

Leadership styles and sustainable performance



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Abstract Leadership styles play a critical role in influencing sustainable performance and shaping organizational dynamics. A nuanced understanding of different leadership styles may have distinct impacts on the long-term success of performance to ensure organizational sustainability. Therefore, this study aims to analyze the trends of leadership styles and sustainable performance through a bibliometric analysis to provide valuable insights into the scholarly landscape surrounding this critical intersection. Using data from the Scopus scientific database for the period between 2010 and 2024, 106 relevant documents are found and visualized via the Vosviewer software to represent the relationships and patterns within the data. The main results found four thematic clusters: (1) red cluster is focuses on authentic leadership, sustainable leadership, knowledge management, sustainable development, and sustainable performance, (2) green cluster is related to organizational culture, job satisfaction, and innovation, (3) blue cluster is associated with transformational leadership, transactional leadership, organizational commitment, and corporate social responsibility, (4) yellow cluster is connected to servant leadership, organizational citizenship behavior, and employee performance. In all clusters, the bibliometric review indicates a robust connection between leadership styles (i.e., authentic leadership, sustainable leadership, transformational leadership, transactional leadership, and servant leadership) and sustainable performance. Comparing to another style of leadership, the finding further highlights the prevalence of transformational leadership as a key driver of sustainable performance.

Keywords: leadership styles, sustainable performance, bibliometric analysis, Vosviewer

1. Introduction

In the modern era, organizations face a myriad of challenges that stem from rapid technological advancements, globalization, and the changing expectations of employees, customers, and other stakeholders. Thus, organizations need to be agile and adaptable to respond quickly to these changes in the market (Balog, 2020; Holbeche, 2023; LeMay, 2018). Keeping up with diverse leadership styles can not only build adaptive and high-performing teams but also drive success in the face of evolving challenges and upskilling of the workforce.

Understanding the leadership styles of modern organizations is very important for navigating the complexities of the current business landscape. Leadership styles play a key role in determining long-term organizational success (Nogueira et al., 2018; Santos et al., 2023; Tajedin et al., 2017). Effective leaders who understand and apply diverse leadership styles (Udin, 2023) can build organizational resilience and align well with the innovation demands of the modern marketplace.

Several leadership styles have gained prominence, and each offers unique benefits depending on the organizational context. Mulyani and Basrowi (2024) proposed environmentally oriented leadership as a key factor for enhancing sustainable performance outcomes. However, according to Younas et al. (2023), responsible leadership promotes a holistic and integrated approach to environmental sustainability within organizations. Responsible leadership involves the acknowledgment of environmental concerns and the integration of sustainable practices into decision-making processes to foster ecologically responsible actions within organizations. In addition, servant leadership (Abbas et al., 2021; Alafeshat & Tanova, 2019), entrepreneurial leadership (Alsharif et al., 2021; Pauceanu et al., 2021), digital leadership (Khaw et al., 2022), change leadership (Bashir et al., 2022), sustainable leadership (Merma-Molina et al., 2022), authentic leadership (Daskou & Tzokas, 2023), environmental leadership (Boeske, 2023), transformational leadership (Hanif et al., 2023), and ambidextrous leadership (Katou et al., 2023) play pivotal roles in driving sustainable performance to create value not only for organizations but also for society and the environment. According to these studies, there is a lack of consensus regarding the specific leadership styles that play the most significant role in driving sustainable performance. Scholars often present varying perspectives based on their theoretical frameworks, methodologies, and contextual considerations. Additionally, the lack of consensus may stem from the context-dependent nature of leadership effectiveness. The optimal leadership style for driving sustainable performance could depend on factors such as organizational culture, industry type, and specific sustainability goals. Therefore, this study is necessary to provide a comprehensive understanding of the relationship between leadership



styles and sustainable performance. Consequently, this study aims to analyze and answer the following research questions (RQs):

RQ1: Which leadership styles are most frequently mentioned in the literature on sustainable performance?

RQ2: What are the most common keywords associated with leadership styles and sustainable performance?

RQ3: How does the distribution of research on leadership styles and sustainable performance vary across different countries?

2. Review of the literature

2.1. Theories of leadership

Leadership is a multifaceted concept, and different experts may define it in various ways. However, several common characteristics are often associated with effective leadership (Schuetz, 2016). The only definition of a leader is someone who has followers (Drucker, 1996). Leaders induce followers to act for certain goals that represent values and motivations (Burns, 2012). Leaders focus on increasing the values, knowledge, and skills of individuals and demonstrating how to be more proficient in their ability (Ulrich, 2019). According to Maxwell (2011), leadership is about the ability to positively influence others to achieve a common goal. In summary, leadership is often seen as the ability to influence others, translate vision into reality, and achieve common goals. Leadership involves a combination of traits, behaviors, and skills (Schultz, 2013). Therefore, effective leaders exhibit qualities such as vision, integrity, empathy, and the ability to inspire others.

