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RESEARCH ARTICLE

The influence of artificial intelligence-driven capabilities on responsible leadership: A future research agenda

Sahadat Hossain[1], Mario Fernando[2] and Shahriar Akter[1]

[1]Faculty of Business and Law, University of Wollongong, Wollongong, NSW, Australia and [2]Faculty of Business and Law, Centre for Cross-Cultural Management (CCCM), University of Wollongong, Wollongong, NSW, Australia
Corresponding author: Sahadat Hossain; Email: sh532@uowmail.edu.au

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Abstract
A new form of human–machine collaborative capabilities has been called to complement traditional capabilities to ensure higher but more responsible performance. We reviewed the extant literature on leadership in the artificial intelligence context to identify the leaders' essential artificial intelligence-driven capabilities and synthesize the systematic review findings into an integrated conceptual framework to highlight how artificial intelligence-driven organizations could lead more responsibly. We conducted the systematic review and thematic analysis based on 37 papers identified from Emerald Insight, EBSCOhost Business Source Complete, and ScienceDirect databases. We found organizational leaders require technical, adaptive, and transformational capabilities to lead in an artificial intelligence-driven disruptive organizational environment. Our findings contribute to dynamic managerial capability and responsible leadership for performance theories by showing how these three uncovered capabilities enable organizational leaders to deploy dynamic managerial capabilities – sensing, seizing and reconfiguring more responsibly.

Keywords: AI-driven capabilities; AI-driven leadership; dynamic managerial capabilities; ethical resonance; responsible leadership

Introduction

Artificial intelligence (AI) continues to record remarkable growth in various sectors of economies across the globe. While 35% of businesses use AI in various situations, 42% of other businesses plan to use AI soon (Dennison, 2023). AI will contribute $15.7 trillion to the world economy by 2030 (PwC, 2017), with $9.1 trillion originating from consumption side effects and $6.6 trillion in increased productivity (PwC, 2017). As organizations adopt AI, new leadership challenges emerge to reduce negative impacts. Raisch and Krakowski (2021) find that organizational senior leaders must consider the various consequences of AI adoption. However, many organizational leaders struggle to balance competing stakeholder interests in AI-driven contexts. Yokoi, Goutas, Wade, Zahn and Niniane (2023) mention a challenge to balance digital practices and the organization's business objectives. For example, the efficiency of globally distributed value chains often contradicts data localization requirements. Similarly, ethical scrutiny of AI/machine Learning (ML) algorithms tends to slow the development of AI-based projects in organizations (Yokoi et al., 2023).

Scholars from diverse fields have paid attention to investigating AI in various contexts, such as in information systems (Gursoy, Chi, Lu & Nunkoo, 2019), marketing (Syam & Sharma, 2018), financial management (Culkin & Das, 2017), and tourism and hospitality (Li, Bonn & Ye, 2019). AI research in management focuses on competitive advantage (Kemp, 2024; Krakowski,

Luger & Raisch, 2022), digital leadership (Banks, Dionne, Mast & Sayama, 2022), leadership behaviors (Tsai et al., 2022), organizational learning (Balasubramanian, Ye & Xu, 2021), perceived users' value (Gregory, Henfridsson, Kaganer & Kyriakou, 2021), bias mitigation (Choudhury, Starr & Agarwal, 2020), individual morality (Giroux, Kim, Lee & Park, 2022; Telkamp & Anderson, 2022; Tóth, Caruana, Gruber & Loebbecke, 2022), organizational design choices (Murray, Rhymer & Sirmon, 2021), paradoxical automation–augmentation organizational outcome (Raisch & Krakowski, 2021), employment relationships (Varma, Dawkins & Chaudhuri, 2022), and on ethical and cultural implications (Wright & Schultz, 2018). Yet, capturing the benefits against the drawbacks of AI technology has emerged as a significant challenge for leaders in the workplace (Johansson & Björkman, 2018). Little attention has been paid to examining the required individual-level capabilities to address the leadership challenges in AI environments.

Research findings show that leaders' role will remain significant even in an advanced AI application era (Agrawal, Gans & Goldfarb, 2017; Davenport & Kirby, 2016; Howard, 2019; Kolbjørnsrud, Amico & Thomas, 2017; Wilson & Daugherty, 2018). The issue of exploring specific capabilities required for the collaborative human–machine era would appear as a key research area to address. AI-driven capability in leadership refers to the leaders' capacity to think in human–machine collaborative ways to lead in an AI-driven organizational environment successfully. AI-driven organizations leverage AI/ML technologies to automate and optimize decision-making processes, operations, and customer interactions. A leader's AI-driven capability consists of technical (Davenport & Bean, 2021; Davenport & Mittal, 2023), adaptive (Agrawal, Gans & Goldfarb, 2022; Raisch & Fomina, 2022), and transformational capabilities (Davenport & Foutty, 2021; Watson, Desouza, Ribiere & Lindič, 2021). In an AI environment, a leader's capacity to use AI-based technologies, learn from AI-related training, access and use AI-generated information, and deploy AI-related updated knowledge are significant to developing technical capabilities (Akter, Wamba, Mariani & Hani, 2021b; Motamarri, Akter & Yanamandram, 2020). Whether leaders rely more on data-driven insights over hunches to solve various AI-related problems is significant in organizational environment. Besides, leaders must evaluate the consequences of deciding on various AI-related issues in the organization. Problem-solving and decision-making are significant in developing leaders' adaptive capabilities (Motamarri et al., 2020; Wamba et al., 2017). Moreover, leaders' capacity to create a sense of AI initiatives in the organization, rethink old organizational issues in new ways, coordinate and establish control over the AI initiatives within the organization and resolve any uncertainty that emerges from AI initiatives are critical to developing transformational capabilities in AI environments (Helfat & Peteraf, 2015; Teece, Peteraf & Leih, 2016; Wamba et al., 2017).

The rise of evolving AI creates more uncertain organizational circumstances. In an ambiguous and complex organizational context, uncertainty emphasizes the critical significance of dynamic capabilities (Baía & Ferreira, 2024; Schoemaker, Heaton & Teece, 2018). As leaders in AI-driven organizations must act in a relatively volatile and uncertain environment, the dynamic managerial capability (DMC) (Adner & Helfat, 2003) theoretical approach helps investigate leader's AI-driven capabilities. DMC refers to the organizational leaders' inherent capacity to identify emerging opportunities and refresh and transform the organizational resource base to realize such opportunities (Teece, 2016). Theoretically, three DMCs – sensing, seizing, and reconfiguring enable organizational leaders to affect both the external environment and internal attributes to achieve competitive advantage. However, DMC is context-specific and challenging to configure and deploy (Helfat & Peteraf, 2015). Previous research has studied dynamic managerial capabilities in ambidexterity, diversification, innovation, strategic renewal, and competitive dynamics (Helfat & Martin, 2015). Understanding the dimensions of AI-driven capability will create insights to conceptualize DMC in AI-driven organizational contexts. The role of AI-driven capabilities is increasingly significant for leaders in AI environments (Davenport, 2016; Wilson & Daugherty, 2018). Thus, this paper seeks to address the following research question (RQ) through a Systematic Literature Review (SLR):

RQ: 'What are the dimensions of leaders' AI-driven capabilities?'.

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This SLR aims to explore the requisite AI-driven capabilities to lead in AI-driven environments and synthesize the SLR findings into an integrated conceptual framework to highlight how leaders in AI-driven organizations could perform better. SLR is applied to explore the state-of-the-art knowledge of a topic to synthesize and integrate the findings from relevant high-impact publications to provide further research guidance in a scientific process (Hiebl, 2023). SLRs critically evaluate and synthesize underlying knowledge in a transparent, rigorous, robust, and replicable way (Williams, Clark, Clark & Raffo, 2021). Since there is a lack of integrative knowledge on leaders' capabilities in an AI-driven organizational environment, a systematic review of literature on AI-driven capabilities is timely and critical (Rojon, Okupe & McDowall, 2021).

