

AI-powered leadership: a systematic literature review

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Abstract

Purpose – In this era of rapid technological advancement, Artificial Intelligence (AI) has emerged as a crucial factor in reshaping organisational dynamics, notably in the realm of leadership. This systematic literature review (SLR) aims to investigate the emerging relationship between AI and leadership, focussing on defining AI-powered leadership, identifying prevalent themes, exploring challenges, and uncovering research gaps within the relevant literature.

Design/methodology/approach – A sample of 73 papers was chosen after carefully applying the inclusion and exclusion criteria to 1,387 research articles that were initially sought. Using the methodological framework presented by Denyer and Tranfield (2009), our study adopted a four-step procedure to obtain insights from the corpus of literature. The papers were analysed by employing content and thematic analysis to address four key questions.

Findings – The review explores various definitions of AI-powered leadership proposed in the literature based on real-world situations. The study further synthesises significant themes in the existing literature, such as the past, present and future of AI and AI in various facets of organisational leadership, transitional management, and urban management. The review revealed a range of key challenges in AI-powered leadership, including ethical dilemmas, complications in human-AI interactions, hurdles in AI implementation within leadership contexts, and long-term risks associated with AI integration. In addition, this study identified areas within AI-powered leadership research that require further investigation by revealing significant research gaps in the papers.

Originality/value – By adopting a comprehensive approach, this research advances understanding of the complex relationship between AI and leadership dynamics, thus facilitating comprehension of the current body of knowledge and enabling future scholarly investigations in the AI-powered leadership domain.

Keywords Systematic literature review, Leadership, Artificial intelligence, Digital, Transformation, AI-Powered leadership

Paper type Research paper



Introduction

The relationship between artificial intelligence (AI) and leadership has emerged as a vital area of research in response to extraordinary technological transformations. As it is predicted that AI can be used for intelligence augmentation in the future (Hassani *et al.*, 2020), Bundy (2016) contends that AI will reach and exceed human performance on increasingly more tasks in the future. Additionally, AI technologies are being used more and more in different organisational functions, affecting leadership and decision-making. As a result, interest in the relationship

between leadership and AI is growing among both researchers and practitioners (Schrettenbrunnner, 2020; Noponen *et al.*, 2023). Researchers have explored how AI helps leaders perform various functions more efficiently (Sim, 2019). Sim (2019) emphasises AI's role in stimulating the collective imagination of leaders in different work situations.

The context of AI within the leadership milieu encourages us to explore how AI technologies change the way we perceive traditional leadership. AI introduces new tools that leaders can use to improve their work, such as helping with decision-making, planning, and enhancing cognitive abilities (Quaquebeke and Gerpott, 2023). The influence of AI on modern organisations' leadership is a topic of debate ranging from AI as a booster to a replacement for leaders and followers (Richter and Resch, 2021). Wang (2021a) further examines the connection between AI and leadership, particularly in data-driven decision-making. A drawback of data driven decision making is AI failing to factor in ethical and social issues. For example, Agarwal (2022) introduces a note of caution, expressing concerns about potential social issues that might emerge from the widespread adoption of AI in organisational settings. Wagner (2020) highlighted that the increase in AI technologies introduces a paradigm shift in how leaders conceptualise, strategise, and execute their roles within organisations. Therefore, the adoption of AI in organisations for tasks such as data-driven decision-making, planning, and communication empowers leaders, emphasising the need to investigate what AI-powered leadership looks like and its implications.

Recognising the need for a comprehensive understanding of this evolving area, our systematic literature review henceforth covers diverse disciplines, including management, ethics and information systems literature to explore the concept of AI-powered leadership in detail. Systematic literature reviews are used by researchers as an important tool for gathering and summarising the recent state of knowledge about a specific topic (Omeihe and Harrison, 2024; Marras *et al.*, 2024; Portyanko *et al.*, 2023; Sawyerr and Harrison, 2020; Hassler *et al.*, 2014). A systematic review uses established methodologies for searching, filtering, reviewing, critiquing, interpreting, synthesising, and summarising findings from various publications on a certain topic or area of interest (Pati and Lorusso, 2018). Hence, this study retrieved 1,387 peer-reviewed papers, which was screened and reduced to 73 peer-reviewed papers to investigate the relationship between AI and leadership. These papers were retrieved from Scopus and Science Direct databases. The study followed a four-step procedure, guided by the methodological framework developed by Denyer and Tranfield (2009), to gather insights from the body of literature. We examine the literature to answer four research questions. These questions pertain to the definition, common themes, challenges and gaps in AI-powered leadership. Content and thematic analysis were conducted to analyse the papers. The review explores the emerging concepts and empirical findings of AI-powered leadership to contribute to the ongoing dialogue on the definition of AI-powered leadership and its implications. Furthermore, by clarifying the challenges presented by the integration of AI into leadership contexts, this study seeks to empower scholars and practitioners to understand the evolving AI landscape and its impact on effective leadership. Lastly, the gaps identified in this study clarify the current understanding of AI-powered leadership and point to areas of research where future advancements can be made.

Methodology

Systematic Literature Reviews (SLRs) are essential in identifying current research advancements and offering an overview of research in the current state of the field (Portyanko *et al.*, 2023). This method helps identify gaps, trends, and inconsistencies in the existing literature, guiding future research. SLRs support evidence-based decision-making by systematically synthesising relevant and significant papers. SLR follows specific methods and processes, as noted by Jahan *et al.* (2016) and Harrison *et al.* (2016), to evaluate important literature on a particular phenomenon.

We used [Denyer and Tranfield's \(2009\)](#) four-step methodology to establish and evaluate the pertinent literature to conduct an SLR on AI and Leadership. The four-step procedure (as described in [Figure 1](#)) makes the review consistent and concrete by avoiding subjectivity in data collection and analysis ([Clark et al., 2019](#); [Cacciotti and Hayton, 2015](#); [Zahoor et al., 2020](#)). These four steps include defining the research questions, establishing the scope and boundaries of the review, study identification, screening and selection process, and analysis and synthesis.

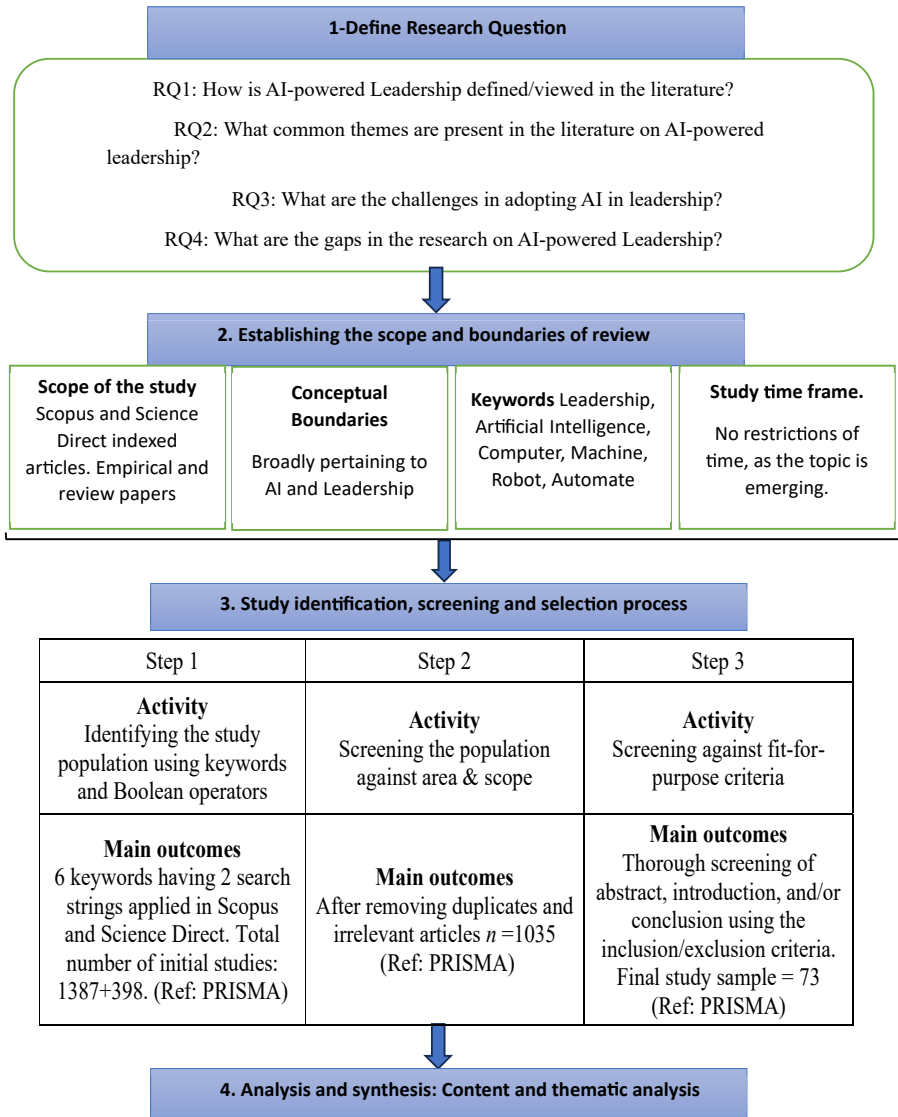


Figure 1. Four step SLR process by [Denyer and Tranfield \(2009\)](#)

