

# Decoding Green Leadership: A Comprehensive Review of Global Research Trends

Monica Callorin<sup>1\*</sup>, Djatmiko Noviantoro<sup>2</sup>, Frecilia Nanda Melvani<sup>3</sup>, Ilyas Rozi Atmadja<sup>4</sup>

*monicacallorin@gmail.com<sup>1\*</sup>, djatmiko.univtridinanti@gmail.com<sup>2</sup>, freciliananda@univ-tridinanti.ac.id<sup>3</sup>, ilyas.aisyah02@gmail.com<sup>4</sup>*

## Abstract

The growing urgency to address global environmental challenges has catalyzed an increasing focus on green leadership, a leadership approach that integrates sustainability principles into organizational decision-making. This study conducts a comprehensive bibliometric analysis of green leadership research from 1947 to 2024, aiming to map its evolution, key themes, and influential contributions. Analyzing 494 publications, the study identifies a consistent annual growth rate of 4.55%, with a significant surge in research output from 2020 to 2024. China emerged as the most prolific contributor, with other significant contributions from countries such as Australia, the USA, and emerging economies. The analysis highlights key journals, including the *International Journal of Environmental Research and Public Health* and *Frontiers in Psychology*, which have been central to the dissemination of green leadership research. Highly cited publications by authors such as Singh SK and Chen Y have provided foundational frameworks that continue to influence the field. The study also explores the most prominent topics within the literature, such as commerce, sustainable development, and environmental policy, reflecting the practical and strategic importance of green leadership across various sectors. The use of surveys and questionnaires as a common methodological approach emphasizes the empirical nature of the research, focusing on leadership behaviors and their impact on sustainability outcomes. The findings from this analysis provide a comprehensive overview of the development and current state of green leadership research, offering insights into the global distribution of knowledge production and the interdisciplinary nature of the field. The study concludes by identifying emerging trends and areas for future research, highlighting the critical role of green leadership in addressing environmental challenges and advancing sustainable development. These insights are valuable for both academics and practitioners, guiding future research and the application of green leadership principles in organizations worldwide.

**Purpose:** This study aims to provide a comprehensive overview of global research trends in green leadership, focusing on its evolution, key themes, and influential contributions from 1947 to 2024 to map out the development of green leadership research and identify emerging trends and areas for future exploration.

**Methodology/approach:** The research utilizes a bibliometric analysis. Tools such as R Studio and dimensions database were used to analyze publication growth, country contributions, key journals, influential authors, and prominent research topics.

**Results/findings:** The study reveals a steady annual growth rate of 4.55% in green leadership research, with a notable surge in publications from 2020 to 2024. Prominent topics include sustainable development, environmental policy, and commerce, reflecting the wide-ranging impact of green leadership across sectors.



**Keywords:** *Green Leadership, sustainability principles , organizational decision-making, leadership behaviors, environmental challenges*

## 1. Introduction

The increasing urgency of addressing environmental issues has catalyzed a growing body of research on green leadership, a concept that merges leadership theory with sustainability principles (Broman et al., 2017). As global environmental challenges such as climate change, resource depletion, and biodiversity loss become more pressing, organizations are under increasing pressure to adopt sustainable practices (L. Zhang et al., 2022). This shift has necessitated a rethinking of traditional leadership models, giving rise to the concept of green leadership (Dansereau et al., 2013). Unlike conventional leadership approaches that may prioritize short-term gains or purely economic objectives, green leadership places a strong emphasis on long-term environmental stewardship and ethical responsibility (Dragomir, 2020). This alignment of leadership with sustainability is not only a response to external pressures but also reflects a deeper understanding of the interconnectedness between organizational success and environmental health (Sroufe, 2017). As a result, green leadership is increasingly being recognized as a crucial driver of sustainable development, shaping how organizations strategize, operate, and innovate in response to ecological challenges (Singh et al., 2020).

Green leadership, which integrates environmental consciousness into the core of organizational decision-making (Darvishmotevali & Altinay, 2022), is gaining recognition as a key driver of sustainable development (Saeed & Kersten, 2019). This recognition stems from the growing awareness that leadership is instrumental in setting the tone and direction for organizational culture and practices (Paul & Berry, 2013). Leaders who embody green leadership principles not only advocate for sustainable practices but also model these behaviors (Farrukh et al., 2022), influencing the attitudes and actions of their teams (Savelsbergh et al., 2010). By embedding sustainability into organizational values, green leaders are able to cultivate a culture of responsibility and innovation, where sustainable practices are seen as integral to business success (Weerts et al., 2018). This leadership approach also extends to external stakeholder engagement, where green leaders actively seek to align their organization's goals with broader societal and environmental objectives (W. Zhang et al., 2020). The impact of such leadership goes beyond mere compliance with regulations; it fosters a proactive approach to sustainability that can lead to competitive advantages, enhanced reputation, and long-term viability in a rapidly changing global market.

This growing emphasis on green leadership has sparked a significant increase in scholarly research, leading to a diverse and rapidly evolving body of literature (Tseng et al., 2019). Researchers from various disciplines are increasingly exploring the dimensions, impacts, and mechanisms of green leadership, contributing to a rich and multifaceted understanding of the concept (Sajjad et al., 2024). The diversity of this literature reflects the interdisciplinary nature of sustainability itself, drawing from fields such as environmental science, organizational behavior, ethics, and economics (Feeney et al., 2023). The evolving nature of this body of research is characterized by the exploration of new themes, the development of innovative methodologies, and the expansion of green leadership into different sectors and contexts (Sovacool et al., 2020). As more organizations across the globe adopt sustainability as a core value, the academic discourse surrounding green leadership continues to grow, providing new insights into how leadership can drive sustainable change (Waite, 2014). This expanding body of knowledge not only helps to define what green leadership is but also offers practical frameworks and strategies for its implementation.

This study seeks to decode the complexities of green leadership by conducting a comprehensive bibliometric review of global research trends and their evolution over time (J. Zhang et al., 2023). By leveraging bibliometric analysis, this research will systematically map the landscape of green leadership literature, identifying key trends, influential authors, and seminal works that have shaped the field (Tigre et al., 2023). Bibliometric analysis, with its ability to quantify patterns within large datasets of academic publications, provides a powerful tool for uncovering the intellectual structure and development of a research field (Tigre et al., 2023). This approach allows for the identification of research clusters, the examination of citation networks, and the tracking of how certain themes and topics have evolved over time (X. Han, 2020). Through this analysis, the study will not only reveal the current state of research on green leadership but also provide a historical perspective on how the field has developed, highlighting the dynamic nature of scholarly inquiry in this area.

The insights gained will provide a deeper understanding of how green leadership is conceptualized and practiced worldwide, offering guidance for future research and application in the field (Pham et al., 2020). By addressing these research questions, the study will not only contribute to the theoretical development of green leadership but also provide actionable insights for practitioners. The findings will empower leaders to adopt sustainable practices more effectively, aligning their organizations with the principles of green leadership. Additionally, by identifying gaps and emerging trends in the literature, the study will offer a roadmap for future research, ensuring that the academic community continues to explore the evolving challenges and opportunities in this vital area of study. Ultimately, this research aims to bridge the gap between theory and practice, contributing to the advancement of sustainable leadership practices globally.

