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RESPONSIBLE LEADERSHIP AND GREEN KNOWLEDGE SHARING: INTELLECTUAL STRUCTURE AND THEMATIC EVOLUTION

Sutana Boonlua[1], Udin Udin[2*], Pankom Sriboonlue[1], Radyan Dananjoyo[2]

[1]Mahasarakham Business School, Mahasarakham University, Thailand. Email: sutana.t@acc.msu.ac.th, Orcid iD: https://orcid.org/0009-0000-3750-7903
[2]Management Department, Universitas Muhammadiyah Yogyakarta, Indonesia. Email: udin@umy.ac.id, Orcid iD: https://orcid.org/0000-0002-5491-9085
[3]Mahasarakham Business School, Mahasarakham University, Thailand. Email: pankom.s@acc.msu.ac.th, Orcid iD: https://orcid.org/0000-0003-4216-0152
[4]Management Department, Universitas Muhammadiyah Yogyakarta, Indonesia. Email: radyan.dananjoyo@umy.ac.id, Orcid iD: https://orcid.org/0000-0002-7159-4067

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Corresponding Author: Udin Udin (udin@umy.ac.id)

ABSTRACT

The growing emphasis on organizational sustainability has intensified scholarly attention toward responsible leadership (RL) and green knowledge sharing (GKS) as critical drivers of environmentally responsible practices. Despite this growing interest, the extant literature remains fragmented across disciplinary boundaries and theoretical traditions. Addressing this gap, the present study systematically maps the intellectual structure, publication trends, collaborative networks, and thematic evolution of research at the intersection of RL and GKS. Employing a bibliometric research design, data were retrieved from the Scopus database, encompassing peer-reviewed publications published between 2020 and 18 November 2025. A total of 31 eligible documents were analyzed using VOSviewer. The results reveal a clear upward trajectory in publication output, particularly after 2022, indicating intensified scholarly attention to sustainability-oriented leadership. The analysis identifies influential authors, institutions, and journals, as well as well-established international collaboration networks spanning Asia, Europe, Africa, and Australia. Keyword co-occurrence analysis uncovers four dominant thematic clusters: knowledge management processes for sustainable development, RL and employee psychological mechanisms, digital transformation and green innovation, and GKS as a core driver of sustainability. These findings further highlight GKS as a critical mechanism through which RL translates ethical intentions into tangible sustainability outcomes and offers a structured agenda for future research.

KEYWORDS: Responsible Leadership, Green Knowledge Sharing, Knowledge Management, Organizational Sustainability, Intellectual Structure, Thematic Evolution, Bibliometric Analysis, Science Mapping, VOSviewer.

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1. INTRODUCTION

Environmental degradation, climate change, and resource scarcity have intensified pressures on organizations to adopt sustainable practices that go beyond symbolic compliance alone. In response, contemporary management research has increasingly emphasized the role of leadership in fostering organizational sustainability (Justino Alves et al., 2025). Among various leadership approaches, responsible leadership (RL) has emerged as a critical paradigm that integrates ethical responsibility, stakeholder engagement, and long-term value creation. Unlike traditional leadership models that prioritize economic performance, RL explicitly aligns organizational goals with social and environmental imperatives (Ak et al., 2025; Zhu et al., 2024), making it particularly relevant to sustainability and green management.

At the same time, organizations' ability to achieve environmental sustainability depends not only on formal policies or technological investments but also on how knowledge related to environmental practices is created, shared, and utilized within and across organizations. Green knowledge sharing (GKS) refers to the dissemination of knowledge, ideas, and best practices related to environmental protection, eco-innovation, and sustainable operations among organizational members (Saleem et al., 2024). Prior studies consistently show that GKS enhances pro-environmental behavior, green innovation, and environmental performance (Alsammak, 2025; Rahman et al., 2025). However, GKS is inherently voluntary and socially embedded, requiring supportive leadership, trust, and ethical climates to flourish.

The intersection of RL and GKS thus represents a promising and theoretically rich research domain. Responsible leaders, through ethical role modeling, stakeholder orientation, and inclusive decision-making, are well positioned to encourage employees to exchange environmentally relevant knowledge (Ak et al., 2025; Huo et al., 2022). By fostering psychological safety, moral commitment, and shared responsibility for sustainability goals, RL can reduce knowledge hoarding and stimulate collaborative learning around green practices (Bashir et al., 2025; Maqsoom et al., 2025).