Step 1: defining the review questions

The first step helps to identify specific review questions within the subject area to facilitate the entire SLR process (Denyer and Tranfield, 2009). Before initiating the review, a panel of experts in AI and leadership was engaged to offer a thorough understanding of the phenomenon and suggest potential research areas. Their insights played a key role in shaping a comprehensive review protocol. Additionally, the protocol was developed through a scoping study and an extensive narrative literature review.

A preliminary scoping study was conducted to identify and understand new and current patterns in artificial intelligence (AI) and leadership literature. As McQuade *et al.* (2021) observed, the findings of the scoping study played an important role in determining the questions addressed in this review. Hence, the following questions were developed for this study.

- RQ1. How is AI-powered leadership defined or viewed in literature?
- RQ2. What common themes are present in the literature on AI-powered leadership?
- RQ3. What are the challenges in adopting AI in leadership?
- RQ4. What are the gaps in the research on AI-powered leadership?

Step 2: establishing the scope and boundaries of the review

To establish the scope and boundaries of the review, targeted databases, scope of concepts and inclusion and exclusion criteria were determined (Omeihe and Harrison, 2024; Denyer and Tranfield, 2009). We used digital databases such as Scopus and Science Direct that are widely used for systematic review (see Borges *et al.*, 2021). In addition we also used Google Scholar to broaden the scope of our literature search on AI and leadership.

All of these databases encompass reputable publishers, including but not limited to Elsevier, Wiley, Taylor and Francis, Emerald, Sage, and Springer, among others. Empirical and review articles were considered when determining the study population.

To apply the conceptual boundaries, all papers that consisted of AI and leadership dynamics were included. After the scoping study and the initial search on Google Scholar, six keywords were finalised. These keywords were Leadership, Artificial Intelligence, Computer, Machine, Robot and Automate. To deal with the difficulty of inadequate clarity in definitions, we adhered to Örtenblad's (2010) guidance to use an interpretive strategy that attempts to recognise what is written under the headings of the main concepts (i.e. AI and Leadership). As far as time frame is concerned, there are no restrictions on the publication date to include a comprehensive view of the evolving literature on AI and Leadership.

Step 3: study identification, screening, and selection process

This step aims to explore, filter and choose appropriate research papers to conduct a review based on the questions of this study (Denyer and Tranfield, 2009). An initial search on Google Scholar helped us determine the keywords and search strings for relevant articles.

Search strings

The following search string was used to search relevant papers in Scopus and Science Direct.

Search String: "Leadership OR Leader" AND "Artificial intelligence" AND adoption OR implementation OR "Human collaboration" OR "responsible Artificial intelligence" OR "responsible AI".

(Search was conducted in titles, abstracts and keywords)

The following search string was used to search relevant papers in Scopus.

Search String: TITLE-AUTHKEY leader* AND (“artificial intelligence” OR AI OR automation OR machine OR compute* OR robot*)

(Search was conducted in titles, abstracts and keywords)

Initially, a sample of 1,387 papers was retrieved from the Scopus database using a specified search string. The data from Science Direct, comprising 398 papers, underwent a similar screening process and were matched with Scopus data (1,387), leading to the removal of 392 duplicate papers. Only six papers from Science Direct were not found in the initial sample of Scopus, and hence, those were added to the final sample. Subsequently, subject area filters were applied, resulting in the shortlisting of 352 papers as criteria for suitability aimed at validating studies, aligning them with the intended purpose of the review (Boaz and Ashby, 2003). Eight papers published in languages other than English were excluded. The inclusion and exclusion criteria (Tables 1 and 2) were then applied to 344 papers; after scrutiny, 67 relevant papers were shortlisted. Additionally, six papers from Science Direct were added to the final dataset, resulting in 73 papers ($N = 73$) for analysis. The details of this process of obtaining the final sample are provided in Figure 2 (PRISMA). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram is an important tool in Systematic Literature Reviews (SLRs) because it visually depicts the process of locating, screening, and choosing studies for inclusion and exclusion in an authentic way (Stewart *et al.*, 2015). The types and methodologies of the sample papers are described in Figures 3 and 4.

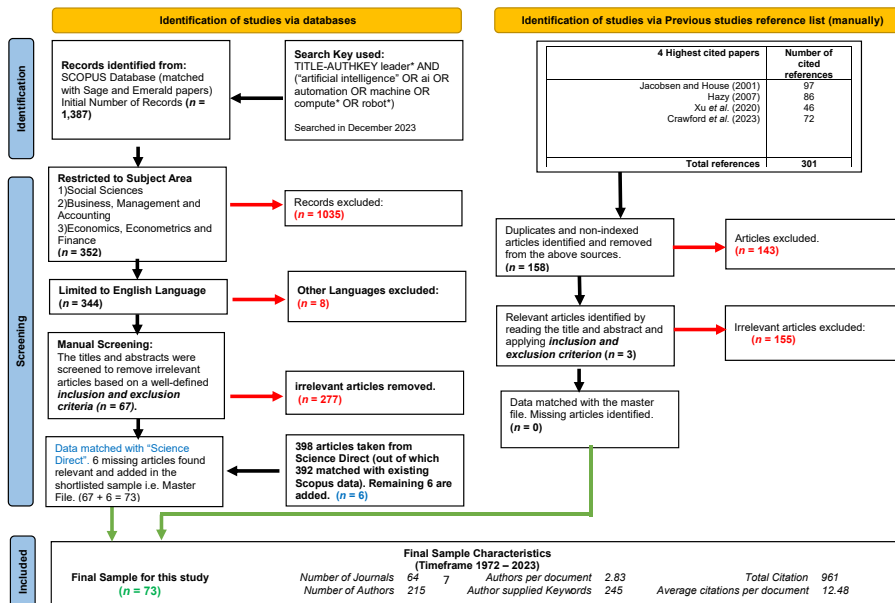
The inclusion and exclusion criteria for this systematic literature review are carefully planned to ensure that the selected studies are relevant and contribute to the understanding of AI-powered leadership. The inclusion criteria focus on papers that specifically discuss the integration of Artificial Intelligence (AI) and leadership, ensuring the relevance of the content. Peer-reviewed journal articles, conference papers, and book chapters are included to maintain a high standard of academic consistency, while studies employing various research designs are considered to provide a comprehensive scientific view of the topic (See Table 1). No restrictions on publication date are applied, reflecting the emerging nature of this field and allowing for the inclusion of both foundational and recent studies on the topic.