Several theories of leadership have been developed over the years, each offering a different perspective on what makes an effective leader. These theories aim to understand the essence of effective leadership, identify key traits or behaviors associated with successful leaders, and provide insights into how leadership can adapt to different situations. For example, trait theory – as one of the earliest theories of leadership – posits that certain inherent qualities (i.e., intelligence, self-confidence, determination, and integrity) make individuals natural leaders. Behavioral theory has shifted the focus from inherent traits to observable behaviors. It categorizes leadership behaviors into two dimensions, initiating structure (task-oriented) and consideration (relationship-oriented), to identify the behaviors associated with effective leadership. Moreover, contingency theory proposes that the effectiveness of leadership is contingent upon various situational factors. The match between a leader's style (task-oriented or relationship-oriented) and the situation determines leadership effectiveness. However, situational leadership theory emphasizes that effective leaders adjust their style based on the readiness of their followers (Day & Antonakis, 2012; Hunt & Fedynich, 2019; Khan et al., 2016). Leaders may need to be more directive in some situations and more supportive in others (Hwang et al., 2015; Tremblay et al., 2019), depending on the followers' competence and commitment. In conclusion, the diverse theories of leadership reflect the evolving understanding of what makes a leader effective. From early trait-based approaches to contemporary theories emphasizing adaptability and ethical considerations.

2.2. Principles of leadership

Leadership principles are fundamental guidelines that guide the behavior and actions of effective leaders. These principles serve as a foundation for leadership practices and help leaders navigate the complexities of their roles. For example, effective leaders set a standard (i.e., leading by example) for others by modeling behavior, values, and work ethic (Gächter et al., 2012; Pircher Verdorfer & Peus, 2020). Leaders should inspire their followers to achieve their full potential by communicating a compelling vision with passion to energize individuals toward common goals (Hagemann et al., 2017; Jensen et al., 2018). Leaders also prioritize and build strong connections with their followers to promote trust, collaboration, and a positive working environment (Men et al., 2020). Additionally, effective leaders remain flexible, open to new ideas, and resilient in the face of challenges to embrace change as an opportunity for growth and innovation. Additionally, effective leaders should uphold high moral and ethical standards to demonstrate honesty, transparency, and fairness inside and outside organizations.

2.3. Styles of leadership

Leadership styles encompass the approaches and behaviors that leaders employ to guide, motivate, and influence others. The study of leadership styles recognizes that effective leaders often adapt their approaches based on the context, the needs of their followers, and the nature of the tasks at hand. According to Legutko (2020), several prominent leadership styles (i.e., authentic, servant, transactional, and transformational) contribute to steering large and influential corporations in today's ever-changing business landscape. Specifically, authentic leadership focuses on leaders being true to themselves and their employees. Authentic leaders build trust through transparency, self-awareness, and a commitment to ethical behavior to create positive organizational outcomes (Alilyyani et al., 2018; Kiersch & Byrne, 2015). However, servant leaders emphasize a commitment to serving others and prioritizing the well-being and development of their employees. The servant leadership style is evident in its focus on creating a positive work environment (Sheikh et al., 2020; Xu & Wang, 2020), promoting employee growth, and contributing to the broader community. Meanwhile, transactional leadership emphasizes the importance of clear expectations, rewards, and consequences to drive organizational success. This leadership style is often

associated with achieving short-term goals (Mouazen et al., 2024) and maintaining operational efficiency. Furthermore, transformational leadership articulates compelling visions for companies, fostering innovation, adaptability, and a sense of purpose among employees. Transformational leaders focus on creating positive organizational cultures (Udin et al., 2023) and driving long-term success through the development of their employees.

According to McCann and Holt (2010), two leadership styles (i.e., servant and sustainable leadership) have gained prominence in contemporary organizational contexts, particularly in the manufacturing environment. Servant leadership, characterized by a commitment to serving others (Grisaffe et al., 2016), prioritizes the well-being of employees, suppliers, and the community. By fostering a culture of empathy and support, servant leaders inspire collaboration and a shared commitment to sustainability goals. Furthermore, sustainable leadership, on the other hand, considers the long-term impact of organizational decisions on the environment, society, and economic viability (Kantabutra & Thepha-Aphiraks, 2016; Metsämuuronen et al., 2013). Sustainable leaders guide their employees toward environmentally friendly practices, resource efficiency, and social responsibility. They recognize that sustainable practices not only contribute to ethical business conduct but also enhance long-term profitability and resilience in the face of global challenges (Avery & Bergsteiner, 2011).