Traditional leadership, characterized by hierarchical structures and often a focus on efficiency and profitability, has long been the dominant model in organizational contexts (Donkor & Zhou, 2019). This approach to leadership typically emphasizes command-and-control methods, where leaders make decisions and subordinates follow directives (Gorod et al., 2018). Traditional leadership often prioritizes short-term goals, such as increasing shareholder value or meeting quarterly targets, and may operate with a narrower focus on financial performance (DesJardine et al., 2023). While effective in driving immediate results, traditional leadership can sometimes overlook the broader, long-term implications of business decisions, particularly those related to environmental and social sustainability. (Lewandowska et al., 2023) The emphasis on efficiency and profitability, without integrating sustainability into the decision-making process, can lead to practices that may be detrimental to the environment and, ultimately, to the long-term success of the organization itself (Zopounidis & Lemonakis, 2024).

In contrast, green leadership represents a paradigm shift from traditional leadership models by incorporating sustainability as a core principle of leadership (Hargreaves, 2009). Green leaders recognize that the success of an organization is intricately linked to its environmental and social impact (Bhat et al., 2024). Instead of focusing solely on short-term financial gains, green leadership prioritizes long-term sustainability goals, including reducing environmental footprints, promoting social responsibility, and fostering innovation in sustainable practices (K. Han & Kelvin, 2024). This leadership style is often more collaborative and inclusive, encouraging input from diverse stakeholders and fostering a culture of shared responsibility for the environment (Kuknor & Bhattacharya, 2022). Green leadership also aligns closely with transformational leadership, as it seeks to inspire and motivate others to embrace sustainable practices and to challenge the status quo in pursuit of a more sustainable future (Çop et al., 2021).

The differences between traditional leadership and green leadership are significant and reflect broader changes in how organizations are expected to operate in the 21st century (Egri & Herman,

2000). Traditional leadership may have served organizations well in an era where environmental concerns were less pressing and where the primary focus was on economic growth (Hariram et al., 2023). However, in today's context, where environmental sustainability is increasingly seen as a critical factor in organizational success, green leadership offers a more holistic approach (Dubey et al., 2015). It not only addresses the immediate needs of the organization but also considers the long-term impact on the planet and society. Green leadership challenges leaders to think beyond the bottom line and to make decisions that contribute to the well-being of the environment and future generations (Fry & Egel, 2021). By integrating sustainability into leadership practices, green leadership is not just a response to external pressures but a proactive approach to creating lasting value for both organizations and the world at large (Yu-Shan Chen et al., 2012).

Through an analysis of publication patterns, citation networks, and emerging themes, this research aims to illuminate the development of green leadership as a field, identify influential contributors, and outline the trajectories that have shaped its current landscape. By examining the volume of publications over time, the study will track the growth of interest in green leadership and identify periods of significant research activity (Ogutu et al., 2023). The study will also highlight the most productive countries in green leadership research, shedding light on the global distribution of knowledge production. Furthermore, by identifying the most productive journals and the most cited publications, the study will pinpoint key platforms and influential works that have shaped the discourse (Aranda et al., 2021). Finally, an exploration of the most prominent topics within environmentally friendly transformational leadership will provide insights into the specific areas that have attracted the greatest scholarly attention, guiding future research directions.

The insights gained will provide a deeper understanding of how green leadership is conceptualized and practiced worldwide, offering guidance for future research and application in the field. By addressing these research questions, the study will not only contribute to the theoretical development of green leadership but also provide actionable insights for practitioners. The findings will empower leaders to adopt sustainable practices more effectively, aligning their organizations with the principles of green leadership. Additionally, by identifying gaps and emerging trends in the literature, the study will offer a roadmap for future research, ensuring that the academic community continues to explore the evolving challenges and opportunities in this vital area of study. Ultimately, this research aims to bridge the gap between theory and practice, contributing to the advancement of sustainable leadership practices globally.

### **3. Methodology**

#### **3.1 Research Design**

This study employs a bibliometric analysis to systematically review and decode the complexities of green leadership research. Bibliometric analysis is a quantitative method used to measure and analyze scientific literature, enabling researchers to uncover patterns, trends, and structures within a specific field of study (Pessin et al., 2022). By utilizing this method, the study aims to map the development of green leadership as a research area, identify key contributors and influential publications, and explore emerging themes and topics that have shaped the field over time (Zupic & Čater, 2015).

#### **3.2 Data Collection**

The data for this study was collected from a comprehensive search of scientific databases, such as dimensions, Scopus, and Google Scholar. The search focused on peer-reviewed journal articles,

conference papers, and book chapters related to green leadership, transformational leadership, and sustainability, published over the last two decades. Keywords used in the search included "green leadership," "sustainable leadership," "environmental leadership," "transformational leadership," and "sustainability in leadership." The search was restricted to publications in English to ensure consistency and comparability of the data. The collected data included information on publication titles, authors, publication years, countries of origin, journals, citations, and keywords. Duplicates were removed, and only relevant publications that specifically focused on green leadership or closely related topics were included in the final dataset.

The bibliometric analysis was conducted using specialized software tools such as VOSviewer and Bibliometrix (R-package), which are designed for visualizing and analyzing bibliometric networks (Radha & Arumugam, 2021) (Moral-muñoz et al., 2020). The analysis was carried out in several stages:

**3.2.1 Descriptive Analysis :** The first step involved a descriptive analysis of the collected data to provide an overview of the volume of publications over time, the most productive countries, and the leading journals in the field of green leadership. This stage also included identifying the most cited publications and the most frequent keywords used in the literature (Comarú et al., 2021).

**3.2.2 Corresponding Author's Countries :** To analyze the geographic distribution of research contributions, the study identified the corresponding author's country for each of the 494 publications included in the dataset. This information was extracted from the bibliographic metadata available in scientific databases such as dimensions and Scopus. The analysis involved counting the number of publications attributed to each country and then ranking these countries based on their total output (Farhat et al., 2013). The data was visualized using geographical maps and bar charts to highlight the countries with the highest contributions to green leadership research. This analysis provided insights into the global landscape of green leadership scholarship, identifying the most active regions and potential areas of collaboration.

**3.2.3 Most Relevant Analysis :** The study also focused on identifying the most relevant journals in the field of green leadership by analyzing the number of articles published in each journal within the study period (Liu et al., 2019). This analysis was conducted using bibliometric tools that classified the journals based on their productivity, defined as the total number of green leadership articles published. Additionally, the impact of these journals was assessed by examining citation metrics such as the h-index and impact factor, which provide a measure of the influence and visibility of the research published within these journals. The results were presented in a ranked list, showcasing the journals that have been most instrumental in disseminating green leadership research.

**3.2.4 Most Global Cited Analysis :** To determine the most influential works in green leadership, the study conducted a citation analysis, focusing on the number of citations received by each publication globally. The citation data was retrieved from databases like Scopus and dimensions, which provide comprehensive citation tracking. The publications were ranked based on their total citation count, with special attention given to highly cited works that have significantly shaped the field. This analysis helped identify seminal publications and key authors whose research has had a substantial impact on the development of green leadership. The findings were summarized in a list of the top-cited publications, offering a clear picture of the foundational literature in this area (Yadava et al., 2019).

**3.2.5 Trend Topics Analysis :** The trend topics analysis aimed to identify the most frequently discussed and emerging themes within green leadership research over time (Gao et al., 2021). This was done by extracting and analyzing keywords from the titles, abstracts, and author keywords of the selected publications. Using bibliometric software like R Studio and Bibliometrix, keyword co-occurrence networks were created to visualize the relationships between different research topics. The analysis also

included a temporal component, tracking how the prevalence of certain keywords and topics has evolved across different time periods. This allowed the study to capture not only the current state of research but also the dynamic trends and shifting focus areas within the field of green leadership. The results of this analysis were used to highlight the topics that have garnered the most attention in the literature and to suggest potential directions for future research.