Table 1. Inclusion criteria

Inclusion criteria	
Abstracts	Papers with the abstracts containing Artificial Intelligence (AI) and Leadership
Publication Type	Peer-reviewed journal articles, conference papers, and book chapters
Study Design	Qualitative, Quantitative, Mixed -Method and review studies
Focus	Papers which pertain to the research questions set in the protocol
Publication Date	As the topic of this study is emerging, there are no restrictions on the publication date
Language	Studies originally published in English
Source(s): Authors' own creation	

Table 2. Exclusion criteria

Exclusion criteria	
Publication Type	Non-peer-reviewed articles, books, theses, dissertations and other unpublished work
Grey Literature	Book reviews, media reports, interviews, newspaper articles etc.
Focus	Papers that do not address leadership with AI or AI in leadership
Scope of AI Technologies	Studies with the scope of technical aspects of AI without addressing leadership implications
Language	Studies published in languages other than English
Source(s): Authors' own creation	



Source(s): Authors' own creation

Figure 2. Article selection flow chart (PRISMA)

The exclusion criteria eliminate sources that may lack academic rigour or focus, such as non-peer-reviewed articles, grey literature, and studies that do not directly address leadership in the context of AI (See Table 2). By excluding studies focused solely on the technical aspects of AI without considering leadership implications, the review ensures that only relevant papers are included. This helps maintain a clear focus on the relationship between AI and leadership in the process of SLR.

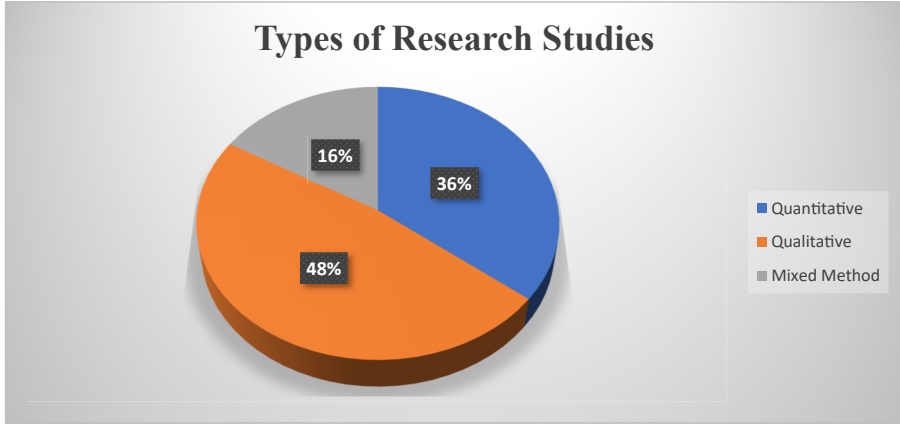
Step 4: analysis and synthesis

Analysis in systematic literature reviews (SLR) involves examining and interpreting data from sample papers and synthesis involves combining findings to draw comprehensive results or identify common patterns (Denyer and Tranfield, 2009). To prevent excessive focus on any single study (Zahoor et al., 2020; Tranfield et al., 2003), it is essential to utilise a transparent synthesis process to analyse and integrate the findings from the 73 papers shortlisted in this study. In this study, we used content and thematic analyses. Content analysis allows for the quantification of data by analysing repeated terms and words, while thematic analysis emphasises identifying, analysing and interpreting patterns of meaning within qualitative data (Vaismoradi et al., 2013).

The following section provides details of 73 research papers selected for this Systematic Literature Review (SLR) study (See Table 3 for the Author names and titles of the papers)

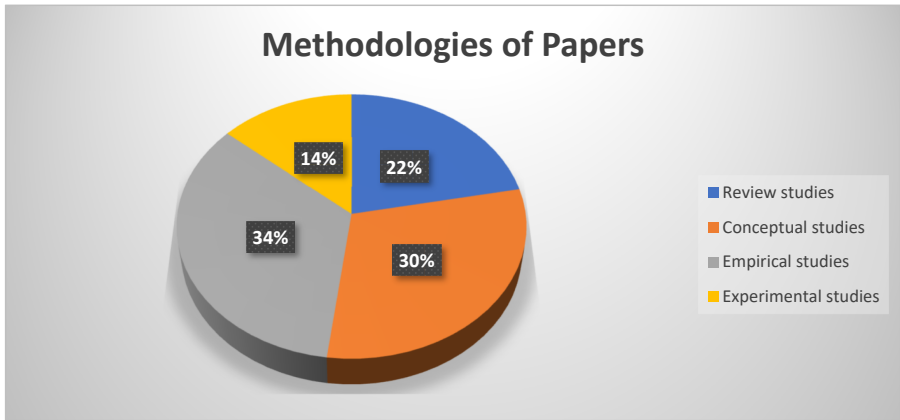
Data analysis and results

The current study employs a systematic analysis of the existing body of literature to address four research questions with the objective of exploring diverse dimensions of AI-powered leadership. The analysis for this study begins with an examination of sample papers, focussing on their research types, methodologies, citation analyses, demographics, and other scientific aspects.



Source(s): Authors' own creation

Figure 3. Types of research papers in the sample of the study



Source(s): Authors' own creation

Figure 4. Methodologies of research papers in the sample of the study

Types of research studies

This study examines 73 papers and finds that most of them are qualitative research, making up 48% of the total. Quantitative studies follow closely, accounting for 36%, which shows a balanced blend of research methods in AI and leadership. Mixed methods research represents 16% of the sample, indicating a smaller but important part of the research in this field. Overall, this distribution reflects the variety of approaches used in studying AI and leadership.

Methodologies of the papers

Within the sample of 73 papers analysed in this study, a diverse range of methodologies are evident. Empirical studies emerge as the leading methodology, comprising 34% of the sample, revealing a strong foundation of data-driven investigations. Conceptual papers follow closely behind at 30%, explaining theoretical frameworks and conceptual models within the field of

Table 3. Author names, years and titles of the 73 sample papers

Author(s)	Year	Title of the article
Karakose <i>et al.</i>	2023	A conversation with ChatGPT about digital leadership and technology integration: Comparative analysis based on Human–AI collaboration
Varma <i>et al.</i>	2023	Artificial intelligence and people management: A critical assessment through the ethical lens
Wolf and Stock-Homburg	2023	How and when can robots be team members? Three decades of research on Human–Robot teams
Quaquebeke and Gerpott	2023	The now, new, and next of digital leadership: How artificial intelligence (AI) will take over and change leadership as we know it
Lanz <i>et al.</i>	2023	Employees adhere more to unethical instructions from human than AI supervisors: Complementing experimental evidence with machine learning
Kollmann <i>et al.</i>	2023	Artificial leadership: Digital transformation as a leadership task between the chief digital officer and artificial intelligence
He <i>et al.</i>	2023	Being proactive in the age of AI: Exploring the effectiveness of leaders' AI symbolisation in stimulating employee job crafting
Can	2023	Under the leadership of our president: "Potemkin AI" and the Turkish approach to artificial intelligence
Hoppe <i>et al.</i>	2023	Perception of society's trust in care robots by public opinion leaders
Ghamrawi <i>et al.</i>	2023	Exploring the impact of AI on teacher leadership: Regressing or expanding?
Liu <i>et al.</i>	2023	Identifying smart city leaders and followers with machine learning
Islam and Sufian	2023	Employing AI and ML for data analytics on key indicators: Enhancing smart city urban services and dashboard-driven leadership and decision-making
Anghel	2023	New perspectives for human and artificial intelligence interactions for leadership e-recruitment
Newstead <i>et al.</i>	2023	How AI can perpetuate – Or help mitigate – Gender bias in leadership
Claus and Szupories	2023	AI and leadership: Automation and the change of management tasks and processes
Noponen <i>et al.</i>	2023	The search for authenticity in artificial-intelligence-enhanced leadership
Cowling <i>et al.</i>	2023	Using leadership to leverage ChatGPT and artificial intelligence for undergraduate and postgraduate research supervision
Verhezen	2023	Making wise decisions in a smart world: Responsible leadership in an era of artificial intelligence
Gatzui and Imhof	2023	Position paper – Hybrid artificial intelligence for realising a leadership assistant for platform-based leadership consulting
Bock and Von Der Oelsnit	2023	Leadership skills in the age of artificial intelligence: A qualitative study in the German automotive industry
Khawaja and Hamdan	2023	The moderation effect of digital leadership on the relationship between artificial intelligence and accounting profession: A review
Cichor <i>et al.</i>	2023	Robot leadership – Investigating human perceptions and reactions towards social robots showing leadership behaviours
Bazavan <i>et al.</i>	2023	China's drive for technological leadership in artificial intelligence. Key policies and government-industry integration
Harrison <i>et al.</i>	2023	Using supervised machine learning to scale human-coded data: A method and dataset in the board leadership context
Vargas <i>et al.</i>	2023	The neurophysiological basis of leadership: A machine learning approach
Wijayati <i>et al.</i>	2022	A study of artificial intelligence on employee performance and work engagement: The moderating role of change leadership
Tsai <i>et al.</i>	2022	Human-robot collaboration: A multilevel and integrated leadership framework
Banks <i>et al.</i>	2022	Leadership in the digital era: A review of who, what, when, where, and why
Chatterjee <i>et al.</i>	2022	AI and digitalisation in relationship management: Impact of adopting AI-embedded CRM system

