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Review Article

Leadership Approaches to Digital Transformation: A Bibliometric Analysis of Emerging Trends and Insights

Nor Famiza Tarsik, Mohd Zool Hilmie Mohamed Sawal*, Zuraidah Arif

School of Information Science, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Kedah, 08400 Malaysia

Corresponding Author's E-Mail: zoolhilmie@uitm.edu.my

Abstract

Digital transformation (DT) has emerged as a strategic necessity across industries, fundamentally reshaping organizational operations, structures, and business models through the integration of advanced technologies. Leadership is a crucial enabler of this transformation, aligning digital strategies with organizational objectives, managing change, addressing resistance, and promoting innovation. This study employs a comprehensive bibliometric analysis to explore the research landscape on leadership in digital transformation. By analysing 1,147 publications from the Scopus database (2015–2024), the study identifies key trends, influential authors, research hotspots, and emerging themes. Findings reveal a notable increase in scholarly output over recent years, underscoring the rising interest in leadership's role in digital advancement. Transformational and digital leadership are the most prominent paradigms, emphasizing competencies such as technological proficiency, strategic foresight, and change management. Co-occurrence analysis of keywords reveals clusters around digital leadership, organizational change, innovation, and human-centric dimensions. Germany, the United States, and the United Kingdom emerge as leading contributors to this body of work. Despite growing interest, gaps persist in understanding the cultural, ethical, and emotional aspects of digital leadership. This review not only synthesises current knowledge but also suggests directions for future research, including cross-cultural leadership dynamics, AI integration, emotional intelligence, and ethical governance in digital contexts. By offering a structured overview, this study provides meaningful insights for academics, practitioners, and policymakers aiming to design effective leadership models for a rapidly evolving digital environment.

Keywords: *Bibliometric Analysis; Digital Transformation; Leadership Approach; Trend in Leadership*

Introduction

Organisations must adopt digital technology in the organisation's operations and integrate them into their strategic planning to remain relevant and competitive in the industry due to the rapid advancement of technology. Digital transformation involves embedding digital tools and processes in all aspects of an organisation. In an increasingly competitive global market, decisions about technological investments determine the trajectory of an organisation's growth, efficiency, and relevancy. (TEKsystems, 2024). They are fundamentally changing their operations and delivery service to clients. However, effective leadership is crucial for the success of digital transformation initiatives, as it manages the capabilities and skills of both the organisation and its employees (Brusati, 2024). Therefore, leaders play a crucial role not only in managing technological and cultural shifts within organisations but also in ensuring smooth transitions and fostering innovation.

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The capability of digital transformation involves embedding digital tools and processes in all aspects of an organisation's operations and services. Essentially, technology alters how they operate and deliver services to clients, which requires skills and knowledge (Joseph, Onwuzulike & Shitu, 2024). According to Khan *et al*. (2020), academic interest in leadership within the context of education and digital transformation has grown, particularly in relation to technology adoption, innovative work practices, and globalisation. Leadership responsibilities extend beyond simply managing technological change (CIO, 2025); they also include setting a clear vision, strategic planning, and motivating teams to embrace transformation (Gupta & Verma, 2024; Tagscherer & Carbon, 2025).

Based on the trend, leadership in digital transformation increases in publication; there remain lacks in comprehensive analysis that synthesises existing research trends, key themes, and gaps in the literature.

Thus, the objectives of this study are:

(a) To examine research trends on the impact of leadership in digital transformation.

(b) To investigate the most frequent topics and themes studied and related to leadership and digital transformation.

(c) To identify gaps in the literature and suggest future research directions.

It is necessary for this topic to use a bibliometric study to provide a structured overview of existing research, identify emerging trends, and highlight underexplored areas. Therefore, the Scopus database is a vital source to get the research data exclusively, which, although extensive, may not encompass all relevant literature.

This study only focuses on literature using the Scopus database; hence, integrating other prominent databases such as Web of Science (WoS), Google Scholar, PubMed, and CiteSeerX for a more comprehensive analysis for future studies should be considered. This study contributes to a clearer understanding of leadership’s role in digital transformation and provides a foundation for future research aimed at developing innovative leadership models in the digital era.

Additionally, a broader range of keywords related to leadership and digital transformation can be expanded in the research scope, which might improve the study’s scope range and analytical rigours. This study could also understand more advanced bibliometric analysis methods, like keyword extension tracking and network visualisation, and suggest deeper ways to think about how research meanings change and how different fields are connected.

Literature Review

According to Basir *et al*. (2023), leadership can be defined as the organised action of influence and guidance over a person or groups for achieving set goals. Leadership becomes challenging with the existence of digital transformation to be adopted in the organisation’s operations. As mentioned by Rabins (2023), digital transformation is the integration of digital technology into all fields, basically changing how people and organisations operate and deliver value to customers. Digital transformation encompasses vital changes that shape and influence how organisations plan and operate, ensuring the seamless integration of digital technologies into organisation operations. The developments and massive changes in technologies such as artificial intelligence and big data have emerged as pivotal elements in steering this transformation successfully. Digital transformation also drives changes in the workplace (Nagel, 2020), influencing how individuals work, think and collaborate (Hai *et al*., 2021). Effective leadership is essential to ensure that digital initiatives are not only implemented but also strategically aligned with organizational goals to secure sustainable success (Cortellazzo, Bruni & Zampieri, 2019).

