gain a competitive edge. Organizations need to innovate to stay relevant to their target audience, address emerging needs and trends, and navigate disruptions in the business landscape. Encouraging innovation can boost employee engagement to provide their valuable ideas to contribute to the organization's success (Anand et al., 2021). Also, organizations prioritising innovation are better positioned for long-term sustainability (Gupta, 2021). They can respond to changes in the business environment, ensuring their continued success over time.

Implementing innovative behavior within organizations is a commendable goal, but it comes with its fair share of challenges. Despite the recognized importance of fostering innovation, many obstacles must be overcome by successfully integrating innovative practices. One of the primary challenges is the resistance to change. Many employees, and sometimes even leadership (Gomes et al., 2015), may be comfortable with existing processes and methods. Introducing new ways of thinking and operating can be met with skepticism, fear of the unknown, and a reluctance to deviate from established norms. Therefore, overcoming this resistance requires effective communication, transparent reasoning behind the need for innovation, and a focus on the benefits to both individuals and the organization as a whole (Naveed et al., 2022; Sung & Kim, 2021).

Unclear leadership support is another challenge. Bock et al. (2015) interviewed 587 CEOs from global companies and found that leadership was unable to drive marginal revenue from innovation. For innovation to flourish, leaders must actively champion and support the initiative (Akbari et al., 2021). If leadership is not aligned with the organization's innovation goals or fails to provide the necessary resources and guidance, employees may perceive innovation as a low priority (Lee et al., 2021). Therefore, leaders must communicate a compelling vision for innovation, set clear expectations, and actively participate in and support innovative projects.

Bagheri et al. (2022), Li et al. (2020), Newman et al. (2018) highlighted that entrepreneurial leadership is a catalyst for promoting innovative behavior within organizations. Entrepreneurial leaders are known for their ability to envision the future. They go beyond the status quo, identifying opportunities and imagining possibilities to motivate employees to think creatively and contribute to the organization's innovative journey. Also, entrepreneurial leaders are comfortable with uncertainty (Alsharif et al., 2021; Bilal et al., 2021), fostering a strong culture where employees feel empowered to take risks without fear of severe consequences for failure. This risk-tolerant environment is crucial for encouraging experimentation and learning from setbacks to allow employees to explore new ideas, make decisions, and bring their innovative concepts to fruition.

The link between entrepreneurial leadership and innovative behavior is a fascinating and evolving area of study, but it needs more comprehensive bibliometric research on this specific intersection. Previous studies have only partially focused on the bibliometric analysis of entrepreneurial leadership (Aparisi Torrijo & Ribes Giner, 2022; Dyatmika et al., 2023; Mendo et al., 2023; Röschke, 2018) and innovative behavior (Hassan et al., 2021; Krndžija & Pilav-Velic, 2022; Peerzadah et al., 2024; Salam & Senin, 2022). Thus, understanding how entrepreneurial leadership influences innovative behavior within organizations is crucial for adapting to rapidly changing business environments and staying competitive. Therefore, the following research questions (RQs) in this study are addressed:

RQ1. What are the publication trends of entrepreneurial leadership and innovative behavior research?

RQ2. Which are the most prolific journals for entrepreneurial leadership and innovative behavior research?

RQ3. Which are the most prolific contributors (author, affiliation, country) of entrepreneurial leadership and innovative behavior research?

RQ4. What are the major themes of entrepreneurial leadership and innovative behavior research, and how have they evolved over time?

2. Literature Review

2.1. Innovative Behavior

Innovation is a driving force behind organizational growth and success (Eid & Agag, 2020; Rodríguez-Victoria et al., 2017). Organizations that foster a culture of innovation stay competitive and position themselves as industry leaders. Therefore, understanding and promoting innovative behavior within organizations become essential for sustained success (AlEssa & Durugbo, 2022; Udin et al., 2022).

Innovative behavior encompasses thinking creatively and proactively seeking solutions to challenges. Innovative behavior involves a combination of creativity, adaptability, risk-taking, collaboration, and a mindset that seeks continuous improvement (Chatchawan et al., 2017; De Jong & Den Hartog, 2010). At its core, innovative behavior involves a mindset that encourages exploration, experimentation, and the pursuit of novel ideas. Innovative behavior further goes beyond mere creativity (Scott & Bruce, 1994) and extends to the application of creative thinking to solve real-world problems. Individuals exhibiting innovative behavior are often characterized by their openness to change, willingness to take calculated risks, and ability to learn from both successes and failures (Nazir et al., 2021).

Innovative behavior can manifest in various contexts (Kör et al., 2021), from product development and process improvement to the establishment of novel business models and strategies. Innovative behavior allows companies to differentiate themselves by introducing new products, services, or processes that meet the evolving needs of customers (Tidd et al., 2020). Organizations prioritising innovation gain a competitive edge, attracting and retaining customers in a crowded market (Suwanti & Udin, 2020; Udin et al., 2022). Moreover, organizations fostering a culture of innovation are better equipped to navigate uncertainties and rapid changes in the business environment.