(continued)

Table 3. Continued

Author(s)	Year	Title of the article
Akkaya and Tabak Hunt <i>et al.</i>	2022 2022	Leader robots (LRs): The future managers of digital organisations Measuring the impact of AI on jobs at the organisation level: Lessons from a survey of UK business leaders
De Cremer and McGuire Jeon	2022 2022	Human–algorithm collaboration works best if humans lead (Because it is fair!) Let me transfer you to our AI-based manager: Impact of manager-level job titles assigned to AI-based agents on marketing outcomes
Peifer <i>et al.</i>	2022	Artificial intelligence and its impact on leaders and leadership
Olugboyege	2022	BIM leadership theory for organisational BIM transformation
Schmidt and Van Dellen	2022	Leadership of place in virtual environments
Abbu <i>et al.</i>	2022	Ethical considerations of artificial intelligence: Ensuring fairness, transparency, and explainability
Essa and Mojarad	2022	Practical AI for business leaders, product managers, and entrepreneurs
Noormohammadi-Asl <i>et al.</i>	2022	Task selection and planning in human-robot collaborative processes: To be a leader or a follower?
Maity <i>et al.</i>	2022	How artificially intelligent (AI) leadership impacts trust and recommendation quality among consumers: An abstract
Petrat <i>et al.</i>	2022	Acceptance of artificial intelligence as organisational leadership: A survey
Tiwari <i>et al.</i>	2022	Artificial intelligence and talent acquisition-role of HR leaders in adoption
Höddinghaus <i>et al.</i>	2021	The automation of leadership functions: Would people trust decision algorithms?
Frick <i>et al.</i>	2021	Maneuvering through the stormy seas of digital transformation: The impact of empowering leadership on the AI readiness of enterprises
Wang	2021b	When artificial intelligence meets educational leaders' data-informed decision-making: A cautionary tale
Tyson and Sauers	2021	School leaders' adoption and implementation of artificial intelligence
Wang	2021a	Artificial intelligence in educational leadership: A symbiotic role of human-artificial intelligence decision-making
Li <i>et al.</i>	2021	Influencing leading and following in human–robot teams
Dixit and Maurya	2021	Equilibrating emotional intelligence and AI driven leadership for transnational organisations
Lopes <i>et al.</i>	2021	Social robots as leaders: Leadership styles in human-robot teams
Reez	2021	Foresight-based leadership. Decision-making in a growing AI environment
Richter and Resch	2021	Leadership in the age of artificial intelligence—Exploring links and implications in internationally operating insurance companies
Lee <i>et al.</i>	2021	Developing medical artificial intelligence leaders: International university consortium approach
Xu <i>et al.</i>	2020	How will service robots redefine leadership in hotel management? A Delphi approach
Schrettenbrunner	2020	Artificial-intelligence-driven management
Cato <i>et al.</i>	2020	Transforming clinical data into wisdom: Artificial intelligence implications for nurse leaders
Farrow	2020	Organisational artificial intelligence future scenarios: Futurists insights and implications for the organisational adaptation approach, leader and team
Van Zoelen <i>et al.</i>	2020	Adaptive leader-follower behavior in human-robot collaboration
Brock and Wangenheim	2019	Demystifying AI: What digital transformation leaders can teach you about realistic artificial intelligence
Torre <i>et al.</i>	2019	AI leadership and the future of corporate governance: Changing demands for board competence
Canton	2019	Why every CEO needs to be future smart: From AI to sustainability
Antonescu	2018	Are business leaders prepared to handle the upcoming revolution in business artificial intelligence?
Bourton <i>et al.</i>	2018	Will artificial intelligence make you a better leader?

(continued)

Table 3. Continued

Author(s)	Year	Title of the article
Smith and Green	2018	Artificial intelligence and the role of leadership
Jones	2018	Artificial intelligence and leadership: A few thoughts, A few questions
Moldenhauer and Londt	2019	Leadership, artificial intelligence and the need to redefine future skills development
Egan and Chesley	2018	Leadership in a smart machine age lessons on becoming more human from the mind-brain revolution
Parry <i>et al.</i>	2016	Rise of the machines: A critical consideration of automated leadership decision making in organisations
Dewhurst and Willmott	2014	Manager and machine: The new leadership equation
Siewiorek <i>et al.</i>	2013	The effects of computer-simulation game training on participants' opinions on leadership styles
Wood <i>et al.</i>	2009	Simulations, learning and real world capabilities
Hazy	2007	Computer models of leadership: Foundations for a new discipline or meaningless diversion?
Jacobsen and House	2001	Dynamics of charismatic leadership a process theory, simulation model, and tests

Source(s): Authors' own creation

AI and leadership. Review papers make up 22% of the sample, offering thorough summaries of the existing literature. Meanwhile, experimental studies account for 14%, showing a smaller but important role in connecting theory with practical applications in AI-powered leadership research.

Most cited articles

The following [Table 4](#) provides details of the 10 most-cited papers in the sample.

We discuss three top cited papers in brief. The first paper by [Brock and Von Wangenheim \(2019\)](#) gained highest citations in its subject area due to its comprehensive empirical approach and addressing a significant gap for AI implementation in business operations. By combining insights from case studies and global surveys of senior leaders, it provides a clear understanding of AI's role in digital transformation. It introduces the framework for successful AI deployment by covering big data, intelligence, integration, agility, and leadership, it offers practical strategies, which makes it highly valuable for both academic researchers and industry practitioners.

Paper by [Jacobsen and House \(2001\)](#) is the second most cited paper which shares important findings related to artificial intelligence and leadership studies. This study uses an AI-driven simulation model to test its theoretical framework against historical data of well-known charismatic leaders. The model's ability to accurately replicate significant outcomes from historical leadership data emphasises its practical relevance and predictive capabilities. This makes it a valuable resource for researchers in AI and leadership studies, demonstrating how AI can enhance the analysis and understanding of complex phenomena.

[Xu *et al.* \(2020\)](#) conducted a study to explore hospitality leadership and human resource management within robotised hotels for the first time. This paper provides interesting insights into the balance between robotic and human roles in guest experiences. Its comprehensive analysis of the challenges and opportunities posed by human-robot integration and its focus on creating an adaptable work environment, offers many practical implications for future leaders in the hospitality industry. This uniqueness makes it the third highest cited paper in our sample.

Table 4. Ten most cited articles in the sample

Rank	Cited	Title	Year	Journal	Author/Reference
1	180	Demystifying AI: What digital transformation leaders can teach you about realistic artificial intelligence	2019	California Management Review	Brock J.K.-U.; von Wangenheim F.
2	85	Dynamics of charismatic leadership a process theory, simulation model, and tests	2001	Leadership Quarterly	Jacobsen C.; House R.J.
3	73	How will service robots redefine leadership in hotel management? A Delphi approach	2020	International Journal of Contemporary Hospitality Management	Xu S.; Stienmetz J.; Ashton M.
4	62	Rise of the machines: A critical consideration of automated leadership decision making in organisations	2016	Group and Organization Management	Parry K.; Cohen M.; Bhattacharya S.
5	53	The automation of leadership functions: Would people trust decision algorithms?	2021	Computers in Human Behavior	Höddinghaus M.; Sondern D.; Hertel G.
6	44	Computer models of leadership: Foundations for a new discipline or meaningless diversion?	2007	Leadership Quarterly	Hazy J.K.
7	43	Simulations, learning and real-world capabilities	2009	Education and Training	Wood R.E.; Beckmann J. F.; Birney D.P.
8	38	A study of artificial intelligence on employee performance and work engagement: the moderating role of change leadership	2022	International Journal of Manpower	Wijayati D.T.; Rahman Z.; Fahrullah A.; Rahman M.F.W.; Arifah I.D.C.; Kautsar A
9	37	The effects of computer-simulation game training on participants' opinions on leadership styles	2013	British Journal of Educational Technology	Siewiorek A.; Gegenfurtner A.; Laine T.; Saarinen E.; Lehtinen E.
10	32	Maneuvering through the stormy seas of digital transformation: the impact of empowering leadership on the AI readiness of enterprises	2021	Journal of Decision Systems	Frick N.R.J.; Mirbabaie M.; Stieglitz S.; Salomon J.