Leadership in Digital Transformation

Leadership plays significant roles in digital transformation research as it influences the acceptance and integration of digital technologies. In addition, it measures the overall success of digital transformation

initiatives (Ly, 2025). The effective leadership assists the organisations to overcome the challenges towards changes, innovation, and shaping culture to support digital initiatives. Therefore, leadership practice must evolve to meet the demands of dynamic environmental requirements to ensure the performance and achievement of organisations.

A significant body of literature focuses on the leadership styles that are most effective in a digital transformation context. Transformational leadership, which emphasises vision, inspiration, and motivating employees to innovate and embrace change, has been widely recognised as one of the most effective styles in the digital era (Avolio & Bass, 1991; Tuyen *et al*., 2025). Leaders who exhibit transformational qualities are able to align the digital transformation goals with the broader vision of the organisation, motivating employees to work towards new business models and technological adoption.

Another term that appears related to leadership in the technology era is digital leadership, which is explicitly focused on the competencies and behaviours necessary to lead digital change (Schiavone & Simoni, 2019). Digital leadership requires leaders to understand emerging technologies and also to initiate strategic decisions, inspire technological innovation, and manage the complexities of digital transformation (Faix, 2020; de Araujo *et al*., 2021).

Leadership Competencies for Digital Transformation

Previous studies have focused on the competencies needed by leaders to manage digital transformation effectively. According to Kane *et al*. (2015), leaders must have possession of both technological competence and strategic forethought. Technological competence refers to the understanding of leaders on digital tools and technology usage. Meanwhile, strategic foresight involves the ability of leaders to antedate and plan for future technological interruptions and align that with business goals.

In addition, digital transformation often requires significant changes in organizational culture and operational processes. As leaders, it is important to be skilled in directing changes in the organisation, addressing resistance, and ensuring that employees are skilled with the necessary technology to flourish in a digital-first environment (Kotter, 1996).

As digital initiatives often span multiple departments and require cross-functional collaboration, leaders must be able to empower others, facilitate teamwork, and ensure effective communication across the organisation (Bonnet & Westerman, 2020). This collaborative approach is especially crucial in organisations where digital transformation is decentralised or when teams need to be highly agile and innovative.

While the importance of leadership in digital transformation is well-documented, several challenges persist. One of the common challenges is resistance to change to digital transformation. Previous research finished by El Sawy *et al*. (2016) shows leaders must address employees' fears and uncertainties regarding new technologies and work practices. Therefore, it is crucial to have robust leadership to build trust, communicate the benefits of digital change and involve employees in the process of automating the organisation's operations and values.

Another challenge is the digital skills gap. As digital technologies evolve, the demand for leaders who understand these technologies increases. However, many leaders in traditional organisations lack the necessary digital skills, which may hinder the successful implementation of digital transformation initiatives. Research by Kane *et al*. (2015) indicates that leaders must invest in and participate in continuous learning and development on digital transformation changes continuously, both for themselves and their teams, to keep ahead of technological advancements.

Moreover, leaders face the challenge of balancing short-term goals with long-term digital strategies (Hussain *et al*., 2025). In many organisations, digital transformation initiatives compete with traditional business operations, creating tension between the urgency to innovate and the need to maintain stability. According to Westerman, Bonnet and McAfee (2014), successful leaders are those who can

manage these competing demands and ensure that digital transformation is integrated into the core business strategy.

Research Methodology

This study employs bibliometric analysis, a quantitative method for evaluating scientific literature. Bibliometric techniques facilitate the analysis of large volumes of unstructured data, offering valuable insights into research trends and academic contributions (Pritchard, 1969; Donthu & Gustafsson, 2020). Several bibliometric indicators, such as publication patterns and research trends, are applied to assess the development and impact of leadership in digital transformation. As highlighted by Albort-Morant *et al*. (2017), bibliometric studies can identify future research directions, provide historical perspectives, and track research advancements.

In order to achieve the objective of the study, VOSviewer, Microsoft Excel, the Scopus database, and Harzing's Publish or Perish software were selected to analyse the data for the functionality and compatibility with the research objectives. These tools have established themselves as reliable resources for bibliometric analysis, data visualisation, and citation metric calculation in academic research. Bibliometric extracts publication-related factors, including authorship, sources, geographical distribution, and indicators (Dabirian *et al*., 2016). As stated by Markscheffel and Schröter (2021), VOSviewer has better clarity and user-friendliness since the visualisation network could be directly created and researchers can use it directly. This application in this study enabled a comprehensive exploration, analysis, and visualisation of complex bibliographic data on leadership and digital transformation, enhancing the study's analytical rigour and depth.

The bibliometric method maps the academic landscape, which evaluates the influence of key publications and uncovers emerging research topics in leadership and digital transformation. Data were collected from the Scopus database, focusing on publications related to digital transformation and leadership. The data was collected from 2015 to 2024, as illustrated in Figure 1. The final dataset comprised 1,147 papers that met the inclusion criteria and were subjected to bibliometric analysis. To ensure comprehensive analysis, tools such as VOSviewer and Harzing's Publish or Perish were utilised to visualise citation networks, identify key themes, and detect emerging trends.