2.4. Leadership styles and sustainable performance

Leadership styles significantly influence the sustainable performance of organizations (Budiarto & Mir, 2012; Burawat, 2019; Piwowar-Sulej & Iqbal, 2023). Through inspiring visions, clear goals, and a focus on the well-being of individuals, leaders shape the culture and practices that drive sustainability (Asad et al., 2021). An adaptive approach to leadership styles contributes to the creation of organizations that not only contribute positively to the environment and society over the long term but also thrive economically. Organizations led by leaders who are committed to the principles of sustainability demonstrate positive outcomes across corporate social responsibility (CSR), environmental stewardship, and employee well-being (Iqbal et al., 2020; Iqbal et al., 2020; Pantouvakis & Vlachos, 2020).

3. Materials and Methods

This study used secondary data from the Scopus scientific database for the data analysis. Analyzing secondary data can be a time-efficient and cost-effective way to gain insights and answer research questions. Using data from the Scopus scientific database for the period between 2010 and 2024, 106 relevant documents were found and visualized via VOSviewer software to represent the relationships within the data. Among the 106 English documents, 76.4% (81) were published in journals, 13.2% (14) were published in conference proceedings, 6.6% (7) were published in books, and 3.8% (4) were published in book series. Additionally, approximately 56 (52.8%) of the 106 relevant documents were open access, gold (36; 34%), green (24; 22.6%), hybrid gold (12; 11.3%), and bronze (4; 3.8%).

This study further uses bibliometric analysis via VOSviewer version 1.6.16 to explore relationships within the set of scholarly literature. VOSviewer allows researchers to create visually appealing network visualizations (Sood, Kumar, & Saini, 2021; Van Eck & Waltman, 2010) to represent relationships between items, such as documents, authors, or keywords, through nodes and links. Additionally, VOSviewer facilitates the analysis of keyword co-occurrence, revealing which terms are frequently used together in the literature (Moral-Muñoz, Herrera-Viedma, Santisteban-Espejo, & Cobo, 2020; Van Eck & Waltman, 2007).

4. Results and Discussion

VOSviewer is a tool for visualizing scientific literature. The top-productive authors in the studies of leadership styles and sustainable performance based on VOSviewer are Kafetzopoulos, D. from University of Macedonia – Greece; Iqbal, Q. from King Fahd University of Petroleum and Minerals – Saudi Arabia; Bencsik, A. from Univerzita J. Selyeho – Slovakia; Dunay, A. from John von Neumann University – Hungary; and Hossain, M.B. from Hungarian University of Agriculture and Life Sciences – Hungary. Additionally, 55 articles were published by Kafetzopoulos, D., with an h-index of 19. These articles were cited by 1,173 documents. Iqbal, Q., with an h-index of 15, has authored 34 articles, which collectively have received citations from 515 documents. Bencsik, A., with an h-index of 9, has authored 58 articles that have been cited by 254 documents. Dunay, A. boasts an h-index of 8 and has authored 41 articles that have garnered citations from 167 documents. Hossain, M.B., who has an h-index of 4, has authored 19 articles, which have collectively received citations from 33 documents. According to Kafetzopoulos and Gotzamani (2022), leadership styles shape the foundation upon which firms build their sustainable success. Leaders who prioritize empowerment contribute to a workforce that is not only skilled but also motivated to contribute to the long-term success of the organization.

Figure 1 shows the different subject areas based on the classifications associated with the documents. Specifically, the studies of leadership styles and sustainable performance included areas such as business, management and accounting (18%; 43 documents), social sciences (16.7%; 40), environmental science (13.4%; 32), energy (12.1%; 29), computer science (9.2%; 22), economics, econometrics and finance (7.1%; 17), engineering (7.1%; 17), arts and humanities (2.9%; 7), decision sciences (2.9%; 7), earth and planetary sciences (2.1%; 5), and others (8.4%). Thus, the dominance of leadership studies in the realm of



business, management, and accounting reflects the recognition of leadership as a critical determinant of organizational effectiveness and sustainability within these professional domains.