#### **4. Results and Discussion**

The bibliometric analysis conducted for this study spans a significant period from 1947 to 2024, capturing the evolution of green leadership research over nearly eight decades. Within this period, a total of 494 publications were identified, reflecting the growing interest and recognition of green leadership as an essential component of organizational strategy and sustainability. The steady increase in publications is indicative of the expanding academic discourse on this topic, with an annual growth rate of 4.55% per year. This consistent growth highlights the sustained and increasing attention that green leadership has garnered among scholars, signaling its importance in both theoretical exploration and practical application.

The analysis also reveals the involvement of a substantial number of researchers, with a total of 1,519 authors contributing to the body of literature on green leadership. This diverse and extensive authorship base underscores the interdisciplinary nature of the field, drawing interest from experts across various domains such as environmental science, management, ethics, and organizational behavior. The collaboration among these authors reflects a shared commitment to understanding and advancing the principles of green leadership, as well as its implications for sustainable development.

The temporal scope of the study, coupled with the significant number of publications and authors, suggests that green leadership is not only a contemporary issue but one with deep roots and evolving relevance in the academic community (Farrukh et al., 2022) (Darvishmotevali & Altinay, 2022) (Singh et al., 2020) (Tran, 2023). The growth trajectory observed in the annual publication rate indicates that green leadership continues to be a dynamic and expanding field of study, with ongoing contributions that enhance our understanding of how leadership can drive sustainability in various organizational contexts (Aleksandrova Zhuravleva & Poliak, 2024). As the global challenges related to environmental sustainability become more pressing, the continued exploration of green leadership by a growing community of scholars is likely to yield valuable insights and strategies for future leadership practices.

## Descriptive Analysis

### Main Information

Show 50 rows ▾ Excel

Description	Results
<b>MAIN INFORMATION ABOUT DATA</b>	
Timespan	1947:2024
Sources (Journals, Books, etc)	309
Documents	494
Annual Growth Rate %	4.55
Document Average Age	5.53
Average citations per doc	23.57
References	0
<b>DOCUMENT CONTENTS</b>	
Keywords Plus (ID)	552
Author's Keywords (DE)	552
<b>AUTHORS</b>	
Authors	1519
Authors of single-authored docs	91
<b>AUTHORS COLLABORATION</b>	
Single-authored docs	94
Co-Authors per Doc	3.45
International co-authorships %	19.23
<b>DOCUMENT TYPES</b>	
article	465
chapter	18
edited book	1
preprint	6
proceeding	4

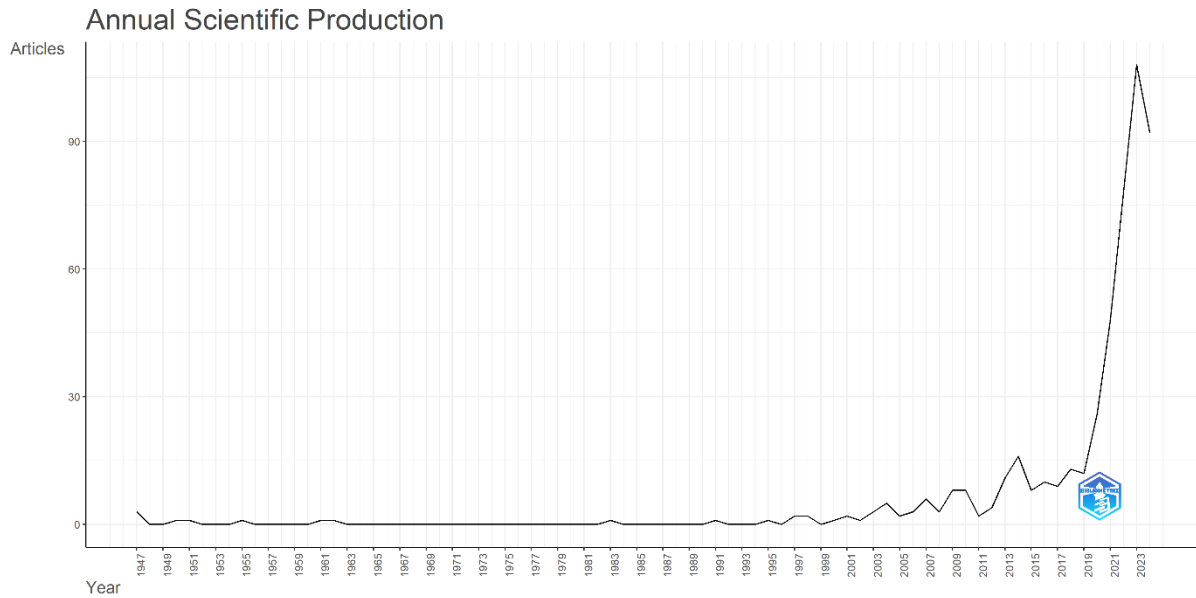
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The analysis of annual scientific production within the field of green leadership reveals a notable surge in publications between 2020 and 2024. This period is marked by a significant and rapid increase in research output, reflecting the growing urgency and relevance of green leadership in the face of escalating global environmental challenges. In 2020, there were 26 publications, which doubled to 48 in 2021, signaling a heightened interest among scholars in exploring the intersections of leadership and sustainability. This upward trend continued in 2022, with 78 publications, representing a substantial 62.5% increase from the previous year. The peak was reached in 2023, where the number of publications soared to 108, demonstrating an intensified focus on green leadership as organizations and leaders increasingly recognize the need to integrate sustainable practices into their operations.

However, 2024 saw a slight decline to 92 publications, which, while lower than the previous year, still represents a robust level of scholarly activity in this field. This minor decrease could be indicative of various factors, such as shifts in research funding, changes in academic or industry priorities, or the natural stabilization of research output after a period of rapid growth. Despite this dip, the overall trajectory from 2020 to 2024 clearly illustrates a growing commitment within the academic community to address the challenges of sustainability through the lens of leadership. This increased production not only underscores the relevance of green leadership in contemporary discourse but also

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suggests that this area will continue to be a vital topic of research and discussion in the years to come. The sustained high level of publications during this period indicates a maturation of the field, with ongoing contributions that are likely to shape both theoretical frameworks and practical applications of green leadership in diverse organizational contexts.