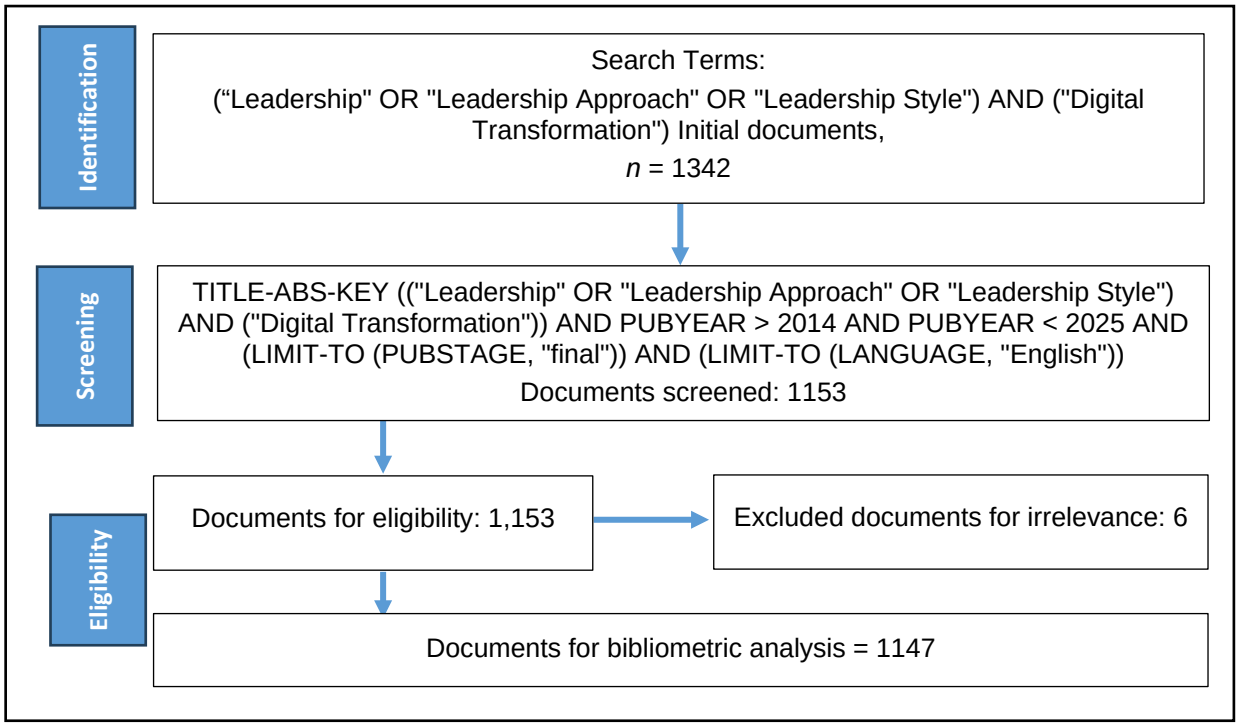

Figure 1: PRIMA Flowchart

Note: PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Results

Document and Source Type

Table 1 shows the distribution of document types in academic research that reflects how knowledge is shared and developed within a field. The table showed that journal articles make up nearly half of the total publications, with the total publications being 571 (49.78%). Therefore, it is confirming that peer-reviewed journals are the most common way researchers publish their work. These articles often undergo rigorous review processes, making them highly credible sources of information.

In addition, conference papers also play a significant role, with 262 total publications (22.84%), highlighting the dynamic nature of the research field. Conferences provide a platform for scholars to present new findings, discuss emerging trends, and receive feedback before formal journal publication. The presence of book chapters was 180 total publications (15.69%), while other documents were below 100 publications (below 5%).

This distribution shows that journal articles and conference papers are the dominant documents of scholarly communication which contribute to broader knowledge synthesis. The total publications of books and conference reviews are lower, as they are not the primary medium for disseminating research in this field.

Table 1: Document and Source Type

Document Type	Total Publications	%
Article	571	49.78%
Conference Paper	262	22.84%
Book Chapter	180	15.69%
Review	49	4.27%
Book	41	3.57%
Conference Review	34	2.96%
Note	7	0.61%
Editorial	3	0.26%

Research Trends and Publication Growth

The number of publications on leadership in digital transformation has seen exponential growth in the past decade, with a sharp increase starting in the early 2015, as shown in Figure 2. This increase corresponds with the widespread adoption of cloud computing, big data analytics, artificial intelligence (AI), and other emerging technologies in business practices. The rise in digital technologies has driven academic interest in understanding the leadership roles that facilitate successful digital initiatives.

The findings on the total publication trend, as illustrated in Table 2, showed a sharp rise in recent years. From 2020 to 2022, the number of publications increased consistently, with 69 in 2020 (6.02%), 113 in 2021 (9.85%), and 176 publications in 2022 (15.34%). Research activity was low before 2020, with fewer than 60 publications annually between 2015 and 2019.