Innovative behavior is influenced by a myriad of factors that shape the individual and organizational capacity to generate and implement novel ideas. Understanding and leveraging these factors can help organizations create an environment that nurtures a culture of innovation. According to Hussain et al. (2023), Rumijati and Hakim (2023), one of the key factors influencing innovative behavior is entrepreneurial leadership. Entrepreneurial leaders empower their employees by providing creative freedom. When employees are given the space to explore their ideas independently, it sparks creativity and a sense of ownership over the innovation process.

2.2. Entrepreneurial Leadership

Entrepreneurial leadership is a multifaceted approach to leadership that emphasizes innovation, risk-taking, vision, and proactive decision-making (Bagheri et al., 2013; Harrison et al., 2018). Entrepreneurial leadership involves employees who possess a unique blend of entrepreneurial spirit and leadership skills, enabling them to capitalize on opportunities and drive organizational growth and success.

One of the fundamental characteristics of entrepreneurial leadership is innovation (Bagheri et al., 2013; Harrison et al., 2018). Entrepreneurial leaders foster a culture of innovation within their organizations, encouraging employees to think outside the box and experiment with new ideas. By fostering a culture of innovation, entrepreneurial leaders can propel their organizations forward (Flamholtz, 2011) and maintain a competitive edge in today's rapidly evolving business landscape.

Another key aspect of entrepreneurial leadership is risk-taking (Bagheri et al., 2013; Harrison et al., 2018). Entrepreneurial leaders are willing to take bold risks in pursuit of their vision, whether it involves launching a new product or entering a new market. Entrepreneurial leaders also possess the ability to assess

risks effectively (Guo, 2009; Malibari & Bajaba, 2022), balancing potential rewards against potential pitfalls and making informed decisions to mitigate risks whenever possible. Additionally, vision is another critical component of entrepreneurial leadership (Gupta et al., 2004). Entrepreneurial leaders have a compelling vision for the future of their organizations, guiding their strategic direction and aligning the efforts of their teams toward common goals.

In addition to innovation, risk-taking, and vision, entrepreneurial leadership also involves proactive decision-making. Entrepreneurial leaders are proactive rather than reactive, constantly scanning the environment for opportunities and threats and making strategic decisions to position their organizations for success. They are not afraid to challenge the status quo or disrupt traditional ways of thinking, recognizing that innovation and growth often require bold action. In conclusion, by fostering a culture of innovation, embracing risk-taking, articulating a compelling vision, and making proactive decisions, entrepreneurial leaders can unlock new opportunities, drive sustainable growth, and create lasting value for their organizations (Freeman, 2014; Malibari & Bajaba, 2022).

2.3. Entrepreneurial Leadership and Innovative Behavior

Entrepreneurial leadership is a dynamic approach to leading organizations, characterized by a combination of entrepreneurial mindset (Dwi Widayani et al., 2020), strategic vision, and hands-on execution. This style of leadership is not limited to startup founders; rather, it encompasses a set of behaviors that can be exhibited by leaders within established organizations (Miao et al., 2019). Entrepreneurial leaders cultivate a culture of agility, drive innovation, and navigate uncertainty with a focus on growth and opportunity (Al Mamun et al., 2018; Harrison et al., 2016).

Entrepreneurial leaders have the ability to see beyond the present circumstances and envision a future that others might not yet recognize (Gupta et al., 2004). They set audacious goals and inspire their employees to pursue ambitious objectives, fostering a sense of direction within the organization. Entrepreneurial leaders often adopt a hands-on approach. They are actively involved in the day-to-day operations of the organization (David Pillai, 2022; Jansons, 2015), leading by example and demonstrating a commitment to the work. Also, entrepreneurial leaders are inherently proactive and comfortable with taking calculated risks (Harrison et al., 2018). They view challenges as opportunities for growth and exploring new markets, and driving organizational change. Entrepreneurial leadership recognize that innovation is not limited to product development (Hussain & Li, 2022) but extends to processes, business models, and organizational practices.

Entrepreneurial leaders strategically allocate resources to initiatives that align with the organization's long-term goals (Newman et al., 2018). Whether it is investing in research and development, entrepreneurial leaders ensure that resources are directed toward areas that contribute to innovation, growth, and competitive advantage (Leitch & Volery, 2017). Adequate resource allocation further is essential for translating innovative ideas into actionable outcomes. Moreover, entrepreneurial leaders foster a continuous learning orientation within the organization (Sawaeen & Ali, 2020). By promoting a learning culture, entrepreneurial leaders ensure that employees are equipped with the knowledge and skills necessary for innovative behavior. Entrepreneurial leaders also empower their employees with creative freedom (Cai et al., 2019). By providing autonomy and encouraging individual creativity, entrepreneurial leaders foster an environment where employees feel inspired to generate and pursue innovative ideas.