### Annual Scientific Production

Plot  Table

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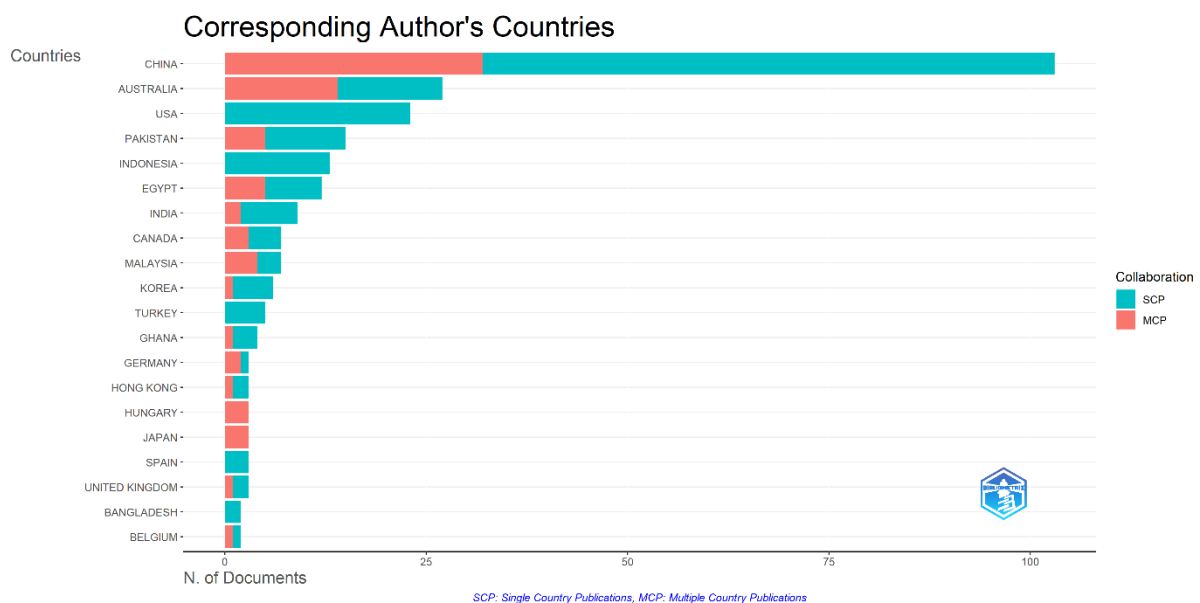
Year	Articles
2023	108
2024	92
2022	78
2021	48
2020	26
2014	16
2018	13
2019	12
2013	11
2016	10
2017	9
2009	8
2010	8
2015	8
2007	6
2004	5
2012	4
1947	3
2003	3
2006	3
2008	3
1997	2
1998	2
2001	2
2005	2

Showing 1 to 25 of 78 entries

## Corresponding Author's Countries :

The analysis of corresponding author countries provides valuable insights into the global distribution of research on green leadership. China emerges as the most prolific contributor, with 103 articles, indicating a strong and growing emphasis on sustainability and leadership practices within the Chinese academic and professional communities. This dominant position reflects China's increasing focus on integrating sustainable development into its economic and environmental policies, which is mirrored in the academic output. Australia, with 27 articles, and the USA, with 23 articles, also stand out as significant contributors. These countries have long been leaders in environmental research and policy, and their active participation in green leadership research aligns with their broader commitment to sustainability and innovation. Pakistan, contributing 15 articles, and Indonesia, with 13 articles, further demonstrate the relevance of green leadership in diverse geographical and economic contexts, where sustainable practices are becoming increasingly vital for addressing local and regional environmental challenges.

Egypt and India, with 12 and 9 articles respectively, highlight the growing importance of green leadership in emerging economies, where balancing economic growth with environmental sustainability is a critical concern. The contributions from Canada (7 articles), Malaysia (6 articles), and Korea (6 articles) reflect the global nature of green leadership research, with active engagement from countries across different continents. Other countries, including Turkey (5 articles), Ghana (4 articles), and Germany (3 articles), along with Hong Kong, Hungary, Japan, Spain, and the United Kingdom (each with 3 articles), show that interest in green leadership is widespread, crossing both developed and developing nations. The presence of countries like Bangladesh and Belgium, each contributing 2 articles, further underscores the diverse and inclusive nature of the global research community focusing on green leadership. This geographic spread of corresponding author countries reveals a global acknowledgment of the importance of green leadership. It also indicates the collaborative efforts across borders to advance understanding and implementation of leadership practices that prioritize sustainability. The diverse origins of this research suggest that green leadership is a universally relevant topic, with unique insights and contributions emerging from different cultural and socio-economic contexts, enriching the overall discourse and application of green leadership principles worldwide.



**Corresponding Author's Countries**

Plot Table Search:

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Country	Articles	Articles %	SCP	MCP	MCP %
CHINA	103	20.9	71	32	31.1
AUSTRALIA	27	5.5	13	14	51.9
USA	23	4.7	23	0	0.0
PAKISTAN	15	3.0	10	5	33.3
INDONESIA	13	2.6	13	0	0.0
EGYPT	12	2.4	7	5	41.7
INDIA	9	1.8	7	2	22.2
CANADA	7	1.4	4	3	42.9
MALAYSIA	7	1.4	3	4	57.1
KOREA	6	1.2	5	1	16.7
TURKEY	5	1.0	5	0	0.0
GHANA	4	0.8	3	1	25.0
GERMANY	3	0.6	1	2	66.7
HONG KONG	3	0.6	2	1	33.3
HUNGARY	3	0.6	0	3	100.0
JAPAN	3	0.6	0	3	100.0
SPAIN	3	0.6	3	0	0.0
UNITED KINGDOM	3	0.6	2	1	33.3
BANGLADESH	2	0.4	2	0	0.0
BELGIUM	2	0.4	1	1	50.0
ETHIOPIA	2	0.4	2	0	0.0
FRANCE	2	0.4	0	2	100.0
GEORGIA	2	0.4	1	1	50.0
IRELAND	2	0.4	1	1	50.0
ISRAEL	2	0.4	2	0	0.0

Previous    Next

## Most Relevant Analysis

The analysis of the most productive journals in the field of green leadership highlights the interdisciplinary nature of the research and the broad range of academic platforms that contribute to the dissemination of knowledge in this area. Leading the way is the \*International Journal of Environmental Research and Public Health\*, which has published 24 articles on green leadership. This journal's focus on public health and environmental issues underscores the connection between leadership practices and broader environmental and societal impacts, reflecting the growing recognition of the importance of sustainable leadership in promoting public well-being. *Frontiers in Psychology* follows closely with 22 articles, demonstrating the psychological dimension of green leadership. This journal's contributions indicate a strong interest in understanding the behavioral and cognitive aspects of leadership that drive sustainable practices, highlighting the role of psychology in shaping effective green leadership strategies.