In 2023, the total number of publications reached 274 (23.89%) and was followed by a significant peak, with 400 (34.87%) publications accounting for over one-third of the research output. This pattern showed further reflected steady growth. This indicates significant absolute growth in research on leadership in digital transformation outcomes, and it suggests that the topic is gaining strong momentum, possibly due to advancements in technology, policy developments, or increased funding in the area.

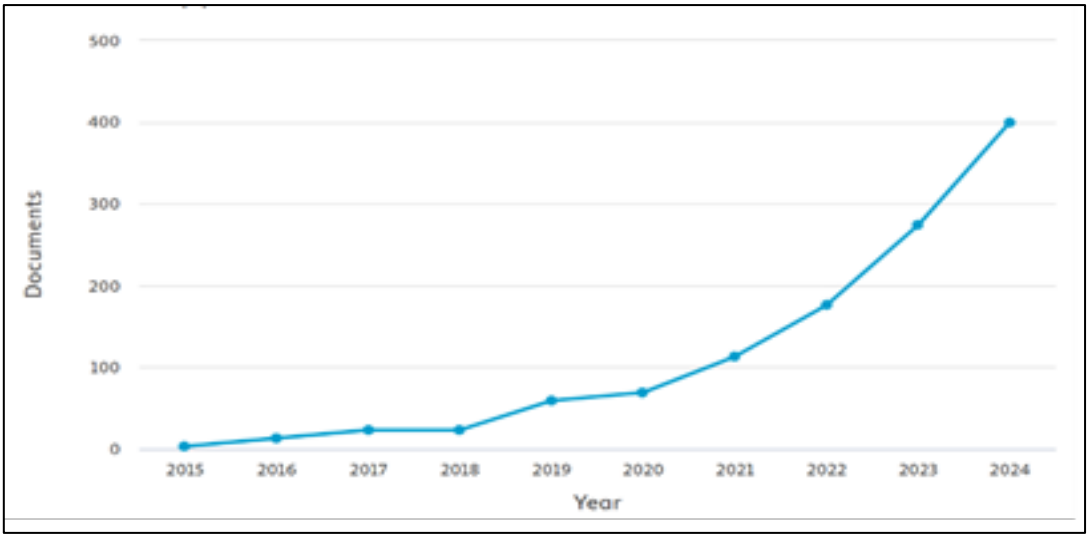

Figure 2: Cumulative Growth in the Number of Source Documents

Table 2: Total Publications by Year

Year	Total Publications	Percentage (%)
2024	400	34.87%
2023	274	23.89%
2022	176	15.34%
2021	113	9.85%
2020	69	6.02%
2019	59	5.14%
2018	21	1.83%
2017	22	1.92%
2016	10	0.87%
2015	3	0.26%

Prolific Authors and Authors Contribution

The study of authorship patterns helps identify leading contributors in a research field. As Table 3 shows, Abbu, H. stands out as the most prolific author, with 8 publications (0.70%), making them a key figure in this area. Other notable contributors include Gudergan, G. and Mugge, P., each with 7 publications (0.61%), followed by Zulu, S.L. with 6 publications (0.52%).

Table 3: Most Prolific Author

Author Name	Total Publications	%
Abbu, H.	8	0.70%
Gudergan, G.	7	0.61%
Mugge, P.	7	0.61%
Zulu, S.L.	6	0.52%
Carbon, C.C.	5	0.44%
Gagnon, S.	5	0.44%
Jonathan, G.M.	5	0.44%
Alamsjah, F.	4	0.35%
Dieguez, T.	4	0.35%
Kuzmina-Merlino, I.	4	0.35%

Additionally, Carbon, C.C., Gagnon, S., and Jonathan, G.M. have each published 5 papers (0.44%), while Alamsjah, F., Dieguez, T., and Kuzmina-Merlino, I. have contributed 4 publications (0.35%) each. These scholars play a vital role in shaping the research landscape.

Most Influential Countries

Table 3 shows the network visualisation depicts global research collaborations, with the United Kingdom, United States, and Italy as central hubs connecting multiple countries. The colour-coded clusters indicate regional and thematic alliances, highlighting strong intra-European, Anglo-American, and Asian-Middle Eastern research ties.

Specifically, Table 4 highlights the leading country contributing to research on leadership and digital transformation. The analysis of the most influential countries in digital transformation research reveals the global distribution of scholarly contributions in this field. Germany emerges as the active contributor with 134 publications (11.68%), making it the most active country in digital transformation research. This highlights Germany's strong emphasis on digital governance, which are key components of its economic and industrial strategies.

The United States follows closely with 118 publications (10.29%) driven by the advancements in digital leadership and business transformation, with many of its top universities and tech companies contributing to cutting-edge research. The United Kingdom (7.85%) also plays a significant role in this research field, which emphasizing digital transformation leadership initiatives. Notably, Indonesia (7.06%) ranks fourth, underscoring its expanding digital economy and research focus on e-governance and technology adoption in business and education. While other key contributors include China (5.75%), India (4.27%), Malaysia (4.01%), and Australia (3.92%), indicating that Asia-Pacific countries are increasingly shaping digital transformation research. Other notable contributors in this research field were Italy (3.57%) and the Russian Federation (3.05%).