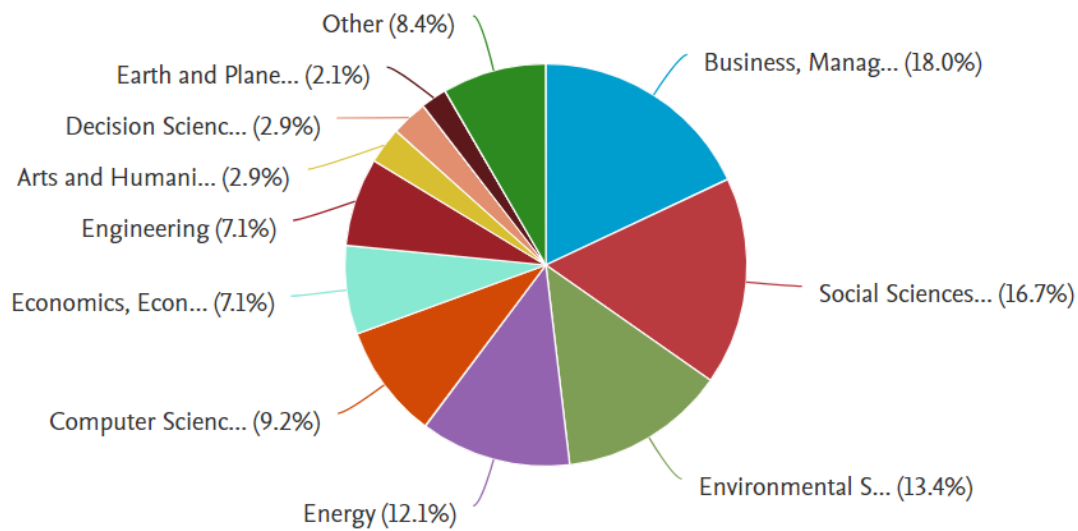


Figure 1 Documents by subject area.

Table 1 shows the number of publications in each journal. The greatest number of publications on leadership styles and sustainable performance were published by Sustainability from Switzerland (17; 16.03%), with a Cite Score of 5.8; the Journal of Cleaner Production from the United Kingdom (5; 4.72%), with a Cite Score of 18.5; Frontiers in Psychology from Switzerland (3; 2.83%), with a Cite Score of 4.5; Sage Open from the United States (3; 2.83%), with a Cite Score of 3; and Heliyon (2; 1.89%), with a Cite Score of 5.6.

Table 1 The 5 top journals in the field.

Source	Cite Score	Publisher	Country	Documents
Sustainability	5.8	Multidisciplinary Digital Publishing Institute (MDPI)	Switzerland	17
Journal of Cleaner Production	18.5	Elsevier	United Kingdom	5
Frontiers in Psychology	4.5	Frontiers Media S.A.	Switzerland	3
Sage Open	3	Sage	United States	3
Heliyon	5.6	Elsevier	Netherlands	2

Table 2 shows the number of publications and total citations with respect to each institution. The most productive institution in the studies of leadership styles and sustainable performance is the Universiti Sains Malaysia from Malaysia, with a total of 3 publications and 62 citations. It is followed by Universitas Muhammadiyah Yogyakarta from Indonesia with 50 citations, Universität Heidelberg from Germany with 20 citations, Hungarian University of Agriculture and Life Sciences from Hungary with 18 citations, and the University of Macedonia from Greece with 12 citations.

When considering the quantity of documents, the rankings are as follows: Indonesia (12.26%; 13 publications), the United Kingdom (10.38%; 11 publications), Malaysia (9.43%; 10 publications), India (8.49%; 9 publications), and China (6.6%; 7 publications).

Table 2 The 5 most productive institutions ranked by country.

Affiliation	Country	Documents	Total Citation
Universiti Sains Malaysia	Malaysia	3	62
Universitas Muhammadiyah Yogyakarta	Indonesia	2	50
Universität Heidelberg	Germany	2	20
Hungarian University of Agriculture and Life Sciences	Hungary	2	18
University of Macedonia	Greece	2	12

Figure 2 shows the connections between nodes to indicate cooccurrences to help identify trends in the literature. These nodes provide four thematic clusters: (1) the red cluster focuses on authentic leadership, sustainable leadership, knowledge management, sustainable development, and sustainable performance; (2) the green cluster is related to organizational culture, job satisfaction, and innovation; (3) the blue cluster is associated with transformational leadership, transactional leadership, organizational commitment, and corporate social responsibility; and (4) the yellow cluster is connected to servant leadership, organizational citizenship behavior, and employee performance. In all clusters, the



bibliometric review indicates a robust connection between leadership styles (i.e., authentic leadership, sustainable leadership, transformational leadership, transactional leadership, and servant leadership) and sustainable performance. Compared to other styles of leadership, this finding further highlights the prevalence of transformational leadership as a key driver of sustainable performance.