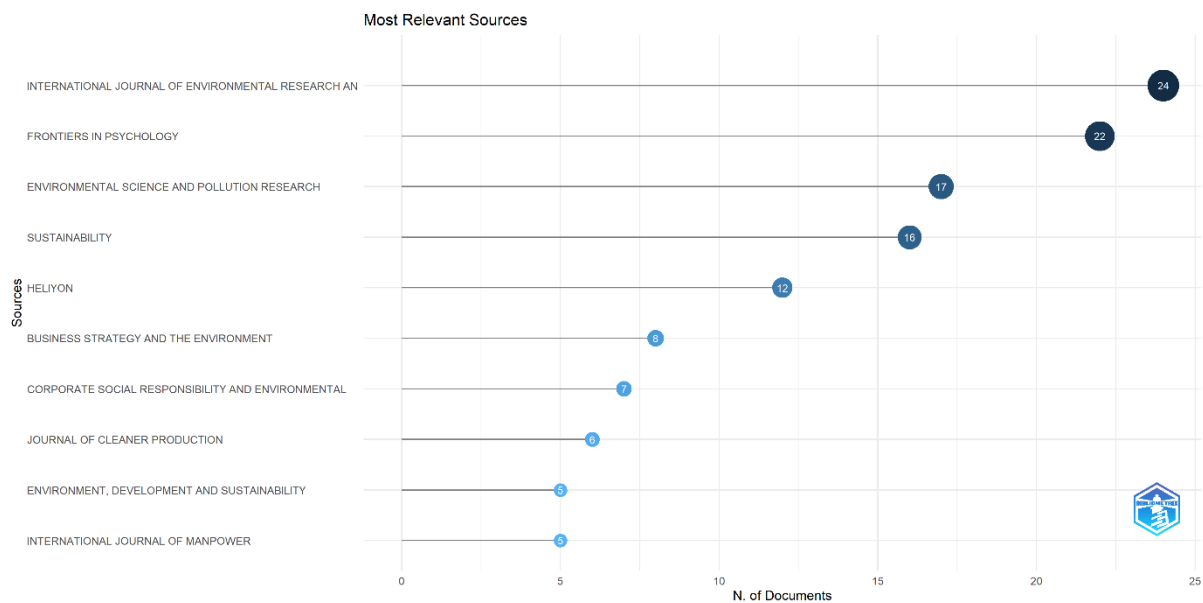
*Environmental Science and Pollution Research*, with 17 articles, further emphasizes the environmental focus of green leadership research. This journal provides a platform for studies that explore the intersection of leadership and environmental management, showcasing how leadership can influence and mitigate environmental pollution and degradation. *Sustainability*, which published 16 articles, is another key journal in this field, reflecting its comprehensive coverage of sustainability issues, including the role of leadership in achieving sustainable development goals. The inclusion of green leadership research within this journal highlights the critical role that leadership plays in driving sustainability across various sectors and disciplines. *Heliyon*, with 12 articles, adds to the diversity of journals contributing to this field. As a multidisciplinary open-access journal, *Heliyon* provides a broad platform for the dissemination of green leadership research, making it accessible to a wide audience and encouraging cross-disciplinary dialogue.

*Business Strategy and the Environment* and *Corporate Social Responsibility and Environmental Management*, with 8 and 7 articles respectively, focus on the strategic and ethical dimensions of green leadership within the corporate context. These journals emphasize the importance

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of integrating sustainability into business strategies and leadership practices, reflecting the growing demand for leaders who can balance economic objectives with environmental and social responsibilities. The Journal of Cleaner Production, which has published 6 articles, aligns closely with the themes of sustainability and green leadership. This journal's emphasis on cleaner production and sustainable processes highlights the practical applications of green leadership in driving organizational change towards more sustainable practices.

Environment, Development and Sustainability and the International Journal of Manpower, each with 5 articles, round out the list of productive journals in this field. Their contributions underscore the global and developmental aspects of green leadership, as well as the human resource implications of leading for sustainability. Collectively, these journals represent a diverse array of perspectives and disciplines, illustrating the multifaceted nature of green leadership research. The concentration of publications in these journals indicates their importance as key outlets for scholars interested in exploring the intersection of leadership and sustainability. This distribution also reflects the widespread academic interest in green leadership, with contributions coming from environmental sciences, psychology, business, and beyond, enriching the discourse and advancing the understanding of how leadership can contribute to sustainable development.



### Most Global Cited Analysis

The analysis of the most frequently cited publications within the study period offers crucial insights into the foundational works that have significantly shaped the discourse on green leadership. These high-impact publications not only reflect the quality and influence of the research but also highlight the key themes and ideas that resonate most with scholars and practitioners in the field. Leading the list is the publication by (Singh et al., 2020), which has amassed an impressive 994 citations. This work likely addresses core concepts or frameworks within green leadership, possibly integrating leadership theories with sustainability practices in a way that has become widely referenced across various studies. The high citation count suggests that Singh SK publication is considered a seminal piece in the field, offering valuable insights that have informed subsequent research and practice in green leadership.

Following this, (Y Chen, 2011) publication has garnered 601 citations, marking it as another highly influential piece within the green leadership literature. (Brownie & Nancarrow, 2013) publication, with 309 citations, also stands out as a key contributor to the field. Mittal's publication, cited 292 times, further adds to the discourse on green leadership. Finally, the publication by Nieuwenhuisen, with 279 citations, rounds out the list of highly cited works in green leadership. This publication likely addresses a specific niche within the broader field, such as the intersection of green leadership with environmental policy, corporate social responsibility, or global leadership trends. The citation count indicates that Nieuwenhuisen's work has made a significant impact, contributing to the ongoing development and refinement of green leadership as a critical area of study. Together, these highly cited publications form the backbone of the academic conversation on green leadership. Their influence extends beyond their citation counts, shaping the direction of future research, informing leadership practices, and providing a foundation upon which new studies are built. These works are central to the understanding of how leadership can effectively address environmental challenges, drive sustainability initiatives, and inspire organizational and societal change toward a more sustainable future.

**Most Global Cited Documents**

Plot Table Search:

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Paper	DOI	Total Citations	TC per Year	Normalized TC
SINGH SK, 2020, TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	10.1016/J.TECHFORE.2019.119762	994	198.80	10.06
CHEN Y, 2012, JOURNAL OF BUSINESS ETHICS	10.1007/S10551-012-1452-X	601	46.23	3.66
BROWNIE S, 2013, CLINICAL INTERVENTIONS IN AGING	10.2147/JCJA.S38589	309	25.75	4.49
MITTAL S, 2016, TOURISM MANAGEMENT	10.1016/J.TOURMAN.2016.05.007	292	32.44	5.24
NIEUWENHUIJSEN MJ, 2020, ENVIRONMENT INTERNATIONAL	10.1016/J.ENVIINT.2020.105661	279	55.80	2.82
LI W, 2020, JOURNAL OF CLEANER PRODUCTION	10.1016/J.JCLEPRO.2020.120229	259	51.80	2.62
CHEN Y, 2011, MANAGEMENT DECISION	10.1108/00251741111120761	240	17.14	1.83
JIA J, 2018, SUSTAINABILITY	10.3390/SU10093237	217	31.00	4.15
SINGH A, 2010, AMERICAN JOURNAL OF PUBLIC HEALTH	10.2105/AJPH.2009.180687	214	14.27	3.94
BHUTTO TA, 2021, JOURNAL OF SUSTAINABLE TOURISM	10.1080/09669582.2020.1867864	196	49.00	4.99
DARVISHMOTEEVALI M, 2022, TOURISM MANAGEMENT	10.1016/J.TOURMAN.2021.104401	187	62.33	11.65
LAM PT, 2009, JOURNAL OF ENVIRONMENTAL MANAGEMENT	10.1016/J.JENVMAN.2009.09.029	158	9.88	5.82
CHEN Y, 2014, SUSTAINABILITY	10.3390/SUS106604	146	13.27	5.21
TUAN LT, 2019, JOURNAL OF SUSTAINABLE TOURISM	10.1080/09669582.2019.1675674	146	24.33	4.00
ARICI HE, 2021, SERVICE INDUSTRIES JOURNAL	10.1080/02642069.2021.1964482	141	35.25	3.59
ÇOP S, 2020, BUSINESS STRATEGY AND THE ENVIRONMENT	10.1002/BSE.2646	140	28.00	1.42
ISLAM T, 2020, INTERNATIONAL JOURNAL OF MANPOWER	10.1108/IJM-01-2020-0036	131	26.20	1.33
AHMAD S, 2021, LEADERSHIP & ORGANIZATION DEVELOPMENT JOURNAL	10.1108/LODJ-01-2020-0024	127	31.75	3.24
WORMER BA, 2013, THE AMERICAN SURGEON	10.1177/000313481307900708	124	10.33	1.80
SUZER O, 2015, JOURNAL OF ENVIRONMENTAL MANAGEMENT	10.1016/J.JENVMAN.2015.02.029	122	12.20	4.32
FARAZ NA, 2021, CORPORATE SOCIAL RESPONSIBILITY AND ENVIRONMENTAL MANAGEMENT	10.1002/CSR.2115	122	30.50	3.11
KHAN MAS, 2019, FRONTIERS IN PSYCHOLOGY	10.3389/FPSYG.2019.01977	115	19.17	3.15
ANGELSTAM P, 2013, AMBIO	10.1007/S13280-012-0372-4	114	9.50	1.66
ZHOU S, 2018, SUSTAINABILITY	10.3390/SU10093206	110	15.71	2.10
P. M, 2018, JOURNAL OF EXPOSURE SCIENCE & ENVIRONMENTAL EPIDEMIOLOGY	10.1038/S41370-017-0014-9	108	15.43	2.06