This SLR and thematic analysis deduces the dimensions of AI-driven capability and offers vital directions to scholars and practitioners. Theoretically, this research introduces AI-driven capability by extending the emerging leadership discourse. Particularly, our research offers a theoretical framework exploring the dimensions of AI-driven capability as a DMC that enables responsible leadership. We contribute to the DMC theory by showing how the AI-driven capability dimensions create new insights for sensing, seizing and reconfiguring. Our research findings also contribute to responsible leadership performance (RLP) theory by examining its three core attributes – effectiveness, ethics, and endurance – in an AI-driven organizational context. The institutional context shapes the leaders' cognition, which results in (ir)responsible behavior (Stahl & Sully de Luque, 2014). Practically, we contribute by highlighting the dimensions of AI-driven capability and illuminating how those capabilities can be operationalized in responsible leadership. AI is a widely applicable tool to schools, police, hospitals, and businesses that may lack the requisite human capabilities to address various challenges (Balasubramanian et al., 2021).

The rest of the paper advances to the following sections. First, the paper discusses the AI landscape's concerns and leadership role. Then, the paper clarifies the theoretical underpinning of DMC, followed by a discussion on the SLR methods – planning and searching, screening and inclusion, synthesis, and theme identification. Then, this review offers an integrative conceptual framework with a set of propositions. Lastly, the paper addresses the theoretical and practical implications while highlighting the limitations and future research avenues.

Literature review

The AI landscape

Despite the extensive interest in the benefits of AI, relatively little attention is shown to the dark side of AI. Senior organizational leaders must prepare accordingly to address the challenges emerging from AI's dark side. A Governance Institute of Australia survey shows that 94% of respondents claim to involve board members in technology and cyber issues (Tong, 2022). However, incidents such as the 2022 Optus scandal in Australia clearly show that the board members were not equipped to address the risks that emerge with cyber security threats and constantly evolving technology (Tong, 2022). Senior organizational leaders need digital literacy similar to when they were expected to develop financial literacy after Enron and other scandals after 2001.

AI can potentially produce the risks associated with individual, organizational, and societal levels, which are significant elements of digitalization (Alt, 2018). At the individual level, the negative effect of AI is reflected in privacy concerns and product and content recommendations. AI gains deep insights into privacy concerns (Grewal, Guha, Satornino & Schweiger, 2021). For example, voice assistants like Alexa could predict key moments by analyzing the customers' voices with AI technology. Moreover, facial recognition-based payments exacerbate privacy risks as the human face is used as a proxy for various personal information, including age, gender, and appearance. Li, Zhao, Hussain, Ming and Wu (2021) find that personalized recommendations narrow perceived information and privacy concerns, resulting in a reluctance to accept technologies.

From an organizational standpoint, AI-enabled products are likely to impact the profitability and reputation of the companies. For instance, if the AI-enabled chatbots do not deliver as expected,

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customers will distrust them, creating a trust gap between the customers and companies (Yen & Chiang, 2021). Moreover, organizations also face enormous challenges in implementing AI strategies and often fail to assess the impact of AI technologies on the human workforce (Cheng, Lin, Shen, Zarifis & Mou, 2022). From a societal perspective, AI yields dark effects ranging from workforce replacement to ethical problems. Danaher (2019) finds that AI brings widespread concerns for the human workforce. Beyond e-commerce, AI exists in most spheres of the daily lives of many and is likely to increase unemployment. Moreover, issues like AI regulation, moral dilemmas, AI fairness, and discrimination are increasingly posing challenges to AI governance at societal levels (Wirtz, Weyerer & Sturm, 2020).

Concerns in AI and leadership

Due to cloud-based data processing, challenges in geography, technology, and policy issues have emerged. Combined with AI, the Internet of Things, analytics, and virtual and augmented reality affect many business strategies and operations (Davenport, 2019). Among such key emerging situations, ethical concerns about AI use by organizations are rising. AI is emerging with more ethical risks because of probability-based AI decisions, the continuously changing external environment, and AI's inherent algorithmic complexities (Qi, Sun & Hosseini, 2023). Organizational leaders can't remain indifferent to AI-driven ethical concerns because these will impact employees, customers, suppliers, brands and reputations, and broader stakeholders (Davenport & Katyal, 2018). For example, the Optus security breach in Australia showed a lack of responsibility by senior leadership. A survey conducted by Governance Institute Australia shows that 34% of respondents reflect on their board members' capability to deal with such situations. Around 50% of respondents view the Optus security breach occurred because of data management policy failure, which is the responsibility of senior leadership (Tong, 2022). Responsible leaders can successfully address ethical concerns stemming from accountability, fairness, transparency, and safety issues in the AI landscape.

Accountability in the AI context focuses on human liability over AI's design, implementation, and monitoring phases (Leslie, 2019). Leslie (2019) views that AI cannot justify its decisions and requires human judgment to assess the effects on various stakeholders. Leading responsibly focuses on human control over AI lifecycle stages by recognizing responsibility (Kompella, 2022), answerability, and auditability (Leslie, 2019) at each stage. Fairness refers to AI's unbiased and justified application for all the concerned segments (Kompella, 2022). This emerges as a key AI ethics dimension because human beings are limited by their contexts and biases when designing AI (Leslie, 2019). Leslie (2019) also argues that human misjudgment and prejudice create biases in data extraction, processing, problem formulation, and model development stages of AI-based solutions. Leading responsibly in AI environments safeguards fairness through equitable analytical structures, reasonable features, and processes of an AI-based model (Leslie, 2019).

Kompella (2022) mentions transparency as an important dimension of AI ethics that ensures trust in AI-based decisions. Transparency clarifies the contents of AI systems by answering the question 'Why' concerning the AI process. Transparency produces ethically permissible, non-discriminatory, and publicly trustworthy AI-based solutions (Leslie, 2019). Responsible leadership promotes transparency to explain to the affected stakeholders why and how the AI model works in a specific context (Leslie, 2019). Such explanation ensures rationality behind AI-based decisions by clarifying the contents of AI models. From an AI ethics perspective, transparency justifies outcomes of both AI-based model design and implementation processes (Leslie, 2019). Safety, as a dimension of AI ethics, ensures control over the AI system (Kompella, 2022). Leslie (2019) argues that the technical sustainability of AI systems depends on safety, security, robustness, reliability, and accuracy. Responsible leaders evaluate the transformative effect of the features of technical sustainability on individuals and society in the long run (Leslie, 2019). Producing safe and reliable AI-based solutions is critical from an ethical perspective. Potential failures of AI systems may create harmful impacts and ultimately damage public trust in AI-based solutions. Building safe AI is challenging, especially in volatile, flux, and

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uncertain contexts. An AI system is safe when it operates dependably and accurately to the designer's expectations, even in changing circumstances (Leslie, 2019).

Needs for leaders' AI-driven capability

Extant research on requisite capabilities in AI-driven leadership presents fragmented findings that are inadequate to answer the RQ. We review selected high-quality review papers to present the gap in extant research on leaders' AI-driven capabilities (see Table 1). For example, Kemp (2024) highlights conceptually the critical role of AI technologies in gaining a competitive advantage. This paper focuses on organizational activities like grounding, bounding, and recasting and introduces the situated AI concept to achieve competitive advantage. The paper argues that situating organizational activities appropriately enables organizations to be strategically cost-effective in the competitive environment. While the paper recognizes the role of reconfiguring the organizational activities, the individual capabilities required to re-arrange such activities remain beyond the scope of the paper. Tsai et al. (2022) review human–robot collaboration research from various disciplinary perspectives: engineering, psychology, management, and economics. They found that engineering represents the highest 58% of extant research on human–robot collaboration. The psychology discipline presents 34%, while the management and economics disciplines present only 6% and 2%, consecutively. However, with the greater presence of automation in the workplace, management and economics researchers are increasingly investigating various aspects of human–machine collaborations (Tsai et al., 2022).