Despite this growing interest, the literature on RL and GKS remains fragmented and conceptually diffuse. Existing studies are scattered across disciplines such as leadership studies, sustainability management, environmental psychology, and organizational behavior. They employ diverse theoretical lenses, including stakeholder theory (Pless & Maak, 2012), social learning theory (Huo et al., 2022), social exchange theory (Lin et al., 2020), and resource-based perspectives (Alam et al., 2025). Moreover, empirical investigations vary substantially in methodological approaches, research contexts, and levels of analysis (Ishaq, 2025; Xuecheng et al., 2022). As a result, the intellectual structure, thematic evolution, and collaborative patterns of this research stream remain insufficiently understood.

Applying a bibliometric approach to the RL–GKS nexus is both timely and necessary. Accordingly, the primary objective of this study is to systematically examine: (1) the growth trajectory and publication trends of the field; (2) the most influential authors, journals, and institutions; (3) co-authorship and collaboration networks; (4) the intellectual foundations through co-citation analysis; and (5) dominant themes and emerging research clusters through keyword co-occurrence analysis.

2. LITERATURE REVIEW

2.1. Rl as a Foundation for Sustainability-Oriented Organizations

RL has emerged as a pivotal leadership paradigm in response to the escalating societal, environmental, and ethical challenges confronting contemporary organizations. In contrast to traditional leadership models that predominantly emphasize financial performance and shareholder value, RL underscores accountability, ethical decision-making, stakeholder inclusiveness, and long-term sustainability (Pless & Maak, 2012). This approach integrates moral principles with strategic leadership by encouraging leaders to balance economic objectives with social and environmental responsibilities (James & Priyadarshini, 2021). As sustainability increasingly becomes a central organizational imperative, RL is widely recognized as a critical driver of sustainable development and pro-environmental organizational behaviors (Maqsoom et al., 2025).

The theoretical foundations of RL are grounded in stakeholder theory, ethical leadership, and sustainability leadership. Stakeholder theory posits that leaders should consider the interests of multiple stakeholder groups, including employees, communities, customers, and the natural environment, rather than focusing solely on shareholders (Corriveau et al., 2025). Ethical leadership contributes to this perspective by emphasizing the importance of moral values, fairness, and integrity in shaping leader behavior and organizational norms (Brown et al., 2005). Sustainability leadership further extends these views

by underscoring intergenerational responsibility and environmental stewardship (Avery & Bergsteiner, 2011). Integrating these theoretical streams, RL emerges as a holistic framework that positions leaders as moral agents committed to fostering sustainable value creation.

Empirical evidence increasingly indicates that RL exerts a positive influence on a range of employee attitudes and behaviors, including organizational commitment, trust, work engagement, and organizational citizenship behavior (Haque et al., 2019; Zhao & Zhou, 2019). Notably, responsible leaders exemplify pro-environmental values and signal the strategic importance of sustainability, thereby shaping organizational cultures that support environmentally responsible practices (Ak et al., 2025). Through ethical role modeling and active stakeholder engagement, responsible leaders foster enabling conditions for knowledge sharing (KS), organizational learning, and innovation within sustainability-related domains.

2.2. GKS and Its Strategic Importance

GKS refers to the exchange of environmental knowledge, practices, experiences, and ideas among organizational members with the objective of enhancing environmental performance and supporting sustainable practices (Kaba et al., 2025). It represents a specialized form of KS that focuses on ecological issues, including energy efficiency, waste reduction, eco-innovation, and environmental compliance (Zhang et al., 2021). As organizations face increasing pressure to minimize their environmental footprint, GKS has emerged as a strategic capability that underpins effective environmental management and sustainable competitive advantage.

From a knowledge-based perspective, organizational knowledge constitutes a critical strategic resource that enables firms to adapt, innovate, and achieve sustainable competitive advantage (Stoian et al., 2024). Green knowledge, in particular, is frequently tacit, context-specific, and embedded within employees' experiences, thereby rendering effective sharing mechanisms essential for its diffusion across the organization. Effective GKS enables organizations to avoid duplication of efforts, accelerate learning, and enhance collective problem-solving in addressing environmental challenges (Martínez Falcó et al., 2024). Prior research further indicates that GKS positively influences green innovation, environmental performance, and pro-environmental behavior. For instance, empirical studies demonstrate that employees who actively exchange green knowledge are more likely to engage in eco-friendly behaviors and contribute to environmental innovation initiatives (Chen et al., 2023; Martínez Falcó et al., 2024).