Source(s): Authors' own creation

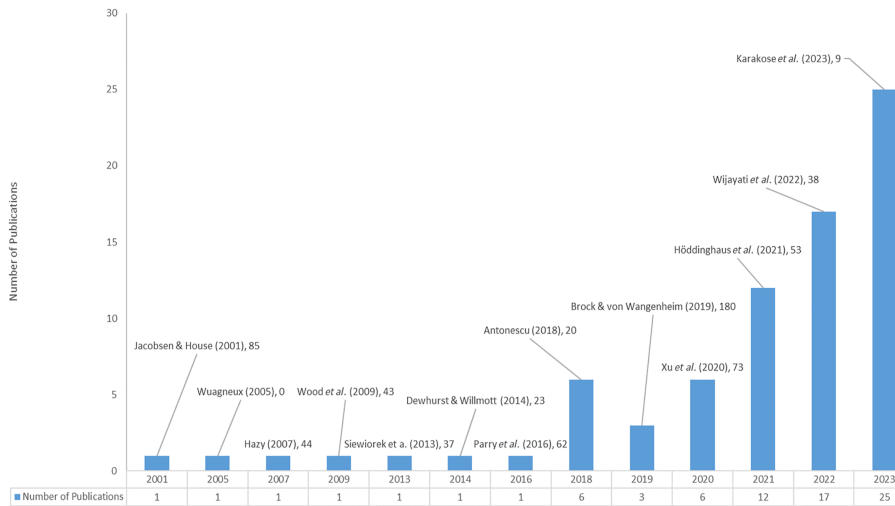
Citation analysis

This [Figure 5](#) shows publication and citation trends for the respective year.

The [Table 5](#) illustrates the distribution of authors contributing to papers on AI and leadership across different countries, with the USA, Germany, Australia, and Finland emerging as the top four contributors. In addition, the table shows the global engagement and recognition and importance of AI-powered leadership.

Findings: content and thematic analysis

To address the four research questions, a content and thematic analysis was conducted. [Figure 6](#) illustrates the key findings of the systematic literature review on AI-powered leadership.



Source(s): Author's own creation

Figure 5. Publications and citation trend

RQ1: How is AI-powered leadership defined or viewed in the literature?

The terms “AI leadership” and “AI-driven leadership” are often used interchangeably in the scholarly literature. However, it has been observed that “AI leadership” is the most prevalent and frequently used term by researchers (Gatzju Grivas et al., 2023; Maity et al., 2022; Wang, 2021a, b; Jacobsen and House, 2001; Quaquebeke and Gerpott, 2023).

While reviewing the articles for this SLR, it was noted that the specific definition of AI leadership is not clearly provided in the existing literature. However, different explanations and interpretations are available regarding how AI leadership is viewed by researchers in the field.

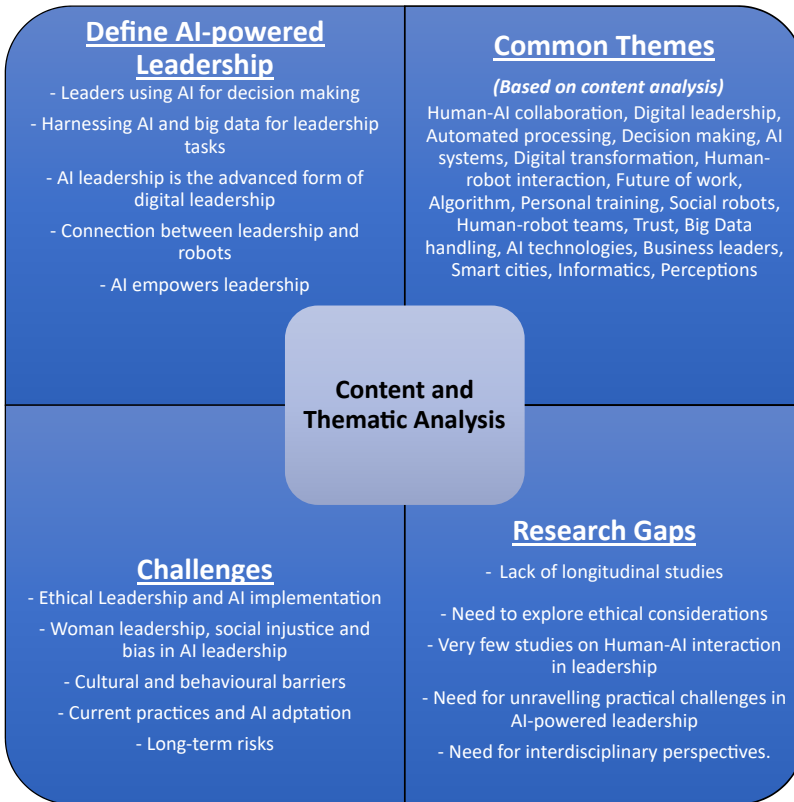
Understanding AI-powered leadership: perspectives and practices. Noponen et al. (2023) refer to AI leadership as the application of AI technologies in the context of leadership and management tasks. Wang (2021a, b) emphasises that AI can play a vital role in leaders’ decision-making by providing analytical efficiency, while moral human judgment can overcome its shortcomings. Moreover, Dewhurst and Willmott (2014) see AI leadership as the ability of senior executives to navigate the complexities and implications of emerging AI technologies and use them effectively in decision-making processes. They reiterate that AI-powered leadership implies using artificial intelligence to make decisions and to lead teams effectively. Brock and Von Wangenheim (2019) note that AI leaders establish open innovation ecosystems, collaborate with technology partners, and leverage external talent to co-create tailored AI solutions. AI leadership involves integrating AI technologies into leadership and management tasks, enhancing decision-making through analytical efficiency while relying on human judgment to address limitations (Dewhurst and Willmott, 2014). Effective AI leaders must navigate the complexities of these technologies and use them strategically to lead teams. Collaboration and open innovation are vital for developing customised AI solutions, as highlighted by various scholars in the field (Jones, 2018).

Exploring the intersection of AI-powered leadership and digital leadership. Regarding discussions on the two terms AI leadership (AI-powered) and digital leadership, we found some interesting notions. Digital leadership encompasses various leadership styles such as technology leadership, virtual leadership, e-leadership, leadership 4.0, and AI leadership, all of which are employed interchangeably in the literature (Karakose et al., 2023). In this context,

Table 5. Country wise authors' contribution

Country	Number of authors	Country	Number of authors	Country	Number of authors	Country	Number of authors
USA	48	CHINA	7	AUSTRIA	2	ISRAEL	1
GERMANY	33	INDONESIA	6	BAHRAIN	2	LEBANON	1
AUSTRALIA	13	NETHERLANDS	6	ITALY	2	NEW ZEALAND	1
FINLAND	12	SWITZERLAND	6	JAPAN	2	NIGERIA	1
UK	9	PORTUGAL	5	QATAR	2	SINGAPORE	1
INDIA	8	SPAIN	5	SOUTH AFRICA	2		
TURKEY	8	ROMANIA	4	BELGIUM	1		
CANADA	7	SWEDEN	4	CYPRUS	1		

Source(s): Authors' own creation



Source(s): Authors' own creation

Figure 6. Key findings from systematic literature review on AI-powered leadership

the term “AI Leadership,” has been viewed as a further development of “Digital Leadership” (Lopes *et al.*, 2021). This development can be explained by AI-powered leadership comprising practices and approaches that involve the effective utilisation of AI to navigate the challenges and opportunities presented by the digital age (Lopes *et al.*, 2021). Similarly, AI and digital leadership refer to an individual’s ability to effectively lead and navigate the use of AI in various domains (Jones, 2018; Quaquebeke and Gerpott, 2023). This highlights that AI leadership evolved from digital leadership, focussing on the effective use of AI in the digital age.