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## Trend Topics Analysis

The analysis of the most prominent topics within green leadership literature reveals a diverse array of themes that have garnered significant attention from researchers. These topics not only reflect the breadth of the field but also highlight the areas where green leadership is seen as most impactful and relevant. One of the key topics is commerce, which underscores the intersection of green leadership with business practices and the role of leadership in promoting sustainability within commercial enterprises. Research in this area often explores how green leadership can drive corporate strategies that balance profitability with environmental responsibility, including the adoption of sustainable business models, the integration of green practices into supply chains, and the influence of leadership on corporate social responsibility (CSR) initiatives. The focus on commerce illustrates the critical role that green leadership plays in shaping the sustainability agendas of businesses across various industries.



Sustainable development is another major theme, reflecting the overarching goal of green leadership to contribute to long-term environmental and social well-being. This topic encompasses a wide range of research that examines how leadership can be leveraged to achieve sustainability goals, both within organizations and in broader societal contexts. Studies often focus on the ways in which green leaders inspire and guide their organizations toward sustainable practices, align business objectives with sustainable development goals (SDGs), and foster a culture of environmental stewardship. China emerges as a significant geographic focus in the literature, indicating the country's prominent role in the discourse on green leadership. As one of the world's largest economies and a major player in global environmental policy, China's approach to leadership and sustainability is of great interest to researchers. Studies in this area may explore the unique challenges and opportunities faced by Chinese leaders in integrating sustainability into their organizational practices, as well as the influence of government policies and cultural factors on the adoption of green leadership principles.

The use of surveys and questionnaires is also highlighted as a common methodological approach in green leadership research. This reflects the emphasis on empirical data collection and the importance of understanding the perspectives of leaders, employees, and other stakeholders on issues related to sustainability. Surveys and questionnaires are often employed to gather insights on leadership behaviors, organizational practices, and the effectiveness of green leadership initiatives, providing valuable data for analyzing trends and identifying best practices. Organization as a topic indicates a focus on how green leadership is applied within various organizational contexts, including corporate, governmental, and non-profit sectors. Research in this area often examines the structural and cultural factors that influence the effectiveness of green leadership, such as organizational policies, leadership styles, and the alignment of organizational values with sustainability goals. This topic underscores the importance of organizational context in shaping how green leadership is practiced and its impact on achieving sustainability objectives.

Environmental policy is another critical area of focus, reflecting the role of green leadership in shaping and responding to environmental regulations and policies. Studies often explore how leaders navigate the complex landscape of environmental legislation, influence policy development, and implement strategies that comply with or exceed regulatory requirements. This topic highlights the intersection of leadership with governance and the critical role that green leaders play in advocating for and advancing environmental policies that support sustainable development. In addition to these primary topics, the literature on green leadership covers a wide range of other areas, each contributing to a comprehensive understanding of the field. These include discussions on leadership ethics, the role of technology in promoting sustainability, the impact of green leadership on employee engagement and organizational performance, and the global perspectives on green leadership practices. Overall, the focus on these topics in the literature reflects the multifaceted nature of green leadership and its relevance across different domains. The emphasis on commerce, sustainable development, and environmental policy underscores the practical implications of green leadership in driving real-world change, while the methodological focus on surveys and questionnaires highlights the importance of empirical research in advancing the field. Together, these topics provide a rich and nuanced picture of how green leadership is conceptualized, studied, and applied, offering valuable insights for both academics and practitioners seeking to understand and implement sustainable leadership practice

## **Discussion**

The comprehensive bibliometric analysis conducted in this study provides significant insights into the evolution, impact, and key themes of green leadership research from 1947 to 2024. The steady growth in annual scientific production, particularly the notable increase between 2020 and 2024, underscores the expanding recognition of the importance of integrating sustainability into leadership



practices. This surge in research output reflects the increasing global urgency to address environmental challenges and the corresponding need for leadership models that prioritize sustainable development.

The geographic distribution of corresponding author countries highlights the global interest in green leadership, with China emerging as the most prolific contributor. This dominance indicates a strong focus on sustainability within China's academic and professional communities, possibly driven by the country's environmental policies and its pivotal role in global sustainability efforts. Other significant contributors, such as Australia, the USA, and various emerging economies like Pakistan and Indonesia, also demonstrate the widespread relevance of green leadership across different socio-economic contexts. The diverse origins of these publications suggest that green leadership is not confined to a single region or culture, but is a universally relevant concept that resonates with the global challenges of environmental sustainability. The analysis of the most productive journals, including the *International Journal of Environmental Research and Public Health* and *Frontiers in Psychology*, reveals the interdisciplinary nature of green leadership research. The presence of journals from various fields such as environmental science, psychology, business strategy, and corporate social responsibility reflects the broad applicability of green leadership principles. This diversity of publication outlets indicates that green leadership is being explored from multiple perspectives, each contributing to a richer and more comprehensive understanding of the field.

The highly cited publications by authors such as Singh SK and Chen Y highlight the foundational works that have shaped the discourse on green leadership. These influential publications have provided key theoretical frameworks and empirical evidence that continue to guide research and practice in the field. The high citation counts of these works underscore their significance and the impact they have had in advancing the understanding of how leadership can drive sustainable practices within organizations and beyond. The analysis of key topics, including commerce, sustainable development, and environmental policy, further illustrates the critical areas where green leadership has garnered the most attention. The focus on commerce and business strategy reflects the practical implications of green leadership in driving sustainable business practices, while the emphasis on sustainable development and environmental policy highlights the broader societal and regulatory context in which green leadership operates. The methodological focus on surveys and questionnaires indicates a strong interest in empirical research, emphasizing the need for data-driven insights into leadership behaviors and outcomes.

## 5. Conclusion

The conclusion, the findings from this bibliometric analysis provide a comprehensive overview of the current state and development of green leadership research. The steady increase in publications, particularly in recent years, reflects the growing importance of this field as organizations and leaders worldwide grapple with the challenges of sustainability. The global distribution of research contributions and the diversity of publication outlets underscore the universal relevance and interdisciplinary nature of green leadership. The analysis reveals that certain countries and journals have played a pivotal role in shaping the discourse on green leadership, with highly cited publications providing key contributions that continue to influence the field. The focus on specific topics such as commerce, sustainable development, and environmental policy highlights the areas where green leadership is seen as most impactful, offering valuable insights into the practical applications and strategic importance of sustainable leadership practices. This study not only maps the landscape of green leadership research but also provides a foundation for future studies, identifying emerging trends and gaps that warrant further exploration. As the world continues to face pressing environmental



challenges, the insights gained from this analysis can guide both academic inquiry and practical applications, helping to advance green leadership as a critical component of sustainable development strategies globally.