3. Research Methodology

This study employs a bibliometric analysis for examining and evaluating scholarly publications such as articles, books, conference papers, or other types of documents relevant to the study. Bibliometric analysis

usually involves the creation of citation networks to visualize the relationships between different publications. This mapping helps identify key works (Rajan et al., 2020), hot topics, influential authors (Parameswar et al., 2021), and the flow of ideas within a scholarly community. Also, bibliometric study allows for benchmarking and comparative analysis across different researchers, institutions, or countries. This comparative approach provides insights into the global distribution of research output and impact.

VOSviewer as a popular software tool used for bibliometric analysis is used in this study. VOSviewer allows researchers and academia to visualize co-authorship networks (Udin, 2023) within their field of study. Also, VOSviewer allows researchers to explore citation patterns, identifying influential publications and authors to gain insights into the impact of their work in a specific research area (Bukar et al., 2023; van Eck & Waltman, 2010).

Using VOSviewer to analyze documents from 1987 to 2023, 90 valuable documents are found. From a dataset comprising 90 scholarly documents, 70 publications are published in journal, conference proceeding (10 publications), book (5 publications), and book series (5 publications). Furthermore, related to the document types, 73 (81.1%) of the publications are article, conference paper (9; 10%), book chapter (6; 6.7%), and review paper (2; 2.2% of the publications). By incorporating open access sources into the analysis using VOSviewer, 21 (23.3%) of the publications are categorized as open access, gold (13; 14.4%), green (12; 13.3%), bronze (2; 2.2%), and hybrid gold (2; 2.2% of the publications), respectively.

4. Results and Discussion

Using VOSviewer to analyze bibliographic data related to entrepreneurial leadership and innovative behavior, the results include visual representations of relationships between authors, keywords, or publications in the field.

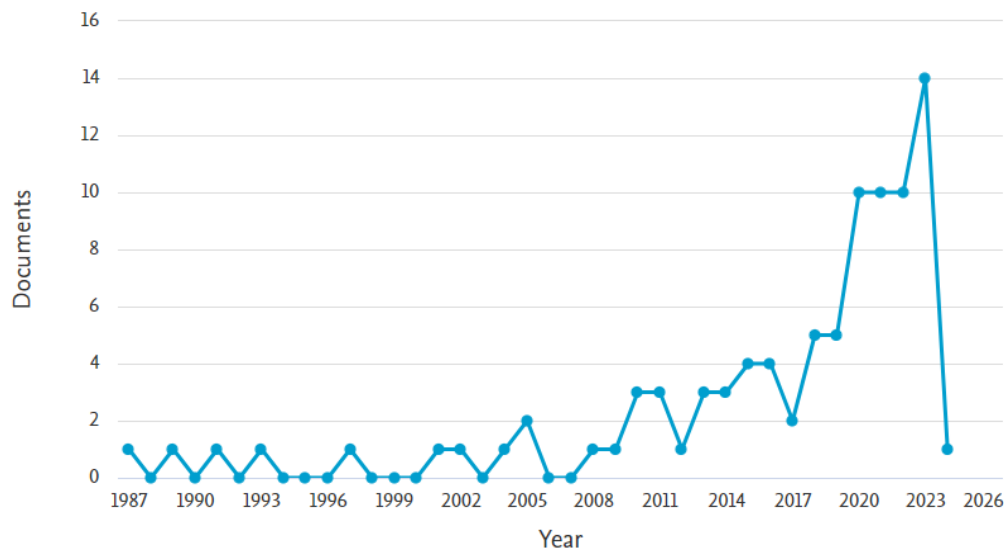


Fig. 1: Yearly publishing trends

Fig. 1 noted that the focus on entrepreneurial leadership and innovative behavior in publications started in 1987. During this time, 1 (1.1%) document was written by Brown and McCool (1987) identifying a set of leadership attributes (i.e., visionary, energy giving, hard-working, healthy, intuitive, creative and innovative) among successful leaders to conceptualize and implement innovative strategies to stay ahead in the market. However, there is an increasing number of publications from 1987 to 2023, indicating a growing interest in the intersection of entrepreneurial leadership and innovative behavior. The highest

number of publications occurred in 2023 with 14 (15.6%) documents. During that period, researchers and practitioners may have recognized the importance of this topic to gain a comprehensive understanding. In 2020, 2021 and 2022, the researchers provided consistent number of publications (10; 11.1% documents) each year, suggesting a stable level of research activity in the field across these three years.