2.3. Linking RL and GKS

The relationship between RL and GKS has attracted increasing scholarly attention, as leadership is widely recognized as a central mechanism shaping knowledge-related behaviors. Responsible leaders play a pivotal role in cultivating an environment conducive to GKS by articulating a clear sustainability vision, demonstrating ethical commitment, and fostering open communication (Huo et al., 2022; Zulfiqar et al., 2022). Through these practices, leaders shape employees' perceptions of psychological safety, trust, and moral obligation, which constitute key antecedents of knowledge-sharing behavior.

Social learning theory offers a valuable lens for elucidating this relationship. According to this theory, employees observe and emulate leader behaviors, particularly when leaders are perceived as credible and ethical role models. When responsible leaders actively engage in sustainability initiatives and openly share environmental knowledge, employees are more likely to mirror these behaviors and participate in GKS (Huo et al., 2022). In parallel, social exchange theory suggests that RL cultivates reciprocal relationships between leaders and followers. By demonstrating genuine concern for stakeholders and the natural environment, responsible leaders foster feelings of trust and obligation among employees, motivating them to reciprocate through discretionary behaviors such as sharing green knowledge (Xuecheng et al., 2022). Empirical evidence supports this perspective, indicating that RL that emphasizes ethics, responsibility, and sustainability positively influences knowledge-sharing intentions and behaviors (Lin et al., 2020).

3. RESEARCH METHODS

3.1. Research Design

This study adopts a quantitative bibliometric research design to systematically map and evaluate the intellectual structure, thematic evolution, and research trends within the domain of RL and GKS. Bibliometric analysis is particularly well suited to this objective, as it enables the objective examination of large volumes of scientific literature (Udin, Dananjoyo, et al., 2025), minimizes the subjective bias inherent in traditional narrative reviews, and uncovers latent patterns of knowledge production, scholarly collaboration, and thematic concentration

within a research field (Donthu et al., 2021).

3.2. Data Source and Search Strategy

The bibliographic data were retrieved exclusively from the Scopus database, which is widely recognized as one of the most comprehensive and reliable citation databases for peer-reviewed academic literature. Scopus was selected due to its extensive journal coverage, rigorous indexing standards (Visser et al., 2021), and strong compatibility with bibliometric analysis software such as VOSviewer (Ansari & Qamari, 2025; Udin, Saad, et al., 2025). Compared with alternative databases such as Web of Science and Google Scholar, Scopus offers greater consistency and completeness in citation metadata, which is essential for conducting accurate co-occurrence, co-citation, and bibliometric network analyses. The search was conducted using a structured query applied to the title, abstract, and keywords fields to ensure an appropriate balance between precision and comprehensiveness. The final search string was formulated as follows: ("responsible leadership") AND ("green knowledge sharing" OR "knowledge sharing" OR "knowledge management").

3.3. Inclusion and Exclusion Criteria

To ensure the quality and relevance of the dataset, a set of inclusion and exclusion criteria was applied. First, only peer-reviewed journal articles, review articles, conference papers, and book chapters were included, as these document types represent validated and high-quality scholarly contributions. Editorials and notes were excluded to maintain methodological consistency and to avoid redundancy arising from synthesized or opinion-based content. Second, only English-language publications were considered to ensure consistency in keyword extraction and thematic interpretation. Third, the analysis was confined to publications published between 2020 and 18 November 2025. This period was selected because scholarly interest in RL and GKS increased substantially after 2020, coinciding with the global expansion of sustainability agendas, corporate social responsibility initiatives, and environmental governance frameworks.

The final search string was formulated as ("responsible leadership") AND ("green knowledge sharing" OR "knowledge sharing" OR "knowledge management"). This keyword combination initially yielded 78 documents. After applying a publication-year filter restricting the timeframe to 2020–18 November 2025, the dataset was reduced to 53 documents. A subsequent refinement based on language, limited to English, resulted in a final sample of 31 eligible documents.

Of the 31 eligible documents, journal articles constituted the majority of the dataset, accounting for 26 publications (83.9%), followed by book chapters and conference papers with two publications each (6.5% each), and one review article (3.2%). Regarding open access status, 12 documents (38.7%) were classified as fully open access, 11 documents (35.5%) as gold open access, six documents (19.4%) as green open access, and two documents (6.5%) as hybrid gold open access. In terms of subject area distribution, Business, Management, and Accounting represented the largest share of publications (27.8%), followed by Social Sciences (16.7%). Computer Science and Environmental Science each accounted for 9.3%, while Economics, Econometrics, and Finance contributed 7.4%. Decision Sciences, Engineering, and Mathematics each represented 5.6% of the total publications. Psychology accounted for 3.7%, whereas Earth and Planetary Sciences, Energy, Medicine, Multidisciplinary Studies, and Nursing each comprised 1.9% of the dataset.