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## References

- Aleksandrovna Zhuravleva, N., & Poliak, M. (2024). *Green Transformational Leadership and Green Growth*. <https://doi.org/10.5772/intechopen.102653>
- Aranda, A. M., Sele, K., Etchanchu, H., Guyt, J. Y., & Vaara, E. (2021). From Big Data to Rich Theory: Integrating Critical Discourse Analysis with Structural Topic Modeling. *European Management Review*, 18(3), 197–214. <https://doi.org/10.1111/emre.12452>
- Bhat, A. A., Mir, A. A., Allie, A. H., Ahmad Lone, M., Al-Adwan, A. S., Jamali, D., & Riyaz, I. (2024). Unlocking corporate social responsibility and environmental performance: Mediating role of green strategy, innovation, and leadership. *Innovation and Green Development*, 3(2), 100112. <https://doi.org/https://doi.org/10.1016/j.igd.2023.100112>
- Broman, G., Robèrt, K.-H., Collins, T. J., Basile, G., Baumgartner, R. J., Larsson, T., & Huisingh, D. (2017). Science in support of systematic leadership towards sustainability. *Journal of Cleaner Production*, 140, 1–9. <https://doi.org/https://doi.org/10.1016/j.jclepro.2016.09.085>
- Brownie, S., & Nancarrow, S. (2013). Effects of person-centered care on residents and staff in aged-care facilities: a systematic review. *Clinical Interventions in Aging*, Volume 8, 1–10. <https://doi.org/10.2147/cia.s38589>
- Chen, Y. (2011). Green organizational identity: sources and consequence. *Manag. Decis.*, 49. <https://doi.org/10.1108/00251741111120761>
- Chen, Yu-Shan, Chang, C., & Wu, F. (2012). Origins of green innovations: the differences between proactive and reactive green innovations. *Management Decision*, 50(3), 368–398. <https://doi.org/10.1108/00251741211216197>
- Comarú, M. W., Lopes, R. M., Braga, L. A. M., Batista Mota, F., & Galvão, C. (2021). A bibliometric and descriptive analysis of inclusive education in science education. *Studies in Science Education*, 57(2), 241–263. <https://doi.org/10.1080/03057267.2021.1897930>
- Çop, S., Olorunsola, V. O., & Alola, U. V. (2021). Achieving environmental sustainability through green transformational leadership policy: Can green team resilience help? *Business Strategy and the Environment*, 30(1), 671–682. <https://doi.org/10.1002/bse.2646>
- Dansereau, F., Seitz, S. R., Chiu, C.-Y., Shaughnessy, B., & Yammarino, F. J. (2013). What makes leadership, leadership? Using self-expansion theory to integrate traditional and contemporary approaches. *The Leadership Quarterly*, 24(6), 798–821. <https://doi.org/https://doi.org/10.1016/j.leaqua.2013.10.008>
- Economics, Business, Entrepreneur, and Sustainability Conference (ECOBESC)*

- Darvishmotevali, M., & Altinay, L. (2022). Green HRM, environmental awareness and green behaviors: The moderating role of servant leadership. *Tourism Management*, 88, 104401. <https://doi.org/https://doi.org/10.1016/j.tourman.2021.104401>
- DesJardine, M. R., Zhang, M., & Shi, W. (2023). How Shareholders Impact Stakeholder Interests: A Review and Map for Future Research. *Journal of Management*, 49(1), 400–429. <https://doi.org/10.1177/01492063221126707>
- Donkor, F., & Zhou, D. (2019). Complexity Leadership Theory: A Perspective for State-Owned Enterprises in Ghana. *International Journal of Educational Leadership and Management*, 7(2), 139. <https://doi.org/10.17583/ijelm.2019.3647>
- Dragomir, V. D. (2020). *Ethical Aspects of Environmental Strategy BT - Corporate Environmental Strategy: Theoretical, Practical, and Ethical Aspects* (V. D. Dragomir (ed.); pp. 75–113). Springer International Publishing. [https://doi.org/10.1007/978-3-030-29548-6\\_3](https://doi.org/10.1007/978-3-030-29548-6_3)
- Dubey, R., Gunasekaran, A., & Samar Ali, S. (2015). Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain. *International Journal of Production Economics*, 160, 120–132. <https://doi.org/https://doi.org/10.1016/j.ijpe.2014.10.001>
- Egri, C. P., & Herman, S. (2000). Leadership in the North American Environmental Sector: Values, Leadership Styles, and Contexts of Environmental Leaders and their Organizations. *Academy of Management Journal*, 43(4), 571–604. <https://doi.org/10.5465/1556356>
- Farhat, T., Abdul-Sater, Z., Obeid, M., Arabi, M., Diab, K., Masri, S., Al Hales, Z., Nemer, G., & Bitar, F. (2013). Research in Congenital Heart Disease: A Comparative Bibliometric Analysis Between Developing and Developed Countries. *Pediatric Cardiology*, 34(2), 375–382. <https://doi.org/10.1007/s00246-012-0466-6>
- Farrukh, M., Ansari, N., Raza, A., Wu, Y., & Wang, H. (2022). Fostering employee’s pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, 179, 121643. <https://doi.org/https://doi.org/10.1016/j.techfore.2022.121643>
- Feeney, M., Grohnert, T., Gijsselaers, W., & Martens, P. (2023). Organizations, Learning, and Sustainability: A Cross-Disciplinary Review and Research Agenda. *Journal of Business Ethics*, 184(1), 217–235. <https://doi.org/10.1007/s10551-022-05072-7>
- Fry, L. W., & Egel, E. (2021). Global leadership for sustainability. *Sustainability (Switzerland)*, 13(11), 1–27. <https://doi.org/10.3390/su13116360>
- Gao, F., Jia, X., Zhao, Z., Chen, C.-C., Xu, F., Geng, Z., & Song, X. (2021). Bibliometric analysis on tendency and topics of artificial intelligence over last decade. *Microsystem Technologies*, 27(4), 1545–1557. <https://doi.org/10.1007/s00542-019-04426-y>
- Gorod, A., Hallo, L., & Nguyen, T. (2018). A Systemic Approach to Complex Project Management: Integration of Command-and-Control and Network Governance. *Systems Research and Behavioral Science*, 35(6), 811–837. <https://doi.org/10.1002/sres.2520>
- Han, K., & Kelvin, W. (2024). *Global Leadership and Sustainability*. 12(08), 7015–7026. <https://doi.org/10.18535/ijstrm/v12i08.em03>
- Han, X. (2020). Evolution of research topics in LIS between 1996 and 2019: an analysis based on latent Dirichlet allocation topic model. In *Scientometrics* (Vol. 125, Issue 3). Springer International Publishing. <https://doi.org/10.1007/s11192-020-03721-0>
- Hargreaves, A. (2009). Sustainable leadership. *The Essentials of School Leadership*, 183–202. <https://doi.org/10.4135/9781446288290.n11>
- Hariram, N. P., Mekha, K. B., Suganthan, V., & Sudhakar, K. (2023). Sustainalism: An Integrated Socio-Economic-Environmental Model to Address Sustainable Development and Sustainability. *Sustainability (Switzerland)*, 15(13). <https://doi.org/10.3390/su151310682>
- Kuknor, S. C., & Bhattacharya, S. (2022). Inclusive leadership: new age leadership to foster organizational inclusion. *European Journal of Training and Development*, 46(9), 771–797. <https://doi.org/10.1108/EJTD-07-2019-0132>
- Lewandowska, A., Ullah, Z., Saleh, F., AlDhaen, E., & Yakymchuk, A. (2023). Mejora de la