Krakowski et al. (2022) focus on effective mechanisms to adopt AI in the organization. They argue that effective AI adoption can improve performance and drive the organization to achieve strategic competitiveness. The paper presents how AI can simultaneously substitute and complement human tasks and rationalize organizational decision-making. From a resource-based view, the paper argues that AI generates substitution–complementation dynamics in the organization. Such dynamics result in suggesting new human–machine capabilities over the traditional managerial capabilities. The paper concludes by highlighting organizations must identify and develop those novel sets of capabilities to stay relevant in the emerging competitive landscape. Banks et al. (2022) reconceptualize leadership in the emerging digital era. Studying leadership in informal contexts (e.g., social media), they highlight the need for digital leadership to deal effectively in virtual contexts and in computational modeling (e.g., big data and ML). The paper conceptually addresses the 5Ws (e.g., who, what, when, where, and why) aspects of digital leadership and concludes that practitioners and scholars should reconceptualize leadership in the changing digital landscape.

Doornenbal, Spisak and Van der Laken (2022) focus on the role of ML to understand better the complex pattern of leadership behavior. The paper argues that the trait leadership approach seems to be more suitable for increasing automation in organizations. They find that ML can effectively assess complex relationship patterns by interpreting algorithms' outcomes. Using a Big Five inventory framework of cognition, they quantitatively assess and demonstrate the outcome of leadership behaviors. The paper concludes that the trait approach of leadership aligns better to predict the behavioral model complexity and generate interpretable results. Extant research reviews show that new forms of leadership, such as digital leadership and AI-driven leadership, are increasingly becoming relevant in the emerging digital landscape. However, the focus on the required capabilities to execute the exhibited leadership approaches is inadequately examined in the extant research. Drawing on these findings, this paper integrates the relevant literature on the management and marketing domains to uncover the dimensions of leaders' required capabilities in the AI environment. Following the research gap, we discuss the technical, adaptive, and transformational dimensions of leaders' AI-driven capability.

The DMC view

Over the last two decades, an emerging body of literature has sought to integrate human psychology insights to clarify understanding of the changing competitive industry structure

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Table 1. Extant research on leaders' AI-driven capability

Method	Author(s)	Insights on leaders' AI-driven capability
Conceptual	Balasubramanian et al. (2021)	Focuses on how machine learning (ML) is related to diversity in the organizations
Observation and experiment	Choudhury et al. (2020)	Focuses on ML biases. Limited focus on required skills
Experiment	Giroux et al. (2022)	Focuses on how individuals connect morally with technologies and humans
Experiment	Krakowski et al. (2022)	Focuses on how AI can drive toward achieving competitive advantage
Conceptual	Murray et al. (2021)	Focuses on organizational design choice in human-AI collaboration context
Conceptual	Raisch and Krakowski (2021)	Focuses how to balance automation–augmentation in AI adoption
Conceptual	Telkamp and Anderson (2022)	Focuses on the fundamentals of AI ethics
Conceptual	Tóth et al. (2022)	Focuses on how moral judgment can influence AI accountability
Conceptual	Varma et al. (2022)	Focuses on AI's impact on employment relationship and job
Conceptual	Gregory et al. (2021)	Focuses on how AI impacts platform users
Conceptual	Kemp (2024)	Focuses on how to situate organizational activities to develop AI-driven capabilities
Conceptual	Banks et al. (2022)	Focuses on how AI changes leadership. No focus on leaders' capabilities
Quantitative	Doornenbal et al. (2022)	Focuses on how ML align with trait paradigm of leadership
Systematic Review	Tsai et al. (2022)	Focuses on how robots will impact future workplace and leadership behaviors
Systematic Review	Present study	Focuses on the dimensions of leaders' AI-driven capabilities

(Peteraf & Shanley, 1997) and the nature of cognitive biases in strategic decisions (Bateman & Zeithaml, 1989). During a period of change in the competitive market, an organization's outlook shifts away from the external environment to internal resources and capabilities (Hodgkinson & Healey, 2011). Strategy scholars have been paying increasing attention to the behavioral and cognitive processes, highlighting the capabilities to promote organizational adaptation, learning, and performance (Helfat et al., 2007). The DMC is an effective theoretical lens in capability research from a micro-foundation perspective (Helfat & Peteraf, 2015). Micro-foundations are context-specific (Felin & Powell, 2016); therefore, reviewing required capabilities in AI-driven contexts would call for more effective leadership in the less understood AI environmental context (Felin, Foss, Heimeriks & Madsen, 2012). Understanding AI-driven capabilities as DMCs also allows leaders to decide the strategic factors and set priorities for higher organizational performances (Helfat & Martin, 2015).

DMCs are the mechanisms that use organizational resources to harness opportunities and neutralize threats in the external environment (Sirmon, Hitt, Ireland & Gilbert, 2011). The increasing adoption of AI in organizations is coupled with unprecedented emerging concerns (Davenport, 2019), creating distinctive leadership challenges (Kompella, 2022). DMCs can play a significant role in responding to such leadership challenges. Ishida (2020) finds DMCs critical in responding to crises, emergencies, and disruptive circumstances. Because of AI's inherent algorithmic complexities and rapidly changing external environment, leaders must address unique challenges swiftly and responsibly (Babic, Cohen, Evgeniou & Gerke, 2021). Managing effectively, digital responsibility enables

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leaders to extend the benefits and offset the risks in a competitive environment (Yokoi et al., 2023). Such leadership practices enhance digital performance and aid in achieving organizational objectives in the long run.

Adner and Helfat (2003) emphasized the role of managerial capabilities in creating, integrating, and reconfiguring organizational resources within the dynamic capability framework. DMCs arise from three key elements: human capital, social capital, and cognition (Helfat & Martin, 2015). These elements, independently and in combination, shape an organization's ability to sense opportunities, seize them, and reconfigure resources accordingly. Human capital is built through managerial knowledge, skills, and expertise, contributing to varying performance levels in similar challenging situations. A diverse and complementary human capital base enhances organizational performance (Wright, Coff & Moliterno, 2014). Social capital refers to managers' effective combination of resources, enabling improved performance. Leaders leverage their networks and relationships to access specialized knowledge supporting business objectives (Ambrosini & Altintas, 2019). Cognition, which is linked to personal beliefs and knowledge, involves the mental processing of information. Since human thought influences actions and behaviors, managerial cognition can be studied and analyzed (Taylor, 2005).

Research methods

This study evaluates the existing body of knowledge to address a specific RQ, contributing to the expansion of the knowledge base. Unlike traditional narrative reviews, an SLR follows a structured, scientific, and transparent approach that ensures replicability. It systematically gathers all relevant publications and documents that meet predefined inclusion criteria to answer the RQ (Tranfield, Denyer & Smart, 2003). SLR minimizes bias in searching, identifying, appraising, synthesizing, analyzing, and summarizing studies by employing clear and methodical processes (Oxman & Guyatt, 1993). When conducted accurately with minimal errors, it yields reliable findings and conclusions, providing valuable insights for decision-makers and researchers (Tranfield et al., 2003). Moher, Liberati, Tetzlaff and Altman (2009) present the key characteristics of SLR and its associated process, including (i) defining a clear RQ that the study aims to address, (ii) establishing well-defined objectives with an explicit and reproducible methodology, (iii) developing search strategies that encompass all relevant studies meeting the eligibility criteria, (iv) evaluating the quality and validity of selected studies, (v) systematically presenting and synthesizing the extracted data, and (vi) ensuring that the study findings are accessible for scientific research and decision-making purposes.