4. RESULTS AND DISCUSSION

The publication distribution depicted in Figure 1 reveals a fluctuating yet overall upward trend over the study period. One publication was recorded in 2020, followed by no publications in 2021. Research output increased to six publications in 2022, declined to two in 2023, rose again to six in 2024, and reached a pronounced peak of sixteen publications in 2025. This upward trajectory, particularly in the most recent years, reflects a growing scholarly interest in sustainability-oriented leadership and the role of KS in advancing environmentally responsible practices within organizations.

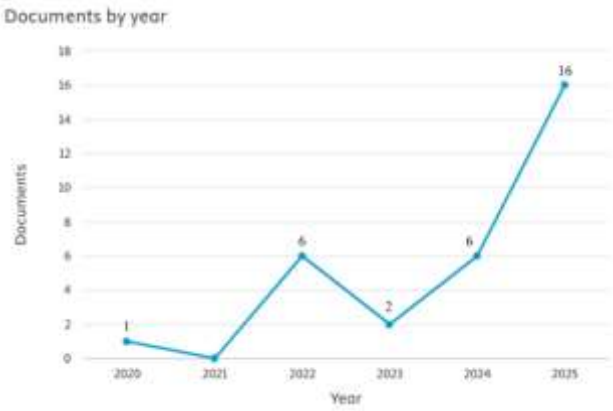

Figure 1: Publication Distribution.

Table 1 presents the five most cited documents in the field of responsible leadership. The findings offer

deeper insight into the intellectual structure and citation dynamics of research on RL and KS by identifying the five most highly cited documents in the field. The most cited article, authored by Lin et al. (2020), occupies a seminal position, receiving the highest number of citations. Its substantial impact can be attributed to the clear empirical linkage it establishes between RL, KS, and job performance among knowledge workers. The second-ranked study by Haider et al. (2022) extends this foundational relationship by introducing person–organization fit as a mediating mechanism and organizational culture as a moderating factor. This theoretical extension reflects the maturation of the literature, as scholars increasingly focus on explaining how and under what conditions RL facilitates KS.

The third most cited article, authored by Huo et al. (2022), reflects a notable thematic expansion toward green innovation and environmental sustainability. By integrating KS and leader–member exchange, this study effectively bridges leadership research with the green innovation literature. The fourth-ranked publication by Xuecheng et al. (2022) positions RL within a regional and macro-level sustainability context, applying social exchange theory to economic cooperation in East Asia. Although it places less explicit emphasis on KS, its inclusion among the most highly cited works underscores the broad conceptual scope of RL, extending from organizational behavior to sustainable development and international economic collaboration. Finally, the article by Ali et al. (2025), despite its recent publication, has already accrued a notable number of citations. This pattern suggests rapid scholarly uptake and reflects the current momentum in the field. Its emphasis on work engagement, supported by KS and helping behaviors, signals an emerging research trend that highlights employee well-being and positive work outcomes as salient consequences of RL.

Table 1: The Top 5 Most Cited Documents.

Rank	Document title	Authors	Source	Year	Citations
1	The effects of responsible leadership and knowledge sharing on job performance among knowledge workers	Lin, C.P., Huang, H.T., Huang, T.Y.	Personnel review, 49(9), pp. 1879–1896	2020	82
2	The impact of responsible leadership on knowledge sharing behavior through the mediating role of person–organization fit and moderating role of higher educational institute culture	Haider, S.A., Akbar, A., Tehseen, S., Poulova, P., Jaleel, F.	Journal of Innovation and Knowledge, 7(4), 100265	2022	74
3	Linking responsible leadership and green innovation: The role of knowledge sharing and leader-member exchange	Huo, C., Safdar, M.A., Akhtar, M.W., Ahmed, M.	Frontiers in environmental science, 10, 945817	2022	41
4	Responsible leadership and sustainable development in East Asia economic group: Application of social exchange theory	Xuecheng, W., Ahmad, N.H., Iqbal, Q., Saina, B.	Sustainability Switzerland, 14(10), 6020	2022	36
5	How does responsible leadership enhance work engagement? The roles of knowledge sharing and helping initiative behavior	Ali, H.F., Chaudhary, A., Islam, T.	Global knowledge memory and communication, 74(3-4), pp. 613–629	2025	23

Table 2 identifies the five most influential authors in the RL research domain based on publication output, citation counts, and h-index values. The findings reveal that Huo, C., affiliated with Liaoning University, China, ranks first in terms of publication output, reflecting sustained and focused scholarly engagement within this research domain. Although not the most highly cited author, Huo's contributions reflect consistent productivity and intellectual leadership, particularly in advancing research that integrates RL with KS and green innovation.