Overall, as shown in the Figure 3, this global distribution of research highlights the multinational effort in advancing digital transformation, with Europe, North America, and Asia-Pacific being the most active regions. The presence of both developed and developing nations indicates that digital transformation is not limited to advanced economies but is a worldwide priority, impacting various sectors including business, education, healthcare, and governance.

Table 4: Most Influential Countries

Country	Total Publications	%
Germany	134	11.68%
United States	118	10.29%
United Kingdom	90	7.85%
Indonesia	81	7.06%
China	66	5.75%
India	49	4.27%
Malaysia	46	4.01%
Australia	45	3.92%
Italy	41	3.57%
Russian Federation	35	3.05%

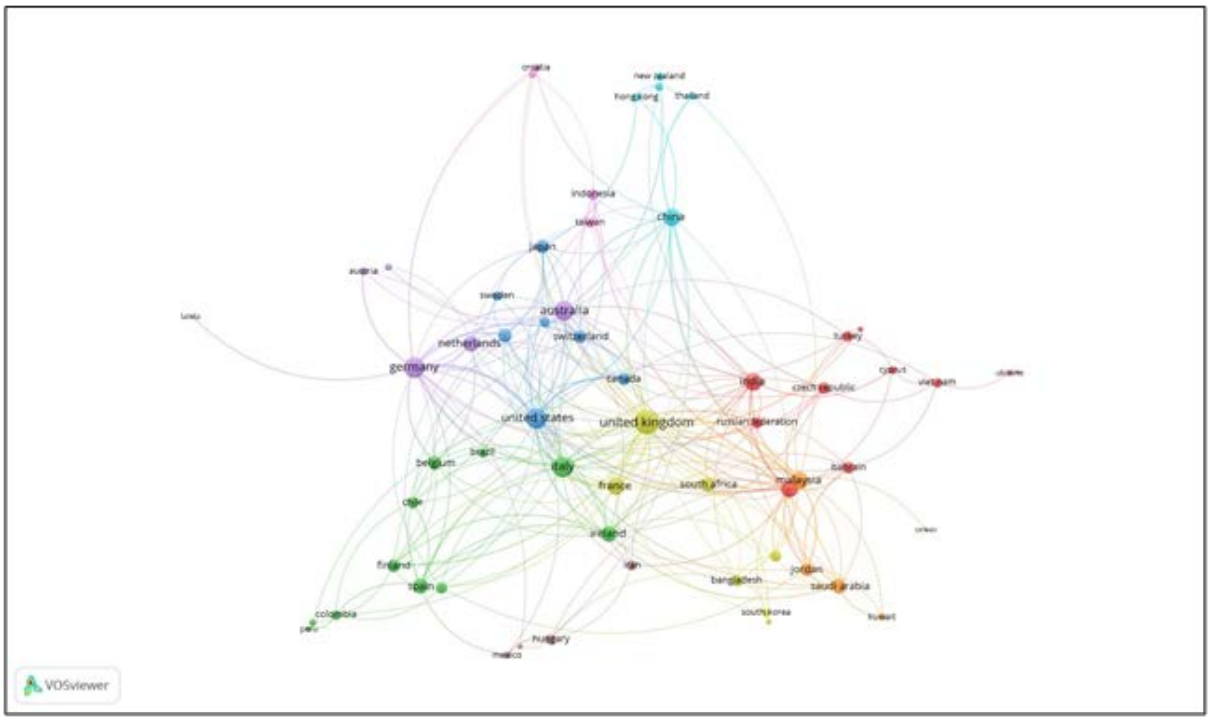

Figure 3: Network Visualisation of Global Research Collaborations

Co-occurrence Network Analysis of Keywords

The keyword co-occurrence network, generated using VOSviewer, provides insights into the major research themes and their interconnections in the field of digital transformation. This visualisation helps identify core topics, emerging trends, and interdisciplinary relationships by analysing the frequency and co-occurrence of keywords in academic publications. The term "digital transformation" appears as the largest and most central node, confirming its role as the primary focus of the research field. It is strongly linked to various subtopics, indicating the multifaceted nature of digital transformation across different domains.

Figure 4 presents a map of the 4793 keywords The analysis comprising the research sample provides 4793 keywords, and 311 meet the threshold and 7 clusters. The items of the same colour belong to the same cluster. For each of the 4793 keywords, the total strength of the co-occurrence links with other keywords was calculated, and the keywords with the greatest total link strength were selected. The top ten author keywords with the greatest total link strength were digital transformation (N=658, Link Strength=2644), leadership (N=224, Link Strength=1444), human (N=67, Link Strength=768), article (N=47, Link Strength=561), humans (N=39, Link Strength=504), digital leadership (N=148, Link Strength=497), digitalisation (N=75, Link Strength=358), decision-making (N=40, Link Strength=316), digital technology (N=34, Link Strength=310), and digital technologies (N=51, Link Strength=306). The top ten keywords represented the heated topics related to leadership roles in digital transformation.