Table 1. Top 7 productive author

Author's name	Affiliation	Count (%)	Total citation	H-index
Newman, A.	Deakin Business School – Melbourne, Australia	4 (4.4)	8,205	52
Luu, T.T.	Swinburne University of Technology – Hawthorn, Australia	2 (2.2)	3,036	31
Miao, Q.	School of Public Affairs, Zhejiang University – Hangzhou, China	2 (2.2)	2,418	25
Tse, H.H.M.	Monash University – Clayton, Australia	2 (2.2)	2,168	23
Schwarz, G.	Queen Mary University of London – London, United Kingdom	2 (2.2)	1,520	13
Zhang, J.	University of Science and Technology Beijing – Beijing, China	2 (2.2)	916	15
Bryant, D.A.	The Education University of Hong Kong – Hong Kong, China	2 (2.2)	512	12

Table 1 showed the prominent scholars in the broader fields of entrepreneurial leadership and innovative behavior. Newman, A. from Deakin Business School – Melbourne, Australia become an influential researcher in entrepreneurial leadership. He has published 4 (4.4) documents with 52 of H-index and 8,205 of total citations, focusing on entrepreneurial leadership as a crucial factor to exhibit creative self-efficacy and innovative behavior in the workplace. Then, it is followed by Luu, T.T. from Swinburne University of Technology – Hawthorn, Australia, Miao, Q. from School of Public Affairs, Zhejiang University – Hangzhou, China, Tse, H.H.M. from Monash University – Clayton, Australia, Schwarz, G. from Queen Mary University of London – London, United Kingdom, Zhang, J. from University of Science and Technology Beijing – Beijing, China, and Bryant, D.A. from The Education University of Hong Kong – Hong Kong, China with 3,036, 2,418, 2,168, 1,520, 916, and 512 of total citations, respectively. Miao, Newman, Schwarz, and Cooper (2018) underscored the importance of entrepreneurial leadership to serve the public by fostering and promoting innovative behavior within public service organizations.

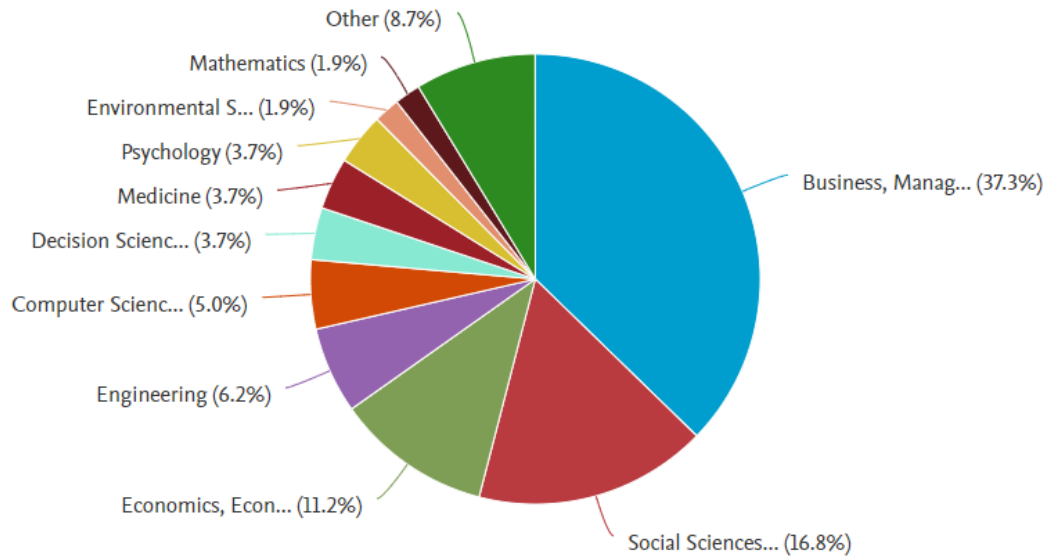


Fig. 2: Trends of publication in the field

Fig. 2 showed that general topics and publications of entrepreneurial leadership and innovative behavior during the period 1987–2023, surprisingly, are dominated by the field Business, Management and Accounting (37.3%). This indicates that the intersection of entrepreneurial leadership and innovative behavior in a global business environment affects businesses performance. Then, it is followed by Social Sciences (16.8%), Economics, Econometrics and Finance (11.2%), Engineering (6.2%), Computer Science (5%), Decision Sciences (3.7%), Medicine (3.7%), Psychology (3.7%), Environmental Science (1.9%), Mathematics (1.9%), and other (8.7%).