This systematic review follows established guidelines. To conduct this review, this research first develops a protocol to search in reputed databases, and thus thoroughly screen and extract to refine the initial findings. Then, this research analyzes and synthesizes the final sample to report the identified themes consistent with the RQ. This research has also reviewed some articles and reports cited in these selected papers. Selected credible websites have also been consulted to substantiate arguments and extend the discussions with examples.

Planning and searching

We carefully explored various newspaper articles, industry reports, magazines, and scholarly databases to devise an original RQ. This search yielded the RQ: 'What are the dimensions of leaders' AI-driven capabilities?' To address the research question, this research follows the guidelines by Sheng, Amankwah-Amoah, Khan and Wang (2020) to review peer-reviewed empirical quantitative and qualitative articles and review articles and conference papers published in English within the last 10 years in business and social sciences. We focused on the last 10 years because of the significant technological disruptions that changed our way of life, work, and socialization (Balachandran, 2019). We avoided including non-English sources in our study scope because of time and resource commitment barriers (Rockliffe, 2022). Moreover, we tried to ensure a uniform data extraction and

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synthesis approach. Additionally, this paper is conceptual in nature and doesn't focus on any specific geographical region. Therefore, we strictly included the papers published in English. Our RQ is founded on the emerging ethical problems in business organizations. Therefore, we intentionally limited our search scope to the business and social sciences and avoided other interdisciplinary fields. We also excluded non-peer-reviewed publications and unpublished studies from our study scope to ensure rigor and avoid bias in our findings (Egger, Juni, Bartlett, Holenstein & Sterne, 2003). To conduct this review, keywords, titles, and abstracts of articles are searched in Emerald Insight, EBSCOhost Business Source Complete, and ScienceDirect databases. To extract the documents, the keywords: ('Artificial intelligence and leadership' OR 'AI and leadership' OR 'AI and management' OR 'AI-driven leadership') AND ('Machine learning and leadership' OR 'ML and leadership' OR 'Machine learning and management') AND (AI-driven capability* OR AI-driven leadership capability* OR AI-driven managerial capability*) have been searched. Excluding the duplicates, the first round of searching these databases generated 1163 records.

Screening and extraction

In the screening phase, after adjusting for language, year, research field and type of documents, 153 records were identified. Following the guidelines articulated by Akter et al. (2021a), this research rigorously reviewed the titles and abstracts of these 153 records to determine their relevance to the purpose and scope of this research. This review process screened out 124 items and the rest of the 29 papers were selected for full-text review. To examine the eligibility, the abstract searches focused on whether the papers have discussed leadership or managerial capabilities in the AI environment perspectives. Papers that particularly discussed AI from organizational outcome perspectives were excluded from this research. The cross-citation check of the full-text review of 29 papers resulted in incorporating eight more papers in the final sample relevant to this research's eligibility criteria. Finally, we reviewed those 37 papers to address the RQ. All the articles were published in business, management, and marketing. Nine articles were selected from the *MIT Sloan Management Review*, seven from the Harvard Business Review, and five from the *Academy of Management Review*. The 37 papers were selected from a total of 12 journal outlets. All the journals rank Q1 in the Scimago ranking. Of these journals, 12 articles were selected from ABDC A* ranked journals, 22 articles from A-ranked journals, and the remaining 3 from B-ranked journals. Regarding ABS ranking, 7 articles were selected from ABS 4* ranked journals, 3 from ABS 4 ranked journals, 23 from ABS 3 ranked journals, and the remaining 3 articles from ABS 2 ranked journals (see Table 2). In its embryonic stage, AI emerged as a popular area of research where substantial systematic reviews were conducted. Hence, we excluded the papers appearing in ABS-1 and ABDC-C journals to maintain rigor and avoid flawed findings or speculative theories. Therefore, some journals that publish AI papers are omitted from this review. The review results show that most papers focus on AI to link or extend current theories ($N = 29$; 78%). Some papers review and summarize existing theories ($N = 5$; 15%) to consolidate knowledge, evaluate progress and provide future research directions. However, a few, contradict current theories ($N = 3$; 7%).

Synthesis and theme identification

This section presents findings on dimensions of AI-driven capabilities based on papers reviewed for thematic analysis to enact a conceptual model. The model clarifies the antecedents of AI-driven capability from a leadership outcome perspective. This research rigorously studied 37 papers to generate prospective themes. Thematic analysis identifies, analyzes, and reports patterns within the extracted literature (Braun & Clarke, 2006). In this phase, to explicate the relevant themes, this research utilizes a coding-based analysis technique (Miles & Huberman, 1994). As mentioned earlier, there is a proliferation of dubious findings on AI research appearing in less quality rated outlets. We devoted sufficient focus to theoretical issues to maintain the rigor of our research by limiting the coding to a

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Table 2. List of journals included in the sample

Journal	ABS ranking	ABDC ranking	Scimago ranking	No. of articles	Percent (%)
MIT Sloan Management Review	3	A	Q1	9	24%
Harvard Business Review	3	A	Q1	7	19%
Academy of Management Review	4*	A*	Q1	5	13*
The Leadership Quarterly	4	A*	Q1	3	8*
Journal of Business Ethics	3	A	Q1	3	8%
Business Horizon	2	B	Q1	3	8%
Strategic Management Journal	4*	A*	Q1	2	5%
Human Resource Management Review	3	A	Q1	1	3%
California Management Review	3	A	Q1	1	3%
Industrial Marketing Management	3	A*	Q1	1	3%
Journal of Business Research	3	A	Q1	1	3%
International Journal of Information Management	2	A*	Q1	1	3%

* highest ranking.

certain standard of Scimago, ABS, and ABDC-indexed papers. Initially, two authors coded each paper which achieved a consensus of 81% (30 papers). They reconciled the contrasting opinions until a 100% consensus was achieved. The third author facilitated the discussion to reconcile the contrasting opinions between the initial two authors (Dadich, Abbott, Lux & Lowe, 2024). This process explored three themes that form AI-driven capability: technical, adaptive, and transformational capabilities (see Figure A1). In the first phase of this process, we repeatedly read 37 articles initially selected from the systematic review process about leaders' AI-driven capability. In the second phase, we developed codes based on inherent data from the reviewed articles. We developed 10 codes for technology, information, knowledge, training and development, problem-solving, decision-making, sensemaking, model innovation, integration and reconfiguration, and uncertainty dealing. In the third phase, we uncovered the thematic gaps and identified three themes: technical capability, adaptive capability, and transformational capability. In the fourth phase, we report the details of the findings and propose an integrative conceptual framework.

Furthermore, we conducted a quality appraisal of the reviewed papers in this SLR. Quality assessment is paramount in SLR because the quality of the conclusion depends on the quality of the selected literature (Yang et al., 2021). We followed four guidelines to assess the quality of the reviewed papers (UNC, 2025). First, we examined each paper's *relevance* to this study by evaluating their appropriateness regarding our RQ. We also evaluated whether the selected papers could be aligned with our study scope. Second, the reviewed papers were scrutinized to explore *reliability*. At this stage, we ensured each paper was included in multiple databases. Additionally, we checked whether the paper's report method was clear. Third, we ensured the *validity* of the included papers by evaluating their findings based on the claims mentioned in the RQs and methods. We also checked the limitations and potential for generalizability of findings to examine the strengths of those papers. Fourth, we ensured the *applicability* of the included papers by evaluating those in terms of our study context. We examined whether the papers discussed AI from managerial, leadership, and organizational capability development perspectives to ensure that the included papers fit better with our study context.