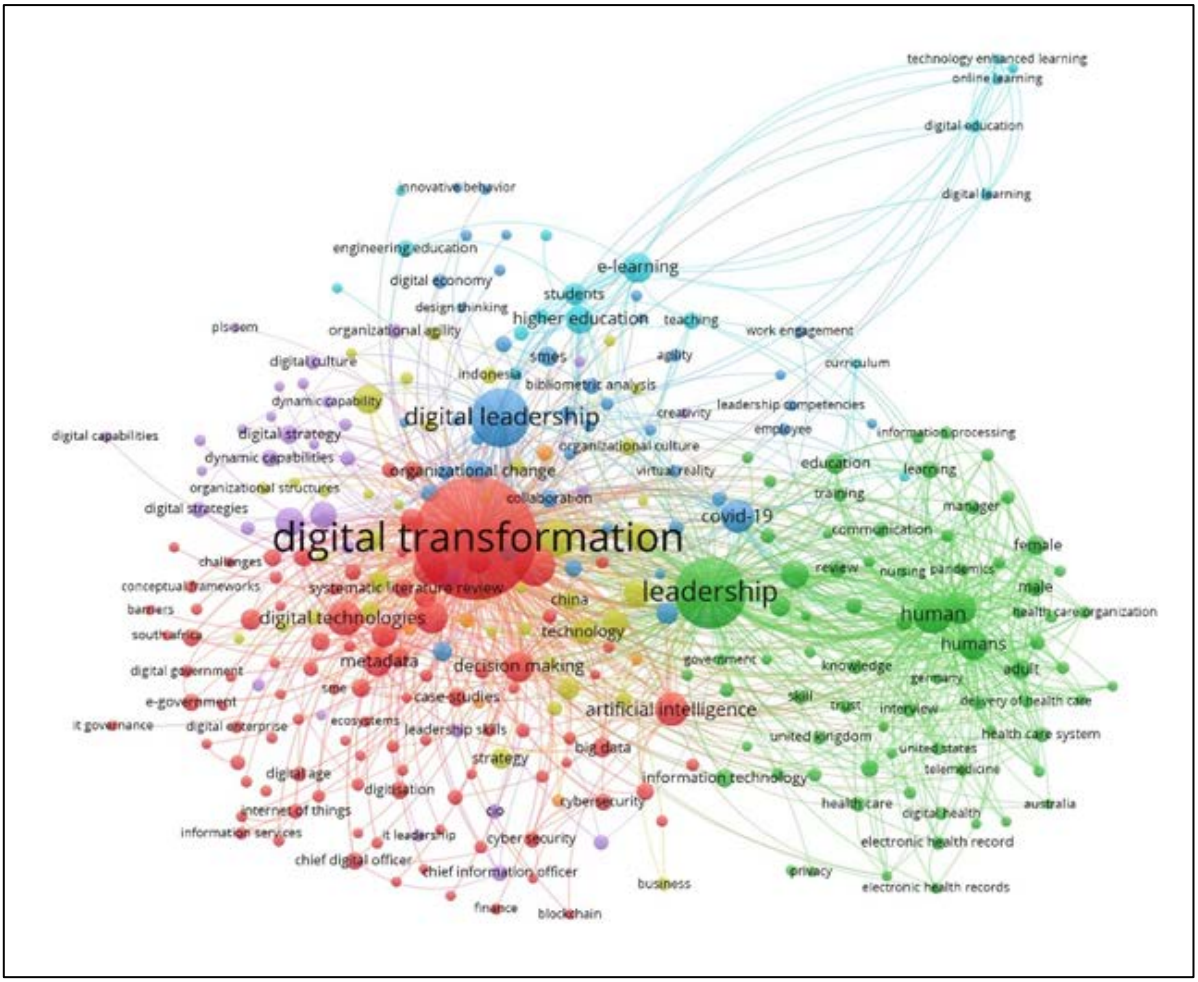

Figure 4: Co-occurrence Network Analysis of Keywords

Table 5: Most Prolific Authors

No.	Authors	Title	Journal / Publisher	Year	Citations (Per Year)
1	L. Cortellazzo, E. Bruni, R. Zampieri	The role of leadership in a digitalized world: A review	Frontiers in Psychology	2019	396 (66.00)
2	B.K. AlNuaimi, S. Kumar Singh, S. Ren, P. Budhwar, D. Vorobyev	Mastering digital transformation: The nexus between leadership, agility, and digital strategy	Journal of Business Research	2022	334 (111.33)
3	J.K.-U. Brock, F. von Wangenheim	Demystifying AI: What digital transformation leaders can teach you about realistic artificial intelligence	California Management Review	2019	326 (54.33)
4	R. Mora Cortez, W.J. Johnston	The Coronavirus crisis in B2B settings: Crisis uniqueness and managerial implications based on social exchange theory	Industrial Marketing Management	2020	312 (62.40)
5	T. Schwarzmüller, P. Brosi, D. Duman, I.M. Welpe	How does the digital transformation affect organizations? Key themes of change in work design and leadership	Management Revue	2018	268 (38.29)