Akbar, A., affiliated with the University of Hradec Králové, Czech Republic, ranks second despite a smaller number of publications, yet records the highest citation count and H-index among the leading authors. This pattern indicates that Akbar's work has exerted substantial academic influence despite a relatively limited volume of output. The high citation intensity suggests that these publications are widely recognized as theoretically rigorous and empirically significant, thereby serving as foundational references for subsequent research in the field.

Akhtar, M. W., affiliated with the International University of Rabat, Morocco, occupies the third position, exhibiting a balanced profile in terms of publication output and citation impact. With a comparatively high H-index, Akhtar's contributions

demonstrate strong scholarly visibility and methodological rigor, particularly in reinforcing the role of KS as a mediating mechanism within RL research.

The fourth- and fifth-ranked authors, Safdar, M. A., and Ahmed, M., exhibit identical publication and citation counts, indicating comparable levels of scholarly influence. However, their relatively lower H-index values suggest that their impact is concentrated within a limited number of recent publications. This pattern is characteristic of emerging contributors whose work is gaining academic recognition but has not yet accumulated sustained citation breadth over time.

Geographically, the institutional affiliations of these authors span China, Europe, North Africa, and South Asia, reflecting the international and cross-regional character of research on RL and GKS. The prominence of scholars based in developing and emerging economies further underscores the practical and theoretical relevance of RL in addressing sustainability and knowledge management challenges within these contexts.

Table 2: The Top 5 Authors in the Field.

Rank	Author	Affiliation	Documents	Citations	H-index
1	Huo, C.	Liaoning University, China	3	64	19
2	Akbar, A.	Univerzita Hradec Králové, Czech Republic	2	78	27
3	Akhtar, M.W.	International University of Rabat, Morocco	2	45	18
4	Safdar, M.A.	COMSATS University Islamabad, Pakistan	2	53	3
5	Ahmed, M.	Bahauddin Zakariya University, Pakistan	2	53	3

Table 3 presents the five leading institutional affiliations contributing to research on RL and GKS, based on publication output and citation impact. Liaoning University (China) ranks first in terms of both the number of publications and total citations, indicating its central role as a prominent knowledge hub within this research domain. Although the institution is not listed in the QS World University Rankings, its strong citation performance suggests that scholarly influence in this field is driven more by thematic specialization and sustained research focus than by global ranking status alone.

RMIT University and Deakin University, both based in Australia, rank second and third, respectively. Although their publication output is lower than that of Liaoning University, their comparatively strong citation counts indicate high research visibility and scholarly quality. Their inclusion, in conjunction with their QS ranking status, suggests that internationally ranked universities play a complementary role by disseminating research on RL to a broader global audience, particularly within the domains of innovation, management, and sustainability studies.

COMSATS University Islamabad (Pakistan) ranks fourth, demonstrating a notable citation count relative to its publication volume. This pattern indicates that, although limited in number, the institution's contributions have achieved meaningful academic recognition. These findings underscore the expanding role of universities in emerging economies in shaping scholarly discourse on RL, particularly in contexts where sustainability and ethical leadership have become increasingly salient.

Southwest Jiaotong University (China) ranks fifth with two publications but comparatively low citation counts, suggesting that its contributions are either relatively recent or remain in the early stages of academic diffusion. This pattern is characteristic of institutions that are entering or expanding their presence within an emerging research stream.

Table 3: The Top 5 Affiliations in the Field.

Rank	Affiliation	Country	Documents	Citations	QS World University Rankings 2026
1	Liaoning University	China	3	64	Not applicable
2	RMIT University	Australia	2	44	125
3	Deakin University	Australia	2	32	207
4	COMSATS University Islamabad	Pakistan	2	53	664
5	Southwest Jiaotong University	China	2	4	Not applicable

Figure 2 depicts the co-authorship network in the field of RL and GKS, revealing the underlying structure of scholarly collaboration among influential researchers. The results indicate that Akhtar, M. W. (International University of Rabat, Morocco), Akbar, A. (University of Hradec Králové,

Czech Republic), and Huo, C. (Liaoning University, China) emerge as central actors within the network. Their central positioning reflects a high degree of connectivity, evidenced by frequent co-authorships and robust collaborative ties with multiple scholars. The prominence of these authors suggests that they function as key knowledge brokers, facilitating the exchange of ideas and the integration of research across institutions and national boundaries. Notably, their collaborative linkages span Asia, Europe, and Africa, thereby enhancing the internationalization and cross-regional diffusion of research on RL and GKS.