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Dimensions of AI-driven capabilities

AI-driven capability is an emerging concept in leadership literature. AI-driven capability refers to the individual automated technologies that facilitate human intelligence. Such capabilities stimulate reasoning and ultimately enhance human–machine collaborative behavior (Sayantini, 2022). Individual reasonings are significantly associated with behavioral intentions that will impact the human–machine collaborative outcome in the organization (Tsai et al., 2022). Davenport and Foutty (2018) mention that AI-driven capabilities are leaders' capacity to deploy AI technologies, make data-driven decisions, and orchestrate human–machine collaboration in organizations. Jarrahi (2018) views AI as an aid to making efficient leadership decisions by overcoming cognitive limitations. Similarly, Wilson and Daugherty (2018) claim that AI can augment leaders' decision-making capabilities. However, such arguments are not unchallenged. Brynjolfsson and Mitchell (2017) find that AI-based decisions are ineffective for many tasks as AI competence seems more effective in specific contexts and is comparatively more fragile than human decision-making. As AI is based on data-driven rationality, it may not produce the right decisions because agents might weigh more on value-creating parameters of AI applications and, in the process, compromise ethical standards (Wright & Schultz, 2018). In this scenario, individual leaders' capabilities blend with AI capabilities, which will collaboratively determine organizational success (Tsai et al., 2022). In the leadership context, recent research shows that several capabilities are important in an AI-driven environment. The following sections discuss these dimensions of AI-driven capability.

Technical capability

Leaders' technical capability (Davenport & Bean, 2021; Davenport & Foutty, 2021; Davenport & Mittal, 2023; Kolbjørnsrud et al., 2017; Watson et al., 2021) refers to the infrastructure and resources that make a leader capable of successfully leading in AI-driven organizations. In the context of AI-driven organizations, leaders with technical capability can understand, use and guide various aspects of automated technologies to their teams, projects, and overall organizations. Such capability emerges from individual leaders' domain knowledge, expertise, and experiences in respective technologies (Watson et al., 2021). For example, a chief executive officer, who understands the automated technologies better, can make more informed decisions about investment in AI technologies for the organization. Evolving technology-related knowledge, understanding of standards, industry trends, real-world technological problems, and proficiency in using automated technologies indicate leaders' technical capability in an AI environment. Davenport and Mittal (2023) note that leaders face greater challenges when they lack technical capability. They also find the heads of AI and analytics in most organizations spend significant time with other managers to highlight the purpose and value of AI technology. They highlight educating decision-makers from all business units regarding the process and appropriateness of AI functions. Still, most organizations require upskilling and reskilling their workforce and changing the notion that all employees do not require AI training (Davenport & Mittal, 2023).

Leaders' capabilities to use AI-based technologies, access AI-related information, deploy AI-based knowledge, and transform the learning from AI training into actions are described as technical capabilities in the literature. Technical capabilities not only act as a source of leaders' credibility but also aid leaders in adapting to changing contexts (Hysong, 2008). Leaders' technological soundness is a significant dimension of empowering cognitive capabilities in AI-driven organizations (Akter et al., 2021b). Senior leaders' interest in technology is particularly important in persuading middle- and frontline employees to adopt new technological skills, drive innovations, and establish a data-driven decision-making culture (Davenport & Mittal, 2023). Leaders' attitudes toward technologies, relative dexterity in using such technologies, and the extent to which the leader is equipped with those technologies have been emphasized in the literature (Motamarri et al., 2020). The leaders' access to information has been identified as a key capability to perform in an AI-driven environment (Akter

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et al., 2021b). This capability includes leaders' access to AI-based analytics and updates on AI-driven services and processes (Motamarri et al., 2020).

Doornenbal et al. (2022) argue that AI can extend the leaders' knowledge, particularly in complex circumstances. Knowledge and skills help leaders to apply AI-driven processes and assess the outcome (Akter et al., 2021b). Such skills and knowledge equip leaders to serve customers using processes in an AI-driven environment (Motamarri et al., 2020). Training in a cutting-edge skill set enables leaders to handle varying service situations in AI-driven organizations, a key dimension of leaders' AI-driven capability (Akter et al., 2021b). Moreover, the evolution of AI technologies creates more efficient and effective ways to train and develop organizational leaders (Banks et al., 2022). Motamarri et al. (2020) find that regular exposure to training enhances leaders' analytical capacity to serve better in the AI environment. They also argue that leaders are informed effectively regarding the updated AI-based skill set by participating in those trainings.

Adaptive capability

Leaders' adaptive capability refers to the leaders' ability to grasp and articulate the consequences of actions. Such ability enables leaders to assess the situation and ultimately choose paths to reach possible targeted outcomes (Campbell, 2021). Leaders with adaptive capability can quickly respond to evolving AI technologies, shifting business landscape, and adjust the organizational workforce dynamics accordingly to remain competitive. For example, adaptive capability enables leaders to mitigate the employees' concerns regarding job security during AI adoption by assessing the requirements and reskilling employees for AI-augmented roles. The capacity to apply AI insights in decision-making, integrating human teams with AI effectively, inclination to experiment with AI-based innovations, and ability to align AI with regulatory and organizational standards indicate leaders' adaptive capability in the AI environment. Adaptive capabilities assist leaders in creating and executing effective production, marketing, and human resources policies in the organization (Campbell, 2021). In an AI-driven context, leaders' two key adaptive capabilities, problem-solving and decision-making are important. Problem-solving as the leaders' adaptive capability is a core concern for organizational scientists. However, the digital era has vastly outpaced the traditional mechanisms to create organizational intelligence. Recent developments in technology, research, and organizational practice focus on leaders' capability to use AL to create intelligent organizations (Kolbjørnsrud, 2024). Akter et al. (2021b) find problem-solving capacity a significant dimension of leaders' adaptive capability. They argue that leaders make decisions and solve problems using analytics insights from a service analytics perspective. The problem-solving capability entails the leaders' capacity to fix any problem when it occurs, the notion of using data over experience, and the scope for leaders to solve problems creatively (Motamarri et al., 2020). Intelligent digital and human actors collectively solve problems to create an intelligent organization (Kolbjørnsrud, 2024).

Decision-making is shown in literature as a noteworthy dimension of adaptive capabilities (Kim, Shin & Kwon, 2012). Now, businesses need to make more decisions in all areas of operations than ever before. A study by David Deming from Harvard Kennedy School shows that in 1960, 6% of total jobs required core decision-making in areas like diagnosing, prioritizing, and strategizing, reaching 34% by 2018. AI has successfully enabled organizations to increase the volume of decision-making. Besides increasing efficiency, AI also seems effective in decision-making by improving accuracy (Agrawal et al., 2022). However, increasing volume and accuracy are not enough because decision-making in one area of the organization impacts other areas of the organization. Organizational leaders must revisit the whole value chain paradigm while designing any AI-based decision-making system (Agrawal et al., 2022). Generally, in AI environments, Raisch and Fomina (2022) argue that a probabilistic rather than deterministic decision-making method is more productive in the combined human-AI decision-making process. Among the three archetypes of leaders' decision-making capability (Skeptic, Interactor, and Delegator), Meissner and Keding (2021) find that being an interactor is the most effective way of deciding and solving problems in a collaborative human–machine landscape.

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Wamba et al. (2017) highlighted the selected dimensions of big data analytics capability, which can be aligned with the leaders' decision-making capabilities in the AI environment. Such decision-making capability refers to the leaders' attitude toward the impact of AI on making quicker decisions, jobs and productivity, cost, and timeliness of AI-based decisions (Wamba et al., 2017).