6	S. Bartsch, E. Weber, M. Büttgen, A. Huber	Leadership matters in crisis-induced digital transformation: how to lead service employees effectively during the COVID-19 pandemic	Journal of Service Management	2021	242 (60.50)
7	B. Trenerry, S. Chng, Y. Wang, Z.S. Suhaila, S.S. Lim, H.Y. Lu, P.H. Oh	Preparing Workplaces for Digital Transformation: An Integrative Review and Framework of Multi-Level Factors	Frontiers in Psychology	2021	240 (60.00)
8	B. Obrenovic, J. Du, D. Godinic, D. Tsoy, M.A.S. Khan, I. Jakhongirov	Sustaining enterprise operations and productivity during the COVID-19 pandemic: "Enterprise effectiveness and sustainability model"	Sustainability (Switzerland)	2020	211 (42.20)
9	E. Solberg, L.E.M. Traavik, S.I. Wong	Digital Mindsets: Recognizing and Leveraging Individual Beliefs for Digital Transformation	California Management Review	2020	199 (39.80)
10	J.A. Porfírio, T. Carrilho, J.A. Felício, J. Jardim	Leadership characteristics and digital transformation	Journal of Business Research	2021	195 (48.75)

As shown in Table 5, the most cited paper is Cortellazzo, Bruni and Zampieri (2019) with 396 citations and an annual citation rate of 66 per year. It highlights the role of leadership in digitalisation, indicating strong interest in leadership adaptation in the digital age. The highest annual citation rate belongs to AlNuaimi *et al*. (2022) with 111.33 citations per year, suggesting that recent works exploring the connection between leadership, agility, and digital strategy are gaining rapid traction.

Future Scope

Based on this bibliometric analysis, future research should focus on several critical aspects related to leadership and digital transformation. One key area is the influence of leadership on organizational culture during digital transformation and how digital culture can foster innovation and adaptability, thereby influencing leadership styles. Furthermore, as digital transformation continues to become a global phenomenon, research should examine how cultural differences impact leadership approaches across various regions, industries, and organizational structures. Additionally, the growing role of Artificial Intelligence (AI) in digital transformation offers an opportunity for further studies on how leaders can leverage AI in areas such as strategic decision-making, talent management, and operational efficiency. Despite the increasing relevance of digitalisation, there remains a gap in research connecting leadership competencies with digital transformation activities. As AI plays a larger role, future studies should also address the ethical implications of digital transformation, such as data privacy, AI bias, and digital inclusion, to ensure responsible leadership in the digital world. Furthermore, research should explore the contribution of emotional intelligence and soft skills in effective leadership during periods of technological change. Digital transformations often bring about uncertainty and resistance, so understanding how leaders can mitigate emotional reactions and support employees will be critical. Conventional leadership skills are often inadequate in such environments, highlighting the need for a re-evaluation of leadership competencies in the context of digital change.

Conclusion

As a conclusion, leadership is a critical driver of successful digital transformation initiatives. This bibliometric analysis underscores the importance of leadership in shaping digital strategies, fostering innovation, and ensuring smooth technological adoption. The findings reveal a growing emphasis on leadership competencies, change management, and digital strategy as integral components of successful digital transformation. As for future research, it should continue to explore the evolving relationship between leadership and digital transformation, particularly in the context of global cultural differences, AI integration, and ethical considerations. As organisations continue to navigate digital

changes, understanding the evolving role of leadership will be crucial for fostering long-term success in the digital age.

Conflict of Interest

The authors affirm that there are no conflicting objectives.

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References

Albort-Morant, G., Henseler, J., Leal-Millán, A., & Cepeda-Carrión, G. (2017). Mapping the field: A bibliometric analysis of green innovation. *Sustainability*, *9*(6), 1011. https://doi.org/10.3390/su9061011

Avolio, B. J., & Bass, B. M. (1991). Manual for the full range of leadership. *Binghamton, NY: Bass, Avolio & Associates*.

Basir, M. K., Gani, A., Basalamah, S., & Mallongi, S. (2023). The Influence of Islamic Work Motivation, Leadership Style and Competence on Job Satisfaction and Employee Performancegammara Makassar Hotels. *Revista de Gestão Social e Ambiental*, *17*(6), 1-21. https://doi.org/10.24857/rgsa.v17n6-004

Bonnet, D., & Westerman, G. (2020, November 19). *The New Elements of Digital Transformation.* MIT Sloan Management Review. Retrieved from https://sloanreview.mit.edu/article/the-new-elements-of-digital-transformation/. Accessed on 21st October 2024.

Brusati, I. (2024, January 30). *Digital Transformation Management: An Insightful Guide*. Prosci. Retrieved from https://www.prosci.com/blog/digital-transformation-management-success. Accessed on 19th September 2024.

CIO. (2025, January 7). *Digital transformation 2025: What's in, what's out*. CIO. Retrieved from https://www.cio.com/article/3624567/digital-transformation-2025-whats-in-whats-out.html. Accessed on 20th October 2024.

Cortellazzo, L., Bruni, E., & Zampieri, R. (2019). The role of leadership in a digitalized world: A review. *Frontiers in Psychology*, *10*, 1938. https://doi.org/10.3389/fpsyg.2019.01938

Dabirian, A., Diba, H., Tareh, F., & Treen, E. (2016). A 23-Year Bibliometric Study of the Journal of Food *Products Marketing. Journal of Food Products Marketing, 22*(5), 610–622. https://doi.org/10.1080/10454446.2016.1141141

de Araujo, L. M., Priadana, S., Paramarta, V., & Sunarsi, D. (2021). Digital leadership in business organizations. *International Journal of Educational Administration, Management, and Leadership, 2*(1) (2021), 45-56. https://doi.org/10.51629/ijeamal.v2i1.18

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of business Research*, *117*, 284-289. https://doi.org/10.1016/j.jbusres.2020.06.008

El Sawy, O. A., Kræmmergaard, P., Amsinck, H., & Vinther, A. L. (2016). How LEGO built the foundations and enterprise capabilities for digital leadership. *MIS Quarterly Executive*, *15*(2), 141-166. Retrieved from https://aisel.aisnet.org/misqe?utm_source=aisel.aisnet.org%2Fmisqe%2Fvol15%2Fiss2%2F5&utm_medium=PDF&utm_campaign=PDFCoverPages. Accessed on 22nd October 2024.