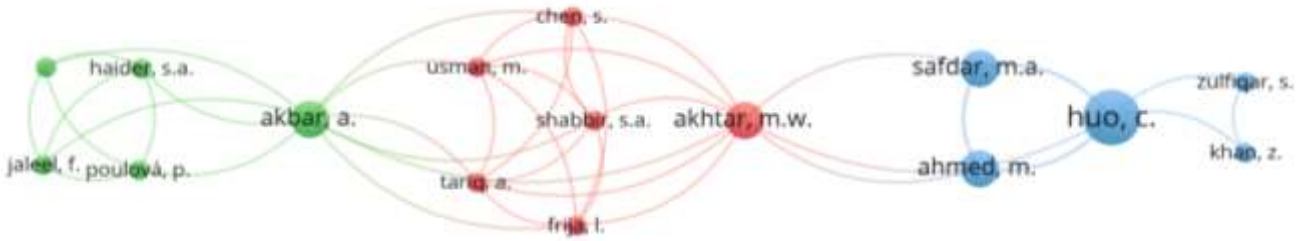

Figure 2: Co-authorship Networks.

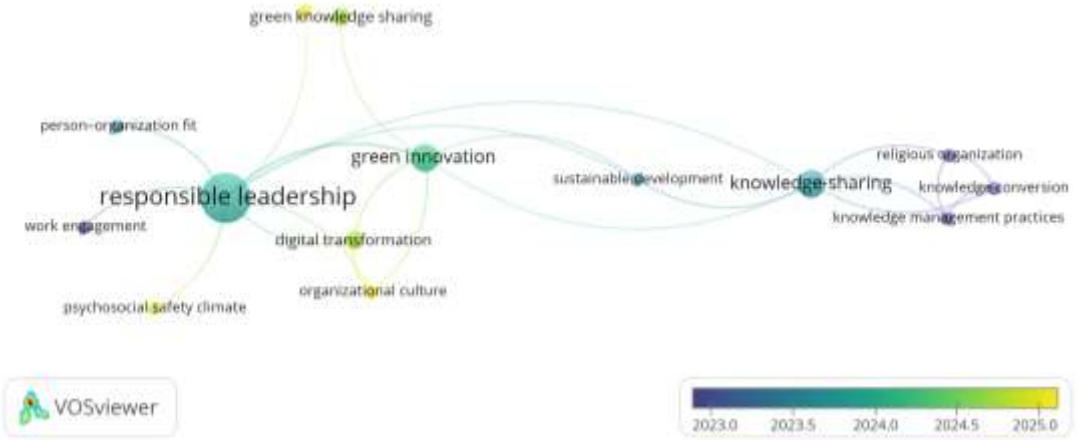

Figure 3: Evolving Trends in Research on RL and GKS.

Figure 3 illustrates the evolving thematic trajectories in research on RL and GKS across five distinct time periods, revealing a clear progression from foundational knowledge processes to more complex organizational and sustainability-oriented concerns. During the 2020–2023 period, research attention is predominantly focused on core knowledge-related concepts, including knowledge conversion, knowledge management practices, and KS. This phase represents the foundational stage of the literature, in which scholars sought to elucidate how RL facilitates the creation, transfer, and utilization of knowledge within organizational contexts. The inclusion of themes such as religious organizations and sustainable development during this period further indicates early efforts to contextualize RL within value-driven and mission-oriented settings, thereby highlighting its relevance for ethical governance and long-term societal outcomes.

In the subsequent period spanning 2023 to 2024, the thematic emphasis shifts toward psychological and relational mechanisms at the employee level. Prominent themes such as person–organization fit, psychosocial safety climate, and work engagement indicate a deeper examination of the internal processes through which RL influences employee attitudes and behaviors. This transition reflects a movement away from predominantly structural and process-oriented perspectives toward more nuanced analyses of how leadership shapes supportive work environments that foster KS and enhance positive employee experiences.