Data-driven approach- harnessing data for effective AI-powered leadership. The importance of data has been identified as a vital element in defining AI-powered leadership. Brock and Von Wangenheim (2019) discussed AI leaders who have strong data capabilities and integrated data management practices, which separate them from laggards and significantly contribute to their success in AI implementation in the organisation. In the same way, Parry *et al.* (2016) shed light on AI’s advantage in providing unbiased data interpretation for the leaders, but they also raise the significance of retaining human-led veto over AI decisions to address the drawbacks related to lack of accountability and ethical issues. AI-powered leaders acknowledge the significance of data quality and the necessity for comprehensive, unbiased datasets to confirm the ethical use of AI. By ensuring that datasets are complete and unbiased, they promote ethical AI practices, which ultimately lead to more fair and effective outcomes in their organisations (Richter and Resch, 2021).

Exploring the nexus of AI-powered leadership and robot leadership in organisational contexts. This SLR also discovers some interesting connections between AI leadership and robots. [Cichor et al. \(2023\)](#) underscore the views of their respondents on robot leadership. Positive views led to the idealisation of robot leaders as objective and fair, whereas negative views raised concerns about empathy and motivational capabilities. [Cichor et al. \(2023\)](#) also revealed the prospects of social robots as leaders with the potential to improve organisational outcomes. However, it emphasises the necessity for AI-based robot leaders to emulate the qualities of human leaders, such as self-awareness, relational transparency, and moral perspectives. In addition, [Lopes et al. \(2021\)](#) illustrated human-robot interaction and highlighted the crucial role of leadership in understanding the proper integration of robots as leaders in the workplace.

Agility and change through AI-powered leadership. The literature also considers AI leadership in relation to agility and change. In this regard, [Bourton et al. \(2018\)](#) explained that artificial intelligence can help leaders become more agile and ready for transformation. In this context, AI leadership involves leveraging AI to embrace uncertainty, filter relevant information, and drive transformation by experimenting with new ideas. [Dewhurst and Willmott \(2014\)](#) also presented the concept of AI leadership as an immediate and disruptive application of AI in management, which can help firms acquire a competitive advantage in a rapidly changing business environment. Similarly, [Moldenhauer and Londt \(2019\)](#) echo this finding, stating that AI leaders can provide real-time insights, innovative solutions, and feedback to enhance change-oriented leadership functions. Leaders can implement organisational change with the help of AI. It is viewed as a disruptive tool that can give organisations a competitive edge in a fast-paced business environment. Moreover, AI leaders can offer real-time insights, innovative solutions, and feedback that enhance their ability to lead organisational change effectively ([Anghel, 2023](#)).

Empowering leaders with artificial intelligence support. Another exciting aspect of the notion of AI-powered leadership that emerge from the review is how artificial intelligence supports leadership across various roles and functions. The role of AI leaders is evolving from being a tool for human leaders to a proactive advisory support role, potentially substituting human leadership in the future ([Moldenhauer and Londt, 2019](#)). Another study by [Gatzju Grivas et al. \(2023\)](#) conclude that AI assistance to leadership not only offers the potential to transform the consultancy industry but also supports organisations in their transformation efforts. Similarly, [Tiwari et al. \(2022\)](#) explored the positive orientation of HR leaders towards AI adoption to enhance leadership performance.

A critical evaluation of the literature and emerging themes reveal that AI-powered leadership lacks a single, unified definition. However, there are many similarities and overlaps in the perspectives and assertions of researchers regarding AI leadership. AI leaders can provide real-time insights, innovative solutions, and feedback to enhance change-oriented leadership functions. Moreover, AI leaders can offer real-time insights, innovative solutions, and feedback that enhance their ability to lead organisational change effectively ([Anghel, 2023](#)). The role of AI leaders is evolving from being a tool for human leaders to a proactive advisory support role, potentially substituting human leadership in the future ([Moldenhauer and Londt, 2019](#)). Summarising various perspectives and definitions found in the literature, AI-powered leadership can be understood as data-driven leadership that focuses on integrating AI technology and leveraging its benefits for efficiency in complex decision-making, people management, innovation, and transformation. This AI-powered leadership seeks to achieve organisational competitive advantage while ensuring ethical implementation and adherence to values. The following [Table 6](#) presents some prominent findings by authors on how they define or view AI-powered leadership.

RQ2: What common themes are present in the literature on AI-powered leadership?

The following themes were identified in the literature on AI and leadership after conducting content and thematic analysis of papers in the sample.

Table 6. Definitions and views of AI leadership by authors

Authors and years	Definitions and views of AI leadership
Bourton <i>et al.</i> (2018)	AI leadership involves leveraging AI to embrace uncertainty, filter relevant information, and drive transformation by experimenting with new ideas
Bock and von der Oelsnitz (2023)	AI leaders establish open innovation ecosystems, collaborate with technology partners, and leverage external talent to co-create tailored AI solutions
Dewhurst and Willmott (2014)	AI leadership is the ability of senior executives to navigate the complexities and implications of emerging AI technologies and use them effectively in decision-making processes AI leadership is an immediate and disruptive application of AI in management, which can help firms acquire a competitive advantage in a rapidly changing business environment
Gatzju Grivas <i>et al.</i> (2023)	AI assistance to leadership not only offers the potential to transform the consultancy industry but also supports organisations in their transformation efforts
Jones (2018), Quaquebeke and Gerpott (2023)	AI and digital leadership refer to an individual's ability to effectively lead and navigate the use of AI in various domains
Karakose <i>et al.</i> (2023)	Digital leadership encompasses various leadership styles such as technology leadership, virtual leadership, e-leadership, leadership 4.0, and AI leadership, all of which are employed interchangeably in the literature
Lopes <i>et al.</i> (2021)	"AI Leadership," is a further development of "Digital Leadership"
Moldenhauer and Londt (2019)	The role of AI leaders is evolving from being a tool for human leaders to a proactive advisory support role, potentially substituting human leadership in the future
Noponen <i>et al.</i> (2023)	AI leadership is the application of AI technologies in the context of leadership and management tasks
Richter and Resch (2021)	AI leaders recognise the importance of data quality and the need for complete, unbiased datasets to ensure ethical implementation of AI
Wang (2021a, b)	AI can play a vital role in leaders' decision-making by providing analytical efficiency, while moral human judgment can overcome its shortcomings

Source(s): Authors' own creation

AI and leadership. The landscape of leadership development is rapidly evolving in the current age of advancing digital technology such as AI. Such as business computer simulation gaming is being tested during leadership training in virtual environments (Siewiorek *et al.*, 2013). This age is marked by the integration of simulations, technologies and skill sets to meet the needs of contemporary leadership contexts (Banks *et al.*, 2022). Employees already show confidence in the decision-making capabilities of automated systems as they have more integrity and transparency than human systems (Höddinghaus *et al.*, 2021). Moreover, AI's integration into business management has blurred the lines between operational and strategic decision-making, prompting the emergence of "Artificial Leadership" (Kollmann *et al.*, 2023). Similarly Wood *et al.* (2009) observe that computer-based simulations have repeatedly been used to develop task-specific knowledge, flexible expertise, and behavioural skills necessary for real-world leadership scenarios. The increasing use of AI in organisations shifts traditional leadership roles and practices to artificial leadership.

There is a growing fear that, along with jobs in tech business and content writing, AI will overtake managerial roles in the future. AI's ability to process big data and make decisions is raising concerns that it could replace human managers in organisational decision-making and operational tasks. Parry *et al.* (2016), investigate the pros and cons of automated leadership decision making in organisations. They reiterate that AI-based systems do not have externally imposed constraints such as religious and cultural constraints; therefore, they can make objective decisions. However, Petrat *et al.* (2022) concluded in an exploratory survey that AI

best performs support roles, such as assisting leaders in team supervision and performing data-driven tasks. It is important that even for support tasks, AI be trained to ensure transparency and fairness (Abbu *et al.*, 2022). Even though AI's ability to process data and assist in decision-making is advancing rapidly, it lacks the human element required to conduct complex leadership tasks.