Table 2. Top 7 journals

Journal name	Count (%)	Cite score (2022)	SJR (2022)	SNIP (2022)	Total citation
Journal of Business Research	2 (2.2)	16.0	2.895	3.238	51,538
Journal of Management Studies	2 (2.2)	12.1	4.492	3.286	3,149
Problems and Perspectives in Management	2 (2.2)	2.4	0.271	0.586	1,648
International Journal of Entrepreneurship and Small Business	2 (2.2)	1.7	0.331	0.422	509
Management Decision	1 (1.1)	10.3	1.345	1.784	6,379
Psychology Research and Behavior Management	1 (1.1)	4.7	0.920	1.346	3,274
Leadership and Policy in Schools	1 (1.1)	2.4	0.598	0.886	407

Table 2 indicated that the most commonly published sources are *Journal of Business Research* from Elsevier with 2.895 of scientific journal ranking (SJR) and 51,538 of total citations (2; 2.2% articles), *Journal of Business Research* from Elsevier (2; 2.2% articles), *Journal of Management Studies* from Wiley-Blackwell (2; 2.2% articles), *Problems and Perspectives in Management* from Business Perspectives (2; 2.2% articles), and *International Journal of Entrepreneurship and Small Business* from Inderscience Publisher (2; 2.2% articles) with 0.331 of SJR and 509 of total citations, respectively. Additionally, another top 7 journals with more publications are *Management Decision* from Emerald Publishing (1; 1.1% article) with 1.345 of SJR and 6,379 of total citations, *Psychology Research and Behavior Management* from Dove Medical Press (1; 1.1% article) with 0.920 of SJR and 3,274 of total citations, and *Leadership and Policy in Schools* from Taylor & Francis (1; 1.1% article) with 0.598 of SJR, 2.4 of cite score and 407 of total

citations. The findings indicate these 7 journals have garnered increased attention within the platform fields.

Table 3. Top 7 major research institution

Institution	Country	Number of publication	Total publication
Monash University	Australia	4	181,152
Deakin University	Australia	4	61,371
Swinburne University of Technology	Australia	3	31,707
Zhejiang University	China	2	266,614
Universitat de València	Spain	2	84,220
University of Science and Technology Beijing	China	2	84,058
Erasmus Universiteit Rotterdam	Netherlands	2	44,658

Table 3 showed the significant contributions of several universities in the broader fields of entrepreneurial leadership and innovative behavior, such as Monash University – Australia (4 articles) with a total of 181,152 documents, Deakin University – Australia (4 articles) with a total of 61,371 documents, Swinburne University of Technology – Australia (3 articles) with a total of 31,707 documents, Zhejiang University – China (2 articles) with a total of 266,614 documents, Universitat de València – Spain (2 articles) with a total of 84,220 documents, University of Science and Technology Beijing – China (2 articles) with a total of 84,058 documents, and Erasmus Universiteit Rotterdam – Netherlands (2 articles) with a total of 44,658 documents. Thus, Monash University dominated the publications in the field of entrepreneurial leadership and innovative behavior.

Table 4. Top 7 major countries

Country	Number of publication	Total publication	Total citations	H-index
United States	18	15,188,630	467,519,124	2,880
United Kingdom	10	4,502,915	127,998,813	1,815
China	9	9,239,029	118,957,559	1,210
Australia	8	1,877,629	50,051,440	1,276
Indonesia	7	311,467	1,756,261	288
Pakistan	7	285,547	3,631,355	381
India	5	2,636,181	31,553,699	795

Table 4 shows the most productive countries in terms of register studies i.e., entrepreneurial leadership and innovative behavior during the years under examination. The United States generated 18 articles with a total of 15,188,630 documents and H-index of 1,815, followed by United Kingdom (10 articles) with a total of 4,502,915 documents and H-index of 2,880, China (9 articles) with a total of 9,239,029 documents and H-index of 1,210, Australia (8 articles) with a total of 1,877,629 documents and H-index of 1,276, Indonesia (7 articles) with a total of 311,467 documents and H-index of 288, Pakistan (7 articles) with a total of 285,547 documents and H-index of 381, and India (5 articles) with a total of 2,636,181 documents and H-index of 795. Therefore, the top 7 major countries collectively accounted for over 70% of the publications in register studies.