Transformational capability

Leaders' transformational capability is widely used in politics, sociology, and organizational behavior. Such capability refers to the leaders' ability to transform employee performances beyond expectations (Khan, Rehmat, Butt, Farooqi & Asim, 2020). In an AI-driven context, leaders' transformational capabilities (Davenport & Bean, 2021; Davenport & Foutty, 2021; Watson et al., 2021) highlight the capacity of leaders to bring organization-wide AI-driven changes. Leaders with transformational capability bring fundamental changes by aligning AI with operations, business strategies and culture to foster innovation and maximize AI's potential for the organization's sustained competitive advantages. For example, the chief executive officer of a retail company can revolutionize the supply chain efficiency and customer experience by introducing AI-driven demand forecasting for inventory management and AI-powered tailored recommendations for personalized customer experiences. The capacity to clearly communicate AI-driven vision with organizational employees, align AI strategies with organizational goals, effectively navigate AI-driven changes within the organization, and manage uncertainties during the changes are the indicators of leaders' transformational capability in the AI environment. Davenport and Mittal (2023) emphasize systematic AI applications across the key functions of an organization to enhance new business processes and data-driven decision–making. Likewise, AI should promote new business models, products, and service offerings. Alternatively, AI technology should ultimately transform all aspects of business.

Lugtu (2020) finds sensemaking, model innovation, and integrated execution to be leaders' key AI-driven transformational capabilities. Sensemaking (Helfat & Peteraf, 2015) can be conceptualized in an AI-driven context as the leaders' capability to capture AI initiatives' distant and near future (Rafferty & Griffin, 2004). Model innovation refers to the leaders' capability to rethink organizational issues novelly (Lugtu, 2020). Such capability can be measured by how leaders think about old organizational issues, raise questions about existing practices, and challenge the basic assumption of such practices (Rafferty & Griffin, 2004).

Integration and reconfiguration capabilities, which are dynamic in nature, can also be regarded as leaders' transformational capabilities (Helfat & Peteraf, 2015; Teece, Pisano & Shuen, 1997). Wamba et al. (2017) conceptualize such capability as how leaders coordinate and control AI-driven organizational initiatives. Coordinating capability includes how leaders share AI-related knowledge and how AI issues are settled in functional and cross-functional meetings within the organization. Controlling capability includes leaders' clear idea about AI responsibility within the organization, AI performance criteria, AI-driven business processes, and methods. Such capability also includes the leaders' attitude toward appraising AI-based proposals, the cost-effectiveness of AI applications, and using detailed information regarding any AI applications, processes, and methods (Wamba et al., 2017). Teece et al. (2016) bring leaders' uncertainty-dealing capability as a key transformational leadership dimension. Such capability, in an AI-driven context, can be studied to the extent leaders presume the unpredictability of AI-driven changes will bring to the different units at the workplace, the consequential severity of such AI-driven changes, and having an idea of addressing those change consequences in AI-driven ways (Matsunaga, 2022).

Proposed conceptual model

Previous literature shows the role of technologies in forming managerial capabilities in an AI environment. This research extends the argument that leadership capabilities should be different from

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managerial capabilities in an AI-driven context. The review of contemporary literature specifically explores and categorizes the leaders' technical, adaptive, and transformational capabilities as three distinct dimensions significant in the AI environment. Further, recent literature also shows the combined influence of these three forms of capabilities on responsible leadership through the leaders' ethical resonance in AI-driven organizational environments. Figure B1 presents the proposed conceptual model based on these insights. We leave the empirical validation of this conceptual model for future research. However, a correlational study design would be suitable to test this conceptual model and establish the relationships among the constructs. Data can be collected by a cross-sectional survey of target respondents for quantitative analyses. A structural equation modeling approach would be suitable for analyzing the collected data to test the proposed model and establish the hypothetical relationships.

Ethical resonance

Ethical resonance refers to the consistencies of human behavior that reflect core values in changing circumstances. Watson et al. (2021) focus on ethical concerns in AI-driven environments, which result in responsible leadership. Leaders with AI capability can better address the ethical issues related to AI adoption. A Deloitte study (2024) reveals that 89% of the top-level executives recognize the significance of robust governance structure and ethical framework required to implement AI in the organization. The same study also shows that 76% of the organizations focus on developing AI capability among the employees, while 63% of the organizations have extended their training initiatives up to the board of directors . Recently, AI experts at the TIME100 Impact Dinner in London (TIME Magazine, 2024) deliberated on the critical role of leaders' AI capability in navigating ethical complexities related to AI integration. These examples indicate that leaders' deeper understanding of AI enables them to implement better ethical practices.

From a leadership perspective in AI-driven organizations, moral judgment, trustworthiness, and systemic view emerge as key ethical dimensions. First, moral judgment means evaluating individual decisions by the standard of absolute truths. Business ethics evaluate the actions of leaders and organizations based on a moral perspective (Ferrell, Fraedrich & Ferrell, 2011). Bazerman and Gino (2012) focus on the influence of moral development on the 'right or wrong' perception of individual decisions. Moral judgment means how a leader resonates with the ethicality of individual decisions based on moral foundations, which appears to be a key outcome of responsible leaders in recent literature (Telkamp & Anderson, 2022). Zhang, Chen and Xu (2022) found that AI decides with high competence but relatively low warmth, whereas humans decide with high warmth but relatively low competence. They conclude that AI is more capable of deciding on the utilitarian approach, and humans show higher capability in deciding on deontological approaches. Meissner and Keding (2021) explore the role of leaders in AI discrimination and claim that moral dilemmas of AI-driven decisions should be the avenues of future research. Bruder (2020) focuses on the autonomy of individuals for moral decision-making. However, Toth et al. (2022) view morality from a consequential perspective of individual decisions. They argue that the distribution and magnitude of consequences determine the morality of leaders' decisions.

Second, leaders' trustworthiness is critical for organizational success. Lacking trust hinders positive and productive collaboration in the organization (Lewis, 2021). Rebaie (2020) finds a relationship between trustworthy AI and trustworthy leadership. Leaders use AI insights to foster team effort and social learning processes to enhance the curiosity of team members. Moreover, leaders need to drive the cultural evolution in AI environments instead of letting technology drive the evolution. Otherwise, the risk of social resistance in uncertain and disruptive times would jeopardize organizational achievements (Rebaie, 2020). In the AI context, leaders' trustworthiness emerges as a significant ethical dimension that emphasizes a quick response to the organizational AI-related issues raised by the employees at the workplace (Lämsä & Keränen, 2020).

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Third, leaders' systemic view helps them to see the organization from the users' perspective. Managers tend to view the organization from their hierarchical positions, whereas leaders intend to collaborate across the functional silos (Dunne, Eriksson & Kietzmann, 2022). In an AI-driven context, a systemic view refers to the leaders' capacity to view AI from a social system perspective by carefully evaluating the interests of multiple stakeholders involved (Crawford & Calo, 2016). Ghosh, Wilson, Burden and Dougherty (2019) argue that organizations in AI environments will require human talent with systemic views of bridging development tools, infrastructure, programming languages, AI, and ML. Leaders must combine smart machines with human talents to ensure a new form of hybrid IT roles. Moreover, leaders must adapt their employees with relentless AI advancements based on ongoing learning from organizational transformations. Ghosh et al. (2019) conclude that tomorrow's successful leaders will design systems that can adjust to people rather than people to adjust the systems. A systemic view ensures stakeholders' involvement and contemplates their consequences in all stages, including conception, design, implementation, and regulation (Crawford & Calo, 2016). Based on these insights, we propose that:

Proposition 1: Leaders' AI-driven capability positively impacts leaders' ethical resonance.