AI-powered leadership – decision support systems. The integration of AI technologies into urban management has emerged as a pivotal strategy for the development of smart cities. Findings from Islam and Sufian (2023) and Liu *et al.* (2023) underline the transformative capacity of AI technologies to shape the future of urban management and leadership decision making within smart cities. These technologies provide leaders with real-time insights into navigating complex urban challenges and fostering inclusive, resilient, and liveable communities.

Liu *et al.* (2023) underscores the growing momentum of smart city initiatives worldwide. It categorises cities into leaders and followers, based on diverse evaluation criteria. Furthermore, it deploys machine learning techniques to identify the main characteristics of leaders and followers. By using a Support Vector Machine (SVM), future urban smart leaders and followers were predicted. Similarly, through the analysis of key performance indicators and the deployment of advanced machine learning models, such as Support Vector Machine, Artificial Neural Networks (ANN) and Logistic Regression and the efficacy of AI-driven decision support systems in optimising leadership strategies can be demonstrated (Islam and Sufian, 2023; Liu *et al.*, 2023). Although performance outcomes vary across models, the potential role of AI data analytics in providing city leaders and decision-making bodies with actionable insights to enhance service delivery and foster sustainable urban development cannot be denied. Hence, these studies support strongly the necessity of AI-powered leadership in modern organisations.

AI-powered leadership: automation and transformation in organisations. AI is increasingly being integrated into organisations' digital transformation projects, often alongside other advanced digital technologies. This integration supports existing business operations and offers specific guidance for successful implementation in areas such as data management, intelligence, agility, and leadership (Brock and Von Wangenheim, 2019).

Schrettenbrunner (2020) noted that AI increasingly influences various aspects of organisations, including business models, processes, and management. AI-driven management can substitute traditional expertise by automating tasks, analysing data at a scale, and providing real-time insights. This will lead to more efficient and effective decision making, offering competitive advantages by quickly adapting to changing market conditions, identifying new opportunities, and optimising business processes. As mentioned by Richter and Resch (2021), the impact of AI on industries depends on how well the industry can adapt to changes brought about by AI-driven leadership. Many companies are now looking into combining AI with human expertise and machine learning (Gatziu Grivas *et al.*, 2023). Employees have noticed that AI positively affects leadership effectiveness by creating a supportive environment that boosts productivity (Khawaja and Hamdan, 2023). In the HR sector, companies are not only focussing on current leadership and digital tools but are also using AI to automate the recruitment of future leaders. They are developing specialised e-recruitment software to identify important leadership skills and improve talent acquisition processes with technology (Anghel, 2023; Tiwari *et al.*, 2022).

Claus and Szupories (2023) suggested that AI enhances human intelligence; therefore, leaders should incorporate AI into organisational processes and routines. This shift will require the creation of systems by identifying challenges related to AI integration and developing effective and sustainable solutions. Parry *et al.* (2016) shows confidence that the decision making in an organisation, or an organisational group can successfully be delegated to an AI-based decision-making system.

As an increasing number of AI technologies are integrated into leadership systems, there is a need for trained leaders to distinguish actionable results from non-actionable results. Leaders

possess the necessary skills to put machine-generated responses into actions suited to their context (Abbu *et al.*, 2022). CEOs must cultivate “Future Smart” competencies, enabling them to anticipate emerging trends, adapt strategies, and leverage synergies between sustainability and AI effectively (Canton, 2019)

RQ3: What are the challenges in adopting or embracing AI-powered leadership?

Following themes emerged as key challenges in the review of literature.

Gender bias and social injustice. AI and AI tools are increasingly being used by text-reliant industries such as leadership development. Although these tools are efficient, they have limitations. Newstead *et al.* (2023) emphasise that AI content generators, especially longform ones such as wordplay, generate content about female leadership that can be considered gender biased. A careful analysis of a large quantity of AI-generated content revealed clear examples of favouring men or women in leadership positions to the extent of the latter being called “*incompetent and ineffective.*” It is important to note that AI generators depend on language models and data from the internet, which means that these biases will persist in the emerging AI writing tools. If unchecked, this can exacerbate gender inequality in leadership. Cowling *et al.* (2023) established that large language models (LLMs) tend to generate biased results, particularly in their inability to deconstruct social injustice and generate context-appropriate content.

Ethics. Ethical leadership in the AI era requires a balance between integrating technology and maintaining human-centric values. Leaders must navigate ethical complexities while implementing AI and ensure that AI adoption enhances organisational effectiveness without compromising ethical standards. Techniques, such as storytelling and visual analytics, must be employed to generate results from AI systems (Abbu *et al.*, 2022). One foreseeable challenge might be the lack of employee trust in the AI models. Leaders can easily deal with this problem by having open communication with employees regarding the technicalities of how an AI model can reach a conclusion (Abbu *et al.*, 2022). AI is considered unbiased; however, it is unbiased based on the data on which it is trained. One ethical challenge regarding AI-powered leadership is whether AI withholds moral values such as equity, honesty, fairness, to name a few (Wang, 2021a, b). Smith and Green (2018) laid the groundwork for dealing with ethical challenges by suggesting that clear communication and supervision interaction standards should be established for human leaders and AI machines. AI systems should undergo ethical and moral mentoring where the importance of ethical values should be imparted; this idea has given birth to the concept of “Roboethics.” Keeping in view robotics and trust deficit issues, a comprehensive ethical framework is required to address ethical issues (Cowling *et al.*, 2023).

Cultural and behavioural barriers. Varma *et al.* (2023) points out that HR managers should solely be responsible for monitoring the ethical and behavioural aspects of AI in leadership such as privacy and equity. Moreover, an organisational culture accepting AI and related technologies needs to be created, and responsibility will fall on the leaders’ shoulders. It is also crucial to create continued and effective channels of communication to keep stakeholders in the loop on the potential risks and benefits of leaders using AI for leadership decisions. Additionally, Cichor *et al.* (2023) mentioned a concern that employees may resist accepting AI-powered leadership due to varying perceptions and behaviours. Participants’ responses varied based on the robot’s leadership style and their own assumptions about robots. For instance, the participants had significant ethical concerns, such as job replacement, fairness or bias.

Furthermore, Antonescu (2018) emphasises the challenge related to the need for rigorous training for business leaders to harness the behavioural capabilities of AI while making business decisions. People in managerial positions often resist AI adoption due to a fear of losing their control over decision-making processes, as they may feel that relying on AI could undermine their authority and importance in the organisation. Similarly, there is concern about the complexity of implementing AI systems, including employee resistance, bias in the AI

system, impact on employee privacy, readiness for training, and ongoing maintenance, which can be seen as a risky commitment (Varma et al., 2023).

Changes in leadership mindset. With the emergence of AI, traditional leadership concepts are being questioned, among which the most notable is the concept of “charismatic leadership” (Jacobsen and House, 2001). Moreover, Farrow (2020) notes that one of the main challenges is redefining the role of the leader. Leaders will not only be servants, facilitators, or guides, but they will also have to accept the decisions generated by AI. This can be seen as power sharing by some leaders and will certainly be a challenge for some leaders, leading to a shift in traditional leadership models (Farrow, 2020; Peifer et al., 2022). Another noteworthy challenge noted by Peifer et al. (2022) is the changing requirements of leaders’ competencies. Rigorous continued professional development may be required to catch up with fast-developing AI-based technologies (Moldenhauer and Londt, 2019), which necessitates new management skills and know-how to effectively automate processes (Claus and Szupories, 2023). Moreover, an office culture accepting AI and related technologies needs to be created, and responsibility will fall on the leaders’ shoulders. It is also crucial to create continued and effective channels of communication to keep stakeholders aware of the potential risks and benefits of using AI leadership decisions. Moreover, Antonescu (2018) emphasise the challenge related to the need for rigorous training for business leaders to harness the capabilities of AI while making business decisions.

RQ4: What are the gaps in the research on AI-powered leadership?