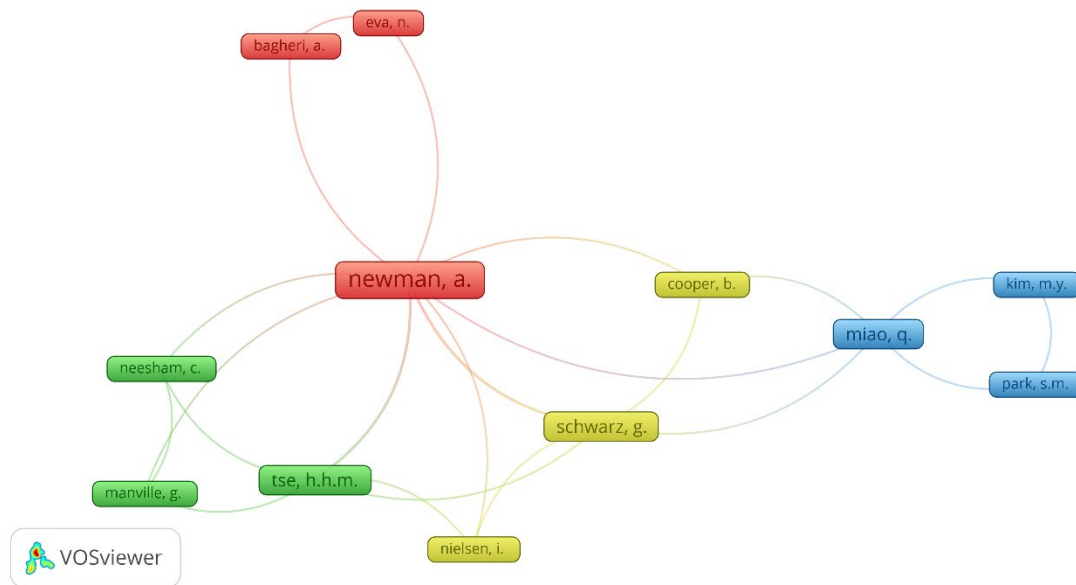


Fig. 3: VOSviewer visualization of co-authorship

Fig. 3 performs the co-authorship network in register studies. In this study, specifically, the highest link of co-authorship is between Bagheri, A., Eva, N., and Newman, A. in cluster 1 (red nodes), indicating that they significantly contributed to the co-authorship network. However, Manville, G., Neesham, C., and Tse, H.H.M. are in cluster 2 (green nodes). Kim, M.Y., Miao, Q., and Park, S.M. are in cluster 3 (blue nodes). Then, Cooper, B., Nielsen, I., and Schwarz, G. are in cluster 4 (yellow nodes). These authors relationship are grouped together within a cluster since they have controlled a significant amount of research resources.

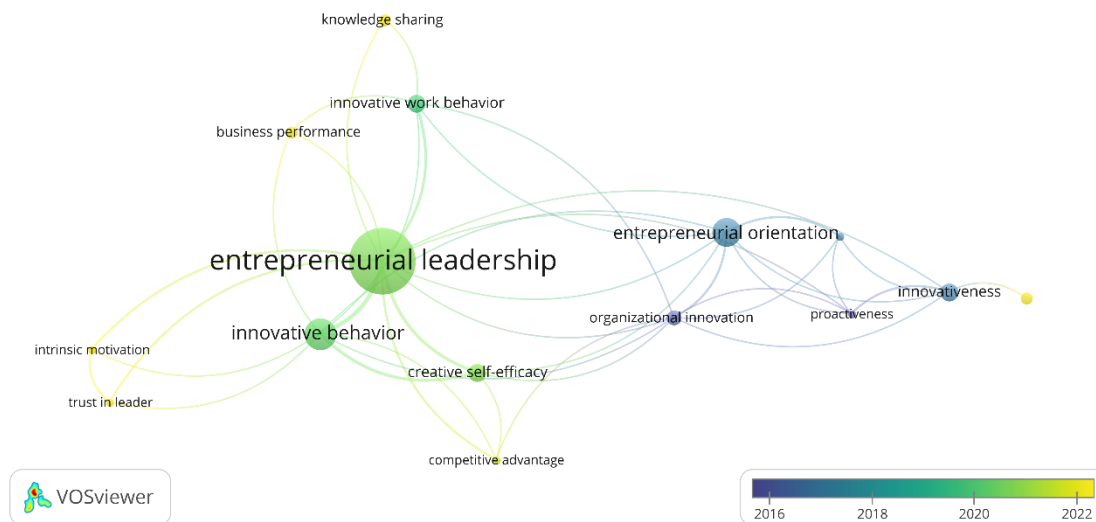


Fig. 4: VOSviewer visualization of research trends

Fig. 4 highlights some general trends of entrepreneurial leadership and innovative behavior in the years leading up to 2016 including entrepreneurial orientation, organizational innovation, pro-activeness, and innovativeness. Entrepreneurial leaders which focused on disruptive innovation, seeking to encouraging employees to think creatively, take risks, and drive innovation within organization. Moreover, between 2018 and 2020, entrepreneurial leaders increasingly leverage creative self-efficacy among employees to

enhance innovative work behavior. However, the trends post-2022 cover intrinsic motivation, trust in leader, knowledge sharing, business performance, and competitive advantage. Entrepreneurial leaders create a positive culture that encourages innovation, leading to a continuous flow of new ideas, products, or services to meeting customer needs better than their competitors (Yuniawan et al., 2017).