Most recently, during the 2024–2025 period, the research agenda expands to encompass more strategic and future-oriented themes, including digital transformation, green innovation, organizational culture, and sustainability. This phase reflects the maturation of the field, as RL is increasingly conceptualized as a key driver of

organizational adaptation to digitalization and environmental challenges. The prominence of green innovation and sustainability as central themes further underscores the growing alignment between RL and global sustainability objectives, positioning GKS as a critical mechanism for achieving environmentally responsible organizational outcomes.

Figure 4: Keywords in the Co-Occurrence Network.

Figure 4 depicts the co-occurrence network of keywords associated with RL and GKS, revealing the intellectual structure and thematic convergence of the extant literature. The network is organized into four distinct yet interconnected clusters, reflecting the field's multi-level orientation, which encompasses individual, organizational, technological, and sustainability perspectives.

4.1. Knowledge Management Processes and Sustainability-Oriented Contexts (Cluster 1)

Cluster 1 comprises themes related to knowledge conversion, knowledge management practices, KS, religious organizations, and sustainable development. This cluster highlights the foundational role of knowledge processes in advancing sustainability objectives. The prominence of knowledge conversion and knowledge management practices aligns strongly with the knowledge-based view, which posits that organizational sustainability depends on the effective transformation and dissemination of knowledge rather than the mere possession of information (Nonaka & Takeuchi, 2016). Recent empirical evidence further demonstrates that robust knowledge management practices significantly enhance sustainability performance by enabling organizations to integrate environmental knowledge into strategic and operational decision-making processes (Donate & Sánchez de Pablo, 2015; Hakeem et al., 2025; Shahzad et al., 2020). The inclusion of sustainable development reinforces the conceptualization of KS as a strategic capability that supports long-term societal and environmental objectives, consistent with the United Nations' sustainability agenda.

The inclusion of religious organizations highlights the growing scholarly interest in value-based and normatively driven organizational contexts. Prior research indicates that organizations grounded in strong ethical and moral frameworks are particularly effective in fostering collective KS, as shared values, trust, and moral commitment facilitate cooperative behaviors (Ali et al., 2025). This finding suggests that GKS is not merely a technical or procedural activity but a value-embedded social practice that reinforces sustainability through ethical stewardship.

4.2. RL and Employee Psychological Mechanisms (Cluster 2)

Cluster 2 encompasses RL, psychosocial safety climate, person–organization fit, and work engagement, representing the micro-level mechanisms through which leadership influences GKS. RL occupies a central position within this cluster, underscoring its role in shaping ethical, inclusive, and stakeholder-oriented work environments (Maak et al., 2016). Empirical evidence indicates that RL positively affects employees' willingness to share knowledge by fostering psychological safety and trust, which are critical antecedents of discretionary knowledge-sharing behaviors (Han & Ni, 2025). Psychosocial safety climate, in particular, facilitates employees' willingness to share ideas and environmental

knowledge without fear of negative repercussions, thereby enhancing organizational learning and work engagement (Djastuti et al., 2020; Edmondson & Lei, 2014).

The co-occurrence of person–organization fit and work engagement further reinforces this argument. When employees perceive a strong alignment between their personal values and organizational sustainability objectives, they exhibit higher levels of engagement and are more inclined to contribute to GKS (Božac et al., 2017; Saleem et al., 2024). This cluster aligns closely with social exchange theory, suggesting that employees reciprocate RL behaviors through heightened engagement and discretionary knowledge-sharing activities (Udin et al., 2022; Xuecheng et al., 2022).

4.3. Digital Transformation, Organizational Culture, and Green Innovation (Cluster 3)

Cluster 3 comprises digital transformation, green innovation, and organizational culture, reflecting the strategic and technological evolution of the research field. The linkage between digital transformation and green innovation suggests that digital technologies such as knowledge management systems, collaborative platforms, and data analytics play a critical role in accelerating green innovation by facilitating faster and more cross-functional knowledge exchange, thereby supporting the development and implementation of sustainable solutions (Nambisan et al., 2019; Nugraheni et al., 2025; Ren et al., 2025). However, the inclusion of organizational culture underscores that technological advancement alone is insufficient. A culture that promotes learning, openness, and sustainability-oriented values is essential for translating digital capabilities into substantive green innovation outcomes (Schein, 2010). This pattern aligns with the dynamic capabilities perspective, which emphasizes that organizational culture and leadership must complement technological resources to generate sustainable competitive advantage (Liang et al., 2020; Shah et al., 2022).