Figure 2 Circle representation of keyword co-occurrence.

4.1. Leadership styles as a predictor of individual and organizational outcomes

Leadership styles significantly influence individual outcomes within an organization. Effective leaders often adapt their leadership style based on the situation and the needs of their employees. A transformational leadership style encourages personal development and innovation (Al-Husseini et al., 2021; Tănase, 2020; Xie et al., 2018) to improve job satisfaction and sustainable performance (Akdere & Egan, 2020; Jiang et al., 2017; Nazari et al., 2022). Additionally, by fostering motivation, trust, and individualized consideration, transformational leadership enhances organizational citizenship behavior (OCB) and increases employee performance (Qalati et al., 2022; Tania, et al., 2021; Udin, 2023). Transformational leaders inspire and motivate employees to go beyond their formal roles as a way of reciprocating the leader's positive influence. Transformational leaders further provide individualized support and development opportunities to contribute to skill enhancement and overall improvement in employee performance.

Servant leadership promotes OCB and employee performance (Almahdali et al., 2021; Hermanto & Srimulyani, 2022; Ruiz-Palomino et al., 2023) through its emphasis on empathy, collaboration, and empowerment. Servant leaders empower employees by providing them with the resources and autonomy to engage in OCB (Howladar & Rahman, 2021; Kumari et al., 2022) and by feeling a sense of ownership and responsibility for the organization's success. Additionally, servant leaders focus on the growth and development of their employees. By investing in the personal and professional development of employees, servant leaders enhance commitment and job satisfaction (Ngha et al., 2022; Udin et al., 2024), leading to improved performance. Servant leaders also build trust through integrity and genuine concern for their employees. Trust is a crucial factor in employee performance, as it fosters a positive work environment and a willingness to take risks and innovate.

Authentic leadership is characterized by genuineness, transparency, and ethical behavior. Authentic leaders positively foster a work environment conducive to organizational citizenship behavior and creativity, ultimately leading to heightened individual performance (Duarte et al., 2021; Hanaysha, 2022; Ribeiro et al., 2018). Authentic leaders, by embodying values and integrity, inspire employees to engage in behaviors that go beyond their formal job requirements to contribute to the overall well-being of the organization. Authentic leaders create an environment of trust and openness, which is conducive to innovation (Korku & Kaya, 2023; Yamak & Eyupoglu, 2021). When employees feel secure in expressing their ideas and taking risks, a culture of innovation is promoted. Additionally, authentic leaders are often invested in the personal and professional

development of their employees. This commitment to growth may enhance individuals' ability to engage in discretionary behaviors, positively impacting overall sustainable performance (Alshura et al., 2023).

5. Final considerations

The main findings of this study include four thematic clusters: (1) the red cluster focuses on authentic leadership, sustainable leadership, knowledge management, sustainable development, and sustainable performance; (2) the green cluster is related to organizational culture, job satisfaction, and innovation; (3) the blue cluster is associated with transformational leadership, transactional leadership, organizational commitment, and corporate social responsibility; and (4) the yellow cluster is connected to servant leadership, organizational citizenship behavior, and employee performance. In all clusters, the bibliometric review indicates a robust connection between leadership styles (i.e., authentic, sustainable, transformational, transactional, and servant leadership) and sustainable performance. Compared to other styles of leadership, this finding further highlights the prevalence of transformational leadership as a key driver of sustainable performance.

The practical implications of this study highlight that leadership styles significantly shape the organizational landscape and long-term organizational success. As businesses strive for long-term success, understanding and implementing effective leadership styles (i.e., authentic, sustainable, transactional, servant, and transformational leadership) becomes imperative for achieving and maintaining sustainable performance. Transformational leadership, for instance, fosters a positive and motivating work environment by inspiring employees. This, in turn, enhances job satisfaction and commitment, contributing to a higher level of sustainable performance.

In the context of leadership styles and sustainable performance, relying solely on the Scopus scientific database for sources of data analysis is essential to acknowledge as a limitation of this study. Although the Scopus scientific database provides a solid foundation for an academically rigorous study, complementing the findings with insights from other reputable sources (i.e., Web of Science, PubMed, and IEEE Xplore) is crucial and well recommended.

Ethical considerations

Not applicable.

Conflict of interest

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