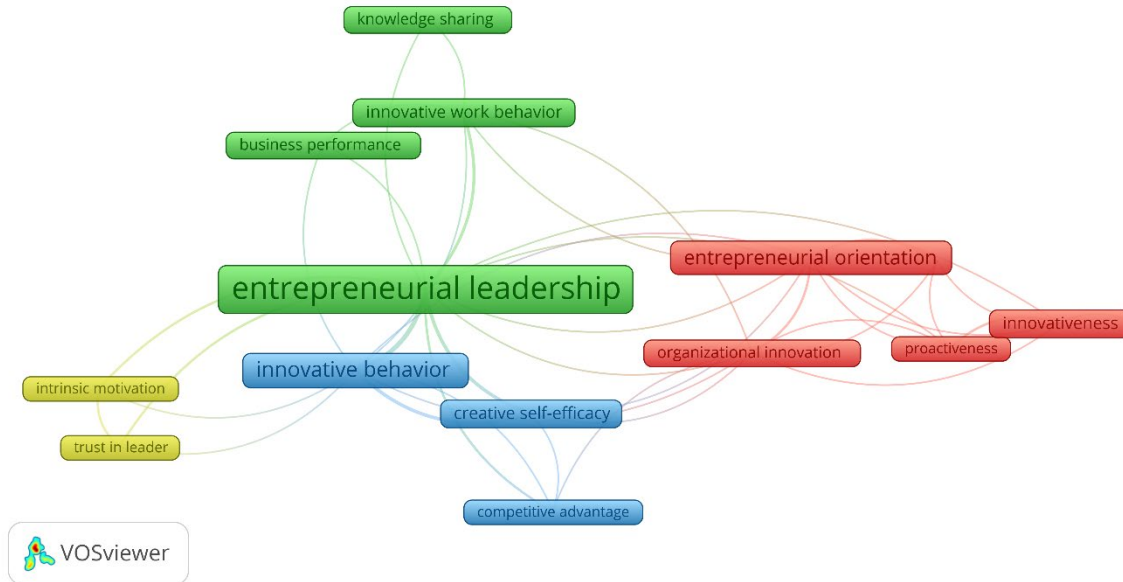


Fig. 5: VOSviewer visualization of keyword co-occurrence

Fig. 5 shows 4 clusters (i.e., green, blue, red, and yellow) of keywords co-occurrence within the field, indicating top four keywords (i.e., entrepreneurial leadership, innovative behavior, entrepreneurial orientation, and intrinsic motivation) based on their high-frequency in a particular field. The cluster 1 (green) contains 4 items centered on entrepreneurial leadership, business performance, innovative work behavior, and knowledge sharing. The cluster 2 (blue) includes 3 items that dealt with innovative behavior, creative self-efficacy, and competitive advantage. Moreover, 4 items such as entrepreneurial orientation, organizational innovation, pro-activeness, and innovativeness are appearing in cluster 3 (red). Then, cluster 4 has only 2 items including intrinsic motivation and trust in leader.

4.1. Entrepreneurial Leadership, Entrepreneurial Orientation and Innovative Behavior

Entrepreneurial leadership plays a crucial role (Akbari et al., 2021) in shaping the entrepreneurial orientation (Gadi Djou et al., 2020) and innovative behavior within organizations (Bagheri & Akbari, 2018; Iqbal et al., 2022). Entrepreneurial leaders set the tone for a positive culture that encourages creativity and inspires employees to adopt a more entrepreneurial mindset. This encourages employees to be more comfortable with taking calculated risks to engage in activities that lead to the creation and implementation of new ideas, products, or processes. Entrepreneurial leaders often serve as role models for employees, encouraging them to think creatively (Cai et al., 2019) and explore new possibilities to promote a high degree of innovative behavior in the workplace.

4.2. Entrepreneurial Leadership, Intrinsic Motivation and Innovative Behavior

Entrepreneurial leaders often empower employees by providing autonomy and decision-making authority. This autonomy fosters a sense of ownership, contributing to intrinsic motivation as individuals feel more (Hoang et al., 2022) in charge of their work. Entrepreneurial leaders often prioritize skill development and

growth opportunities, encouraging mastery in employees' respective roles. By providing mentorship and constructive feedback, they create a conducive work environment to continuous learning, which inherently drives intrinsic motivation. Also, entrepreneurial leaders are skilled at aligning the organization's mission with the individual contributions. This alignment creates a sense of purpose, making the work more meaningful (Bagheri et al., 2022; Gupta et al., 2004), which, in turn, enhances intrinsic motivation to explore innovative solutions within an organization.

4.3. Entrepreneurial Leadership, Knowledge Sharing and Innovative Behavior

Entrepreneurial leaders foster a culture of open communication where employees feel comfortable sharing their ideas, experiences, and knowledge (Islam et al., 2024) without the fear of failure. This open dialogue creates a collaborative environment that facilitates knowledge exchange within organization (Alshwayat et al., 2021). By valuing diverse perspectives where employees freely exchange their ideas, experiences, and expertise, entrepreneurial leaders promote a culture of continuous learning to facilitate innovation. Moreover, entrepreneurial leaders recognize and reward employees for their contributions to knowledge sharing. By acknowledging these efforts, entrepreneurial leaders reinforce the importance of sharing information for the overall success of the organization (Islam & Asad, 2024).