4.4. GKS as a Core Driver of Sustainability (Cluster 4)

Cluster 4 comprises GKS and sustainability, representing the conceptual core of the research domain. The strong and direct association between these two keywords indicates that GKS is increasingly recognized as a central mechanism through which sustainability outcomes are achieved. Accumulating empirical evidence substantiates this relationship, demonstrating that GKS positively influences environmental performance, green innovation, and broader patterns of sustainable organizational behavior (Khan et al., 2022; Saleem et al., 2024; Wu et al., 2025). The compact and tightly connected structure of this cluster suggests a maturing research stream, in which scholarly attention has shifted from exploratory inquiry toward a more focused examination of how GKS operationalizes leadership intentions and organizational systems into concrete and measurable sustainability outcomes.

5. CONCLUSION

This study provides a comprehensive bibliometric overview of the emerging stream of research linking RL and GKS, offering nuanced insights into its intellectual structure, thematic evolution, and collaborative patterns. Through a systematic analysis of Scopus-indexed publications published between 2020 and 2025, the findings reveal a pronounced upward trajectory in scholarly attention, particularly in recent years, reflecting the growing salience of sustainability-oriented leadership in addressing contemporary environmental and organizational challenges. Importantly, the results demonstrate that RL has evolved beyond a primarily normative and ethical construct to become a strategic mechanism that actively shapes employee behavior, facilitates knowledge exchange, and drives organizational sustainability outcomes.

The bibliometric evidence positions GKS as a pivotal mechanism through which RL shapes green innovation, pro-environmental behavior, and overall sustainability performance. The identified thematic clusters reveal a multi-level research architecture that spans knowledge management processes, employee-level psychological mechanisms, digital transformation, organizational culture, and sustainability outcomes. This thematic evolution signals a clear maturation of the field, as recent scholarship increasingly integrates technological and strategic perspectives with established leadership and behavioral frameworks.

From a theoretical perspective, this study advances the leadership and sustainability literature by synthesizing previously fragmented research into a coherent and integrative knowledge map. It extends RL theory by empirically demonstrating its strong linkages with knowledge-based and sustainability-oriented outcomes, thereby reinforcing the explanatory relevance of social learning theory, social exchange theory, and the knowledge-based view in understanding GKS. Moreover, by identifying emerging themes such as

digital transformation and green innovation, the study expands the conceptual scope of RL research and provides a robust foundation for theoretical integration across leadership, knowledge management, and sustainability domains.

From a practical standpoint, the findings offer meaningful implications for organizational leaders and policymakers. RL practices that emphasize ethical role modeling, stakeholder engagement, and the cultivation of psychological safety can effectively promote GKS among employees. Organizations are encouraged to invest not only in digital knowledge management infrastructures but also in fostering organizational cultures characterized by openness, trust, and sustainability-oriented values. Such an integrative approach enables firms to translate leadership commitments into tangible environmental outcomes, including enhanced green innovation and improved sustainability performance. For policymakers, the results highlight the importance of leadership development initiatives and institutional frameworks that position RL as a critical catalyst for sustainable development.

Despite its contributions, this study is subject to several limitations that should be acknowledged. First, the analysis relies exclusively on the Scopus database, which, although comprehensive, may exclude relevant studies indexed in other major databases such as Web of Science or Google Scholar. Second, the dataset is restricted to English-language publications, potentially omitting valuable insights from non-English scholarship. Third, the relatively modest number of documents (31 publications) reflects the nascent stage of research on RL and GKS. This limited sample size may result in lower network density and less granular thematic structures in the bibliometric maps; therefore, the identified clusters should be interpreted as indicative of dominant themes rather than exhaustive representations of the field. Moreover, bibliometric analysis primarily captures structural relationships among publications and does not assess the substantive quality or methodological rigor of individual studies. Building on these limitations, future research should adopt a more inclusive approach by integrating multiple bibliographic databases, extending the temporal coverage, and incorporating non-English publications to achieve a more comprehensive representation of the field. Scholars are also encouraged to complement bibliometric techniques with systematic literature reviews and meta-analyses to generate deeper theoretical synthesis and cumulative evidence. Furthermore, empirical research should move beyond direct effects to examine boundary conditions, mediating mechanisms, and contextual contingencies such as national culture, industry characteristics, regulatory environments, and levels of digital maturity that may shape the RL–GKS relationship. Such efforts would not only enhance theoretical precision but also strengthen the practical relevance of RL research in advancing sustainability outcomes.

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Abbreviations

Green knowledge sharing = GKS
Knowledge sharing = KS
Responsible leadership = RL

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