Responsible leadership

The concept of responsible leadership links the actions of senior executives and business performance with social responsibility and corporate sustainability based on ethical principles. Responsible leadership is a relational influence process between stakeholders and leaders to establish accountability in the organizational value-creation process (Maak, Pless & Voegtlin, 2016). Rooted in business ethics, responsible leadership is a moral leadership construct that assumes an extended stakeholder environment where the competing interests of both internal and external stakeholders are addressed in the long run. Ethics increasingly guides leaders in adopting the emerging responsible leadership approach. Ethical resonance is crucial to developing AI strategies in the organization that will ensure the societal greater good, upholding societal values and ethical standards. For example, the Los Angeles City Council is exploring ML to provide housing allocations for unhoused families by identifying systematic biases and flaws in the current system (Stern, 2024). The city is using AI to engage community stakeholders and correct racial biases by demonstrating how ethical AI promotes social services fairness. Responsible leaders take an integrative approach to embed their actions with ethical reflection. They adopt a competitive approach with care for stakeholders. This integrative thinking highlights a systemic understanding of business in a society where the organization is part of a larger context (Pless & Maak, 2005). Responsible leadership focuses on socially responsible and sustainable organizational transformation to generate positive social change (Pless & Maak, 2004). Responsible leaders in an AI context will be challenged increasingly to resolve AI-driven uncertainties. Technological advancements from AI to robotics bring rapid transformations to businesses, which create new challenges for responsible leadership (Fernando & Bandara, 2021). A study in 2020 revealed that Instagram's algorithms prioritize users showing more skin in their photos. Consequently, the rest of the users remain out of Instagram's organic reach. Clearview, a US firm, operates in 26 countries with police forces, law enforcement agencies, and governments by granting access to its database of three billion pictures. These pictures were taken from social media without consent. Even if they are not aware, business leaders are held accountable for the unethical outcomes in their organizations, and stakeholders want more socially responsible organizations (Samimi, Cortes, Anderson & Herrmann, 2020).

To address these issues in the AI environment, responsible leaders need ethical resonance that requires moral judgment, systemic view, and trustworthiness. Over the last few years, AI capabilities have gradually shifted from task accomplishment to relationship support (Tsai et al., 2022). As an integral dimension of relational intelligence, ethical resonance focuses on building trustful relationships with diverse stakeholders (Maak & Pless, 2006). While the general leadership view is focused

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on internal stakeholders, financial performance, and accountability toward shareholders, responsible leadership correlates the actions with the interests of multiple stakeholders based on ethical principles for sustainable business success (Maak & Pless, 2006). Based on this discussion, we propose:

Proposition 2: Leaders' ethical resonance positively impacts responsible leadership in AI-driven contexts.

Kompella (2022) highlights responsible AI as part of an organization's risk management practices that help minimize situations that harm organizational reputation. The responsible use of AI also facilitates better customer service and creates the same platforms for all vendors within the AI procurement system (Kompella, 2022). Such concerns pertinently raise the acute need for leaders of AI organizations to lead responsibly. International Telecommunication Union calls for a responsible AI framework to strengthen confidence in deploying AI-based solutions and trusting outputs. The framework highlights the importance of appropriate leadership to ensure effective AI-based initiatives and to monitor AI-based outcomes (ITU, 2017). Responsible leadership facilitates generating responsible organizational outcomes. Responsible leaders not only adapt to newer technological improvements but also anticipate possible problems with such new adaptations and find ways to resolve those problems (McAfee, Goldbloom, Brynjolfsson & Howard, 2014).

Leaders' AI-driven capability influences navigating responsible leadership in AI-driven organizational environment. AI can promote more inclusive and equitable decision-making. Leaders with greater AI competencies can integrate AI throughout the organization more strategically and responsibly. For example, leaders with AI-driven capability can adopt AI to mitigate biasedness in the organizational recruitment system. Designing AI platforms that can anonymize names and genders helps to prevent unconscious biases in hiring, and thus promotes a more equitable and diverse workforce within the organization (van Esch, Cui & Heilgenberg, 2024). Several scholars have studied human–machine interactions in terms of responsible leadership. Agrawal et al. (2017) focus on a co-creation perspective by adopting AI-system-based prediction and note that human-capability-based judgment will lead organizations toward the right strategic directions. Garfinkel, Matthews, Shapiro and Smith (2017) mention that leaders must take responsibility for monitoring AI-based operations. Although AI largely predicts tasks in uncertain circumstances, prediction itself is not the decision (Agrawal et al., 2017). Wilson and Daugherty (2018) mention that leaders must acquire fusion skills to work in a collaborative human–machine landscape (Lichtenthaler, 2018). Due to increased AI applications, Kolbjørnsrud et al. (2017) find leadership roles more creative, judgmental, flexible, and tacit knowledge oriented. Davenport (2016) concludes that a collaboration of human–machine cognitive intelligence will ultimately be translated into an integrated and responsible strategic approach for competitive organizations. Such a collaborative leadership role is reflected as a trainer, explainer, and sustainer (Wilson, Daugherty & Bianzino, 2017). Moreover, Davenport and Kirby (2016) suggest that based on the facts and contexts, the capacity of leaders for sensemaking in the big picture will result in responsible AI initiatives and sustainable organizational performances. Thus, we propose:

Proposition 3: Leaders' AI-driven capability positively impacts responsible leadership.

Discussion

Theoretical contributions

This research shows how leaders' AI-driven capability enables responsible leadership through ethical resonance. It makes several important theoretical contributions. First, the findings show the enabling role of AI-driven capabilities to address the emerging challenges in an AI-driven disruptive organizational environment. Leaders' AI-driven capability leverages the benefits of advanced data analysis, enhanced decision-making, managing risks, and better engagement and customer insights to navigate complex and rapidly changing environments more effectively (Chen, Hao &

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Nazif, 2023). Our findings support prior DMC research on crisis and uncertain situations (Parker & Ameen, 2018) by uncovering AI-driven capabilities as DMCs. Because leaders need to consider the disruptive social consequences of AI adoption in organizations (Raisch & Krakowski, 2021). The interplay between DMC and AI ensures more innovative, informed, and agile organizational practices in the complex AI-driven organizational system. Reflecting AI-driven capability, our comprehensive theoretical reasoning offers valuable insights into the DMCs – sensing, seizing, and reconfiguring. The sensing capability refers to a leader's ability to recognize emerging customer needs and preferences by analyzing the organizational environment and adopting advanced technologies (Teece, 2012). Effective leaders leverage technical capabilities, such as AI technologies and technology-driven insights, to identify emerging opportunities in the external market (Leachman & Scheibenreif, 2023). Additionally, AI-based platforms are valuable tools for monitoring competitors' activities, enabling strategic adjustments. Seizing capability involves a leader's ability to make strategic and business model decisions that create value for customers and the organization (Helfat et al., 2007). Leaders enhance adaptability by swiftly utilizing AI-driven predictive models to capitalize on new opportunities. Furthermore, adaptive capability aids in forecasting resource needs and optimizing allocation strategies to maximize these opportunities. Reconfiguring capability refers to a leader's ability to revamp organizational resources and capabilities to align with shifting external demands (Engelmann, 2023). Transformational capability fosters employees' shared understanding of change (Aoki, 2022). By enhancing communication, leaders strengthen collaboration and teamwork within the organization. Increased cooperation boosts agility, allowing leaders to effectively restructure the organization's resource base and capabilities.