- sostenibilidad social organizacional: exploración del efecto del liderazgo sostenible y el papel moderador de la RSE a nivel micro. *Sustainability*, 15. <https://www-scopus-com.ezproxy.ulima.edu.pe/record/display.uri?eid=2-s2.0-85167824689&origin=resultslist&sort=plf-f&src=s&sid=ae4b013d2fa3b314806d8c33485f0c79&sot=a&sdt=cl&cluster=scosubtype%252C%2522ar%2522%252Ct%252Bscofreetoread%252C%2522all%2522%252Ct&s=TITLE-ABS-KEY%252>
- Liu, B., Liu, S., Alastra, A. J., Mahato, D., Tayag, E. C., Cortez, V. A., & Siddiqi, J. (2019). The 100 Most Cited vs. Most Relevant Articles in the Journal of Neurosurgery: A Bibliometric Analysis. *Cureus*, 11(4). <https://doi.org/10.7759/cureus.4498>
- Moral-muñoz, J. A., Herrera-viedma, E., Santisteban-espejo, A., Cobo, M. J., Herrera-viedma, E., Santisteban-espejo, A., & Cobo, M. J. (2020). 77520-Texto del artículo-249046-3-10-20200304.pdf. *El Profesional de La Información*, 29, 1–20.
- Ogut, H., El Archi, Y., & Dénes Dávid, L. (2023). Current trends in sustainable organization management: A bibliometric analysis. *Oeconomia Copernicana*, 14(1), 11–45. <https://doi.org/10.24136/oc.2023.001>
- Paul, G. W., & Berry, D. M. (2013). The importance of executive leadership in creating a post-merged organisational culture conducive to effective performance management. *SA Journal of Human Resource Management*, 11(1), 1–15. <https://doi.org/10.4102/sajhrm.v11i1.446>
- Pessin, V. Z., Yamane, L. H., & Siman, R. R. (2022). Smart bibliometrics: an integrated method of science mapping and bibliometric analysis. *Scientometrics*, 127(6), 3695–3718. <https://doi.org/10.1007/s11192-022-04406-6>
- Pham, N. T., Hoang, H. T., & Phan, Q. P. T. (2020). Green human resource management: a comprehensive review and future research agenda. *International Journal of Manpower*, 41(7), 845–878. <https://doi.org/10.1108/IJM-07-2019-0350>
- Radha, L., & Arumugam, J. (2021). The Research Output of Bibliometrics using Bibliometrix R Package and VOS Viewer. *Shanlax International Journal of Arts, Science and Humanities*, 9(2), 44–49. <https://doi.org/10.34293/sijash.v9i2.4197>
- Saeed, M. A., & Kersten, W. (2019). Drivers of sustainable supply chain management: Identification and classification. *Sustainability (Switzerland)*, 11(4). <https://doi.org/10.3390/su11041137>
- Sajjad, A., Eweje, G., & Raziq, M. M. (2024). Sustainability leadership: An integrative review and conceptual synthesis. *Business Strategy and the Environment*, 33(4), 2849–2867. <https://doi.org/10.1002/bse.3631>
- Savelsbergh, C. M. J. H., van der Heijden, B. I. J. M., & Poell, R. F. (2010). Attitudes towards factors influencing team performance. *Team Performance Management: An International Journal*, 16(7/8), 451–474. <https://doi.org/10.1108/13527591011090682>
- Singh, S. K., Giudice, M. Del, Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762. <https://doi.org/https://doi.org/10.1016/j.techfore.2019.119762>
- Sovacool, B. K., Hess, D. J., Amir, S., Geels, F. W., Hirsh, R., Rodriguez Medina, L., Miller, C., Alvia Palavicino, C., Phadke, R., Ryghaug, M., Schot, J., Silvast, A., Stephens, J., Stirling, A., Turnheim, B., van der Vleuten, E., van Lente, H., & Yearley, S. (2020). Sociotechnical agendas: Reviewing future directions for energy and climate research. *Energy Research and Social Science*, 70(April), 101617. <https://doi.org/10.1016/j.erss.2020.101617>
- Sroufe, R. (2017). Integration and organizational change towards sustainability. *Journal of Cleaner Production*, 162, 315–329. <https://doi.org/https://doi.org/10.1016/j.jclepro.2017.05.180>
- Tigre, F. B., Curado, C., & Henriques, P. L. (2023). Digital Leadership: A Bibliometric Analysis. *Journal of Leadership and Organizational Studies*, 30(1), 40–70. <https://doi.org/10.1177/15480518221123132>
- Tran, N. K. H. (2023). An empirical investigation on the impact of green human resources management and green leadership on green work engagement. *Heliyon*, 9(11), e21018.



- <https://doi.org/10.1016/j.heliyon.2023.e21018>
- Tseng, M. L., Islam, M. S., Karia, N., Fauzi, F. A., & Afrin, S. (2019). A literature review on green supply chain management: Trends and future challenges. *Resources, Conservation and Recycling*, 141(October 2018), 145–162. <https://doi.org/10.1016/j.resconrec.2018.10.009>
- Waite, A. (2014). Leadership's influence on innovation and sustainability. *European Journal of Training and Development*, 38(1/2), 15–39. <https://doi.org/10.1108/EJTD-09-2013-0094>
- Weerts, K., Vermeulen, W., & Witjes, S. (2018). On corporate sustainability integration research: Analysing corporate leaders' experiences and academic learnings from an organisational culture perspective. *Journal of Cleaner Production*, 203, 1201–1215. <https://doi.org/10.1016/j.jclepro.2018.07.173>
- Yadava, S. M., Patrick, H. S., Ananth, C. V, Rosen, T., & Brandt, J. S. (2019). Top-cited articles in the Journal: a bibliometric analysis. *American Journal of Obstetrics and Gynecology*, 220(1), 12–25. <https://doi.org/https://doi.org/10.1016/j.ajog.2018.11.1091>
- Zhang, J., Zhang, Z., Ballesteros-Pérez, P., Skitmore, M., Yang, G., Philbin, S. P., & Lu, Q. (2023). Factors influencing environmental performance: a bibliometric review and future research agenda. *International Journal of Urban Sciences*, 27(4), 543–569. <https://doi.org/10.1080/12265934.2021.1899845>
- Zhang, L., Xu, M., Chen, H., Li, Y., & Chen, S. (2022). Globalization, Green Economy and Environmental Challenges: State of the Art Review for Practical Implications. *Frontiers in Environmental Science*, 10(March), 1–9. <https://doi.org/10.3389/fenvs.2022.870271>
- Zhang, W., Xu, F., & Wang, X. (2020). How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner. *Sustainability (Switzerland)*, 12(9). <https://doi.org/10.3390/su12093841>
- Zopounidis, C., & Lemonakis, C. (2024). The company of the future: Integrating sustainability, growth, and profitability in contemporary business models. *Development and Sustainability in Economics and Finance*, 1, 100003. <https://doi.org/https://doi.org/10.1016/j.dsef.2024.100003>
- Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>