Faix, W.G. (2020). Leadership in a digital world. *Leadership, Education, Personality: An Interdisciplinary Journal, 2* (2020), 1-2. https://doi.org/10.1365/s42681-019-00004-y

Gupta, R., & Verma, R. (2024). Transformational leadership in strategic management: Catalyzing Change and innovation. *Nanotechnology Perceptions,* 20(S15),1143–1154. https://doi.org/10.62441/nano-ntp.vi.3790

Hai, T. N., Van, Q. N., & Thi Tuyet, M. N. (2021). Digital transformation: Opportunities and challenges for leaders in the emerging countries in response to COVID-19 pandemic. *Emerging Science Journal*, *5*(1), 21-36. https://doi.org/10.28991/esj-2021-SPER-03

Hussain, M. A., Ali, S., Ali, S., Goh, G. G. G., Saif, N., & Khan, S. U. (2025). Redefining the concept of green transformational leadership through psychometric analysis: Evidence from educational setup of developing country prospective. *Asia Pacific Management Review*, 100354. https://doi.org/10.1016/j.apmrv.2024.100354

Joseph, O. B., Onwuzulike, O. C., & Shitu, K. (2024). Digital Transformation in education: Strategies for Effective Implementation. *World Journal of Advanced Research and Reviews*, *23*(2), 2785–2799. https://doi.org/10.30574/wjarr.2024.23.2.2668

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan management review*. Retrieved from https://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/. Accessed on 2nd November 2024.

Khan, M. A., Ismail, F. B., Hussain, A., & Alghazali, B. (2020). The interplay of leadership styles, innovative work behavior, organizational culture, and organizational citizenship behavior. *SAGE Open*, 10(1). https://doi.org/10.1177/2158244019898264

Kotter, J. P. (1996). *Leading change*. Harvard Business Press. Retrieved from http://edl.emi.gov.et/jspui/bitstream/123456789/516/1/Leading%20Change%20%28Kotter%2C%20John%20P.Wyman%2C%20Oliver%29.pdf. Accessed on 10th October 2024.

Ly, B. (2025). Leveraging leadership and digital transformation for sustainable development: Insights from Cambodia's public sector. *Sustainable Futures, 9*, 100545. https://doi.org/10.1016/j.sftr.2025.100545

Markscheffel, B., & Schröter, F. (2021). Comparison of two science mapping tools based on software technical evaluation and bibliometric case studies. *COLLNET Journal of Scientometrics and Information Management, Routledge, 15*(2), 365–396.https://doi.org/10.1080/09737766.2021.1960220

Nagel L. (2020). The influence of the COVID-19 pandemic on the digital transformation of work. *International Journal of Sociology and Social Policy, 40*(9–10), 861-875. https://doi.org/10.1108/IJSSP-07-2020-0323

Prıtchard, A. (1969). Statistical Bibliography or Bibliometrics?, North-Western Polytechnic, School of Librarianship. *Journal of Documentation*, *25*(4), 348-349.

Rabins, R. (2023). *From tradition to transformation: 5 steps to drive digital adoption*. The Enterprises Project. Retrieved from https://enterprisersproject.com/article/2023/4/digital-adoption-tips. Accessed on 19th October 2024.

Schiavone, F., & Simoni, M. (2019). Strategic marketing approaches for the diffusion of innovation in highly regulated industrial markets: the value of market access. *Journal of Business & Industrial Marketing*, *34*(7), 1606-1618. http://dx.doi.org/10.1108/JBIM-08-2018-0232

Tagscherer, F., & Carbon, C.-C. (2025). The role of Transformational Leadership in navigating digital servitization. *Sustainable Technology and Entrepreneurship, 4*(2), 100098. https://doi.org/10.1016/j.stae.2025.100098

TEKsystems. (2024). *State of digital transformation 2025*. TEKsystems. Retrieved from https://www.teksystems.com/en/insights/state-of-digital-transformation-2025. Accessed on 23rd October 2024.

Tuyen, B. Q., Phuong Anh, D. V., Hung, T. H., & Lan, M. T. (2025). Leadership characteristics and digital transformation in an emerging market: The moderating effect of compliance pressure. *International Review of Economics & Finance, 98*, 103944. https://doi.org/10.1016/j.iref.2025.103944

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation.* Harvard Business Press. Retrieved from http://repo.darmajaya.ac.id/4452/1/Leading%20Digital_%20Turning%20Technology%20into%20Business%20Transformation%20%28%20PDFDrive%20%29.pdf. Accessed on 28th October 2024.