4.4. Entrepreneurial leadership, innovative behavior and competitive advantage

Entrepreneurial leadership also has a substantial impact on fostering innovative behavior (Islam & Asad, 2024) within an organization, and in turn, contributes to gaining a competitive advantage. Entrepreneurial leaders emphasize the importance of creativity (Mehmood et al., 2021) in decision-making and problem-solving. By encouraging creative thinking, they inspire employees to come up with innovative solutions to ultimately driving the organization's success. Additionally, entrepreneurial leaders are typically more tolerant of risk (Harrison et al., 2018). They create an environment where employees feel empowered to experiment with new ideas for driving innovation (Mehmood et al., 2021; Miao et al., 2018) and potentially discovering novel competitive advantages. Entrepreneurial leaders encourage a soft-mindset that sees change as an opportunity rather than a threat. This championing change is vital in responding to evolving market conditions and customer preferences, providing a competitive advantage in dynamic organizations.

5. Conclusion

This bibliometric analysis of research on entrepreneurial leadership and innovative behavior published from 1987 to 2023 provides a comprehensive and systematic mapping of the intellectual structure and evolution of this important and growing field. Using the VOSviewer software and a range of bibliometric techniques, the study reveals key trends and patterns in publication activity, research themes, influential authors and institutions, and keyword co-occurrence networks.

The results show a significant growth in research on entrepreneurial leadership and innovative behavior in recent years, reflecting the increasing recognition of the importance of these topics in today's dynamic and competitive business environment. The analysis identifies four main thematic clusters focusing on entrepreneurial orientation, intrinsic motivation, knowledge sharing, and competitive advantage, highlighting the multi-faceted and interdisciplinary nature of this field. The bibliometric maps also reveal the central role of key scholars and institutions in shaping the intellectual landscape and research fronts of the field, and the emergence of new topics and collaborations over time.

The findings of this study have important implications for advancing research on entrepreneurial leadership and innovative behavior, by providing a comprehensive and evidence-based foundation for future theoretical and empirical work. The bibliometric analysis identifies important gaps, trends, and directions for research, such as the need for more integrative and cross-disciplinary frameworks linking

leadership and innovation, the importance of examining the contextual and cultural factors influencing these processes, and the potential for developing new methodological approaches and data sources to capture the dynamic and multi-level nature of these phenomena.

The study also offers valuable insights and recommendations for practitioners and policymakers seeking to foster entrepreneurial leadership and innovative behavior in organizations. The bibliometric results highlight the key drivers, enablers, and challenges of innovation in different contexts, and suggest potential strategies and interventions for promoting creativity, risk-taking, knowledge sharing, and performance in entrepreneurial settings. The findings also point to the importance of developing leadership competencies and practices that support and facilitate innovation, such as vision, empowerment, and feedback, and the need for creating organizational cultures and structures that encourage experimentation, learning, and collaboration.

In conclusion, this bibliometric analysis makes a significant contribution to the study of entrepreneurial leadership and innovative behavior, by providing a comprehensive and systematic review of the intellectual structure and evolution of this field. The findings and implications of this study offer a valuable foundation and roadmap for future research and practice, and invite scholars and practitioners to engage in more integrative, interdisciplinary, and impactful work on these important topics. By advancing our understanding of the complex and dynamic processes of leadership and innovation in entrepreneurial contexts, this study helps to bridge the gap between theory and practice, and to inform the development of more effective and sustainable strategies for driving organizational performance and success in today's rapidly changing business landscape.

Visualizing entrepreneurial leadership and innovative behavior through VOSviewer provides a comprehensive understanding of their constraints within organizational contexts. While this approach is generally praised for its dynamic and forward-thinking nature, it is not without limitations. One evident limitation is the potential for excessive risk-taking. Entrepreneurial leaders, driven by a desire for innovation, may overlook potential risks associated with their ventures. VOSviewer analysis may reveal clusters of research highlighting instances where overly ambitious pursuits led to organizational setbacks. Moreover, research clusters may emerge around the challenges of integrating these concepts into traditional, hierarchical organizational structures or in cultures resistant to change. However, VOSviewer may not offer a visual representation of the interconnectedness of these challenges, highlighting the complexity of implementing entrepreneurial leadership and fostering innovative behavior in diverse settings. Thus, using CiteSpace in future research may be a preferable choice for understanding how research fields evolve, identifying emerging trends, or mapping the development of specific topics. Also, using a combination of scientific data sources (i.e., Web of Science, PubMed, Google Scholar, Dimensions, JSTOR, and IEEE Xplore) is recommended to conduct comprehensive bibliometric analyses.

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