After an in-depth review of the research articles, this SLR identified some prominent gaps in the current literature on AI and leadership. Lack of ethical considerations, need for empirical-longitudinal studies and lack of interdisciplinary research were the major gaps reiterated by many researchers. All the identified gaps are discussed below in detail. Understanding these gaps will help identify further research opportunities and help avoid redundancy in scholarship on AI-powered leadership.

Long-term organisational impact: the need for longitudinal studies in AI-powered leadership. While the SLR discusses the evolving role of leaders and the need for new competencies, there’s a gap in assessing the long-term impacts of AI on leadership roles and organisational structures. A clear gap is evident in the long-term organisational impact of AI implementation and integration in leadership roles (Brock and Von Wangenheim, 2019; Abbu et al., 2022). The same was highlighted by Lopes et al. (2021), who stated that to develop trust in AI driven leadership, longitudinal studies to understand the long-term impact of AI leadership on organisational outcomes are of crucial importance.

Bridging the practical divide: implementing AI in leadership roles. The second most important gap pertains to finding practical ways to adopt and implement AI in real life. Several papers emphasise the need for further exploration of the practical likelihood and technological routes such as using robotics in adopting and implementing AI-based decision-making systems in leadership roles (Parry et al., 2016; Quaquebeke and Gerpott, 2023; Smith and Green, 2018; Richter and Resch, 2021; Wang, 2021a, b).

Ethical considerations and Human-AI interaction in AI leadership. Ethical issues have been discussed in several studies. However, a prominent research gap in the literature includes the need for a deeper exploration of applicable mechanisms for the fair and ethical use of AI, specifically investigating how leaders can navigate ethical dilemmas and implications in AI-driven decision-making processes, especially issues concerning privacy, equity and fairness (Tsai et al., 2022; Richter and Resch, 2021; Smith and Green, 2018; Cichor et al., 2023). By prioritising ethical considerations and promoting positive human-AI interactions, leaders can harness the benefits of AI while mitigating risks and creating a more inclusive and fairer organisational culture (Maity et al., 2022). Additionally, detailed investigations are also needed to explore the practical dynamics of human-AI interaction, which can make AI-powered leadership more effective. These studies emphasise the need for research on the

integration of AI systems with existing leadership processes (Abbu *et al.*, 2022; Maity *et al.*, 2022).

Unravelling practical challenges: navigating complex data and AI insights in AI-powered leadership. There is a lack of literature on the practical impact of AI-powered leadership, especially regarding the difficulties in dealing with complex and big data and understanding AI findings. Furthermore, there is a dearth of research on the evaluation of information generated by AI tools to support leadership and leadership decisions (Karakose *et al.*, 2023). Dewhurst and Willmott (2014) emphasise the need for research on interpreting and communicating AI-generated data, particularly in human-centric fields like leadership, as this data can often be cryptic and ambiguous. They further noted that AI does not possess soft skills, but humans do. Research is needed on how leaders can integrate human element such as empathy, and emotional intelligence, when implementing decisions made with the help of AI.

Need for interdisciplinary perspectives. The studies emerging as a result of the inclusion and exclusion criteria were mainly management and organisational studies. There are limited studies from fields such as psychology, sociology, computers, education, etc. Although leadership is not solely rooted in management sciences, it is surprising that most of the research on leadership is conducted from the perspective of management and organisational studies. There is a gap in the interdisciplinary research on AI and leadership. Multiple perspectives are needed to understand the phenomenon of AI-powered leadership in every field where leadership exists and how AI can be of assistance (Jacobsen and House, 2001; Liu *et al.*, 2023; Tiwari *et al.*, 2022)

Other perspectives on research gaps in AI-powered leadership. Additionally, various other research gaps have been identified by various researchers in the AI and leadership literature. These include the lack of research in compatibility of AI with organisational cultures (Abbu *et al.*, 2022; Quaquebeke and Gerpott, 2023), creating meaningful work experiences among the teams led by a robotic leader (Lopes *et al.*, 2021; Xu *et al.*, 2020), the impact of AI on leaders' job roles and the overall employment landscape (Höddinghaus *et al.*, 2021), the continuous need to acquire updated knowledge by learning robots for leadership functions (Akkaya and Tabak, 2022), and the need for interdisciplinary collaboration in AI and leadership research (Essa and Mojarad, 2022).

From the above discussion, we can conclude that research in the AI-powered leadership literature often overlooks ethical and interdisciplinary implications such as social and cultural context and legal and regulatory perspectives. The long-term impacts and practical aspects of AI adoption in leadership contexts require extensive empirical research to avoid potential ethical risks. Additionally, the dynamics of human-AI interaction and the establishment of trust in AI systems require a deeper investigation of AI's effective integration into leadership processes.

Conclusion

AI-powered leadership has been recognised as an emergent paradigm with a reasonable yet fragmented literature base through the systematic literature review. Based on the evidence of the SLR, AI-powered leadership provides a means of conceptualising the role of artificial intelligence for effective leadership.

Findings of the review uncovers diverse perspectives on the definition and understanding of AI-powered leadership. While scholars recognise the significance of AI in decision-making and navigating the complexities of the digital age, a clear universally accepted definition remains elusive. Moreover, it can be established that the concept of AI-powered leadership is multifaceted and constantly evolving. Although definitions may vary, AI-powered leadership generally involves leveraging AI capabilities to make informed decisions, drive innovation, utilise data effectively, and adapt to changes in organisational settings while maintaining the autonomy of human leadership. Moreover, as an outcome of our study we have proposed an integrated description of the notion of AI-powered leadership.

Within the studies reviewed, AI-powered leadership is seen to be closely linked with digital leadership, representing a further evolution in navigating the challenges and opportunities presented by the digital age. As organisations increasingly integrate AI into their operations, leaders must develop competencies to harness AI technologies effectively, while maintaining human-centric values and ethical standards. The literature further highlights the significant impact of AI on organisational leadership and management, including its role in enhancing decision-making processes, optimising business operations, and fostering agility and change.

In addition, this review outlines the challenges associated with adopting AI in leadership, including concerns related to gender bias, ethical implications, and the need for leaders to adapt to changing competencies and paradigms. Moreover, the review emphasises the importance of addressing practical challenges in implementing AI-based decision-making systems, fostering ethical leadership practices amidst technological advancements and the need for ongoing professional development for leaders in the AI era.

Furthermore, this study identified several gaps in the AI-powered leadership literature. For example, the need for longitudinal studies to understand the long-term organisational impact of AI-powered leadership, practical strategies and approaches for implementing AI in leadership and supportive roles, and a deeper exploration of ethical considerations and human-AI interaction. These gaps underscore the need for interdisciplinary collaboration and empirical research to better understand the topic. Finally, this paper provides important insights into the complex nature of AI-powered leadership, its effects on organisational practices, and the challenges and opportunities it brings. By exploring the critical aspects of AI-powered leadership, the review is a good starting point for future research to critically analyse the nuanced dimensions of AI-powered leadership and its implication on employees and organisations.

Limitations and future directions

While conducting the systematic literature review, we encountered some limitations. These limitations are essential for understanding the scope and findings of this study.

This SLR is as effective as the review questions and search strings used. There may be many other dimensions of AI and leadership that were not covered by the search strings such as deep learning, and neural network. Moreover, the search questions also have a limited scope, focussing only on definitions, themes, challenges, and gaps. More studies focussing on how AI and leadership are addressed in different geographical and cultural contexts and how AI and leadership are perceived in different fields such as healthcare and other disciplines will further enrich research in AI-powered leadership.

Despite employing a systematic search strategy, the effectiveness of search terms and filters used to identify relevant articles may vary. The complexity and evolving nature of the topic “AI & leadership” and the search strings used could have resulted in the inadvertent exclusion of relevant studies due to variations in terminology or indexing practices across the two databases used in this study. Future studies on this topic can diversify the search strings in addition to those used in this study.

Acknowledging these limitations is crucial for ensuring transparency and rigour in conducting and interpreting the systematic literature review on AI-powered leadership. Additionally, expanding the scope of inquiry to encompass interdisciplinary perspectives and longitudinal studies could enrich our understanding of the complexities and implications of AI-powered leadership in wider organisational contexts.

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