Second, it offers novel insights into the capabilities required to lead AI-driven organizations responsibly. We present three dimensions that reflect leaders' AI-driven capability, and we propose how each capability may impact responsible leadership through ethical resonance. The findings of this research contribute to RLP theory (Lynham & Chermack, 2006). RLP provides a suitable framework for leadership that emphasizes both performance and responsibility. It views leadership as a dynamic system in which various components – such as inputs, processes, outputs, feedback, and boundaries – interact, with each element influencing the others. Moreover, leaders' cognition is highly context-specific (Stahl & Sully de Luque, 2014); thus, understanding responsible leadership in an AI-driven organizational context creates new insights for RLP theory. RLP emphasizes the balance between achieving high performance and being responsible towards various stakeholders with its three key attributes – effectiveness, ethics, and endurance. First, leaders with AI-driven capabilities can integrate evolving technologies for personalized leadership approaches, crisis management, and fostering innovation to enhance effectiveness. Second, AI-driven capabilities enable leaders to detect biases, establish transparency and accountability, conduct a risk assessment, adhere to rules, and monitor unethical behaviors to improve ethical practices. Third, leaders' AI-driven capabilities improve focus and resilience to increase endurance by optimizing decision-making and workload management, promoting AI insights-based prediction and learning. Moreover, responsible leadership is vital to mitigate organizational risks and ensure responsible AI implementation. Responsible AI equitably accommodates all the relevant stakeholders within the organizational business process (Kompella, 2022; Marr, 2020). Kandasamy (2024) argues that an ethical AI framework consisting of accountability, transparency, privacy, fairness, and sustainability should be integral to responsible leadership in AI-driven organizations. Our findings suggest that responsible leaders require AI-driven capability to create an ethical AI framework in a continuously evolving AI-driven organizational environment.

Third, theoretically, this research differs from contemporary capability research, highlighting capability from a service analytics perspective in the AI environment (Akter et al., 2021a; Mottamari et al., 2020; Wamba et al., 2017). This research uncovers leaders' AI-driven capability as a human–machine collaborative approach that goes beyond the scope of the service analytics capacity of the organization. In the increasingly AI-driven organizational environment, human–machine collaborative capabilities determine the overall strategic approach (Davenport, 2016).

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Such human–machine capability creates new forms of dynamic leadership capability in AI environments because individual-level dynamic capabilities will enable leaders to anticipate better and interpret rapidly changing external environments (Helfat & Peteraf, 2015). Leaders' underlying cognition process is pivotal while applying dynamic capabilities in uncertain environmental circumstances.

Practical implications

Focusing on responsible leadership, this research explores unique context-specific DMCs. The findings have three key practical contributions to AI-driven organizations. First, AI strategies in organizations pose ethical risks and emerge with new leadership challenges. This research acknowledges the significance of leaders' ethical resonance in AI environment. Hence, the respective organizations will be able to develop leaders equipped with the knowledge of AI ethics. Any ethics programs in AI-driven organizations must start at the executive level and then permeate to the ranks and ultimately translate to the technology itself (Blackman, 2022). Ethical resonance will enable leaders to address AI algorithms' discrimination and transparency risks, ensure better service personalization, and maintain customer privacy (Yokoi et al., 2023). Ultimately, AI ethics aids organizations in ensuring values-driven use of technology and translates organizations into adopting better policy structures and setting exemplary corporate standards.

Therefore, leaders can develop specific protocols and decision frameworks to operationalize ethical principles in AI initiatives and manage technological disruptions responsibly. A comprehensive evaluation process can mitigate the ethical lapses and bias of AI integration in the organization (Hanna et al., 2025). In the planning stage, leaders can adopt ethical consideration protocols for decision-making by establishing responsible AI adoption-oriented principles, promoting human-centered AI design in every stage, and adopting existing regulatory frameworks. The principles should embrace human oversight, fairness, and explainability of AI with robust risk assessment before deployment, including iterative evaluation methods (e.g., fairness testing stakeholder consultations). Next, leaders can also embrace operational protocols during AI implementations by establishing cross-functional teams consisting of technologists, legal experts, ethicists, and impacted stakeholders to oversee AI's ethical compliance. Moreover, leaders can conduct algorithmic impact assessments to track possible ethical lapses or unintended consequences regarding the privacy and safety concerns of the system users. Finally, leaders can introduce protocols for responsibly managing AI-based technological disruptions. They can introduce a workforce transition plan by reskilling and upskilling programs and developing career transition pathways for the employees. Besides, organizational performance incentive programs can also be linked with responsible AI practices. Leaders can also engage communities and regulators through public consultations and by releasing AI transparency reports. Moreover, they can align organizational AI initiatives with social responsibility and sustainability objectives.

Second, AI-driven organizations will benefit from using the skill sets required to lead responsibly by equipping their emerging leaders with structured training and development programs. For example, concentrating on building digital capabilities of the organizational workforce is insufficient if the responsible judgment in using these capabilities in AI-driven contexts is not emphasized (Yokoi et al., 2023). This will also enable organizations to identify the more promising leaders for AI-driven organizational environments. Third, this research will benefit emerging AI-driven organizations by helping to shift their focus from a traditional leadership outlook to responsible leadership practices that help organizations sustainably progress. Firms can gain distinctive advantages by promoting responsible uses of digital technologies to fulfill societal expectations (Yokoi et al., 2023). A 2022 study shows that 64% of investors, 58% of consumers, and 60% of employees decide based on their values and beliefs. Hence, strengthening digital responsibility in an organization will create greater value and positively impact the trust and loyalty of concerned stakeholders.

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Limitations and future research directions

This SLR aims to provide substantial and novel research directions to AI-driven capability in the responsible leadership context. However, this research also has several limitations inherent to systematic review studies. First, the scope of this review is limited to responsible leadership perspectives that emerge in the AI environment, and other contexts may explore distinct dimensions of capability. Future research on other contexts can develop a general understanding of AI-driven capability. Second, this review doesn't include diverse contextual factors such as firm size or level of AI adoptions to explore the dimensions of AI-driven capability. Future empirical research may examine the firm-specific factors to address such limitations. Third, despite conducting a systematic search for articles in the selected databases and careful screening, some relevant articles may remain omitted from the initial pool. Because of using a specific set of keywords, the screening process may omit some research items. The selection of keywords to search articles to address the RQ is an inherent limitation of systematic review (Gaur, Afaq, Singh & Dwivedi, 2021). Fourth, future research may conduct multiple cross-sectional or longitudinal studies to investigate our propositions empirically. Multiple cross-sectional studies will aid in understanding individual contextual factors, while longitudinal studies will be helpful in better comprehending the dynamic nature of AI-driven capability (Akter et al., 2021a). Fifth, this review findings present that AI capability develops leaders' ethical resonance. Such AI-driven ethical resonance can also be connected to existing leadership theories like transformational and servant leadership. The leaders' capability to transform their followers ethically through the digital transformation of the business environment is increasingly becoming apparent (Li, Zhan & Lu, 2016). Future research may re-conceptualize the four scales of transformational leadership: *idealized attributes, inspirational motivations, intellectual stimulation*, and *individualized consideration* regarding leaders' AI-driven ethical resonance. Similarly, future research may also investigate how AI-driven ethical resonance extends the servant leadership theory in an evolving technological context. Servant leadership focuses on the needs of followers to establish a culture of empowerment and community where ethics plays a foundational role (Pawar, Sudan, Satini & Sunarsi, 2020). Future research may explore how AI-driven ethical resonance is critical in building such a culture in a continuously evolving digital landscape. Finally, future research may advance the debate on the DMC view by focusing on other critical perspectives in an AI-driven organizational environment.

Conclusion

AI research's critical and growing role in the leadership discourse is becoming a research priority. AI research has always been eclectic in management; however, the current leadership paradigm shift due to the influence of AI necessitates new conceptualizations and theories to advance this emerging need for knowledge. We propose a model for collaborative intelligence in leadership combining AI and human intelligence, grounded in current and future AI applications and leadership theories. To gain substantial value from organizational AI initiatives, leaders must fundamentally rethink how machines and humans interact in the work environment (Davenport & Mittal, 2023). The findings present pathways for leaders to use AI collaboratively, combining the relative capabilities of AI and human intelligence to contribute to a broader set of stakeholders.

Conflicts of interests. The author(s) declare none.

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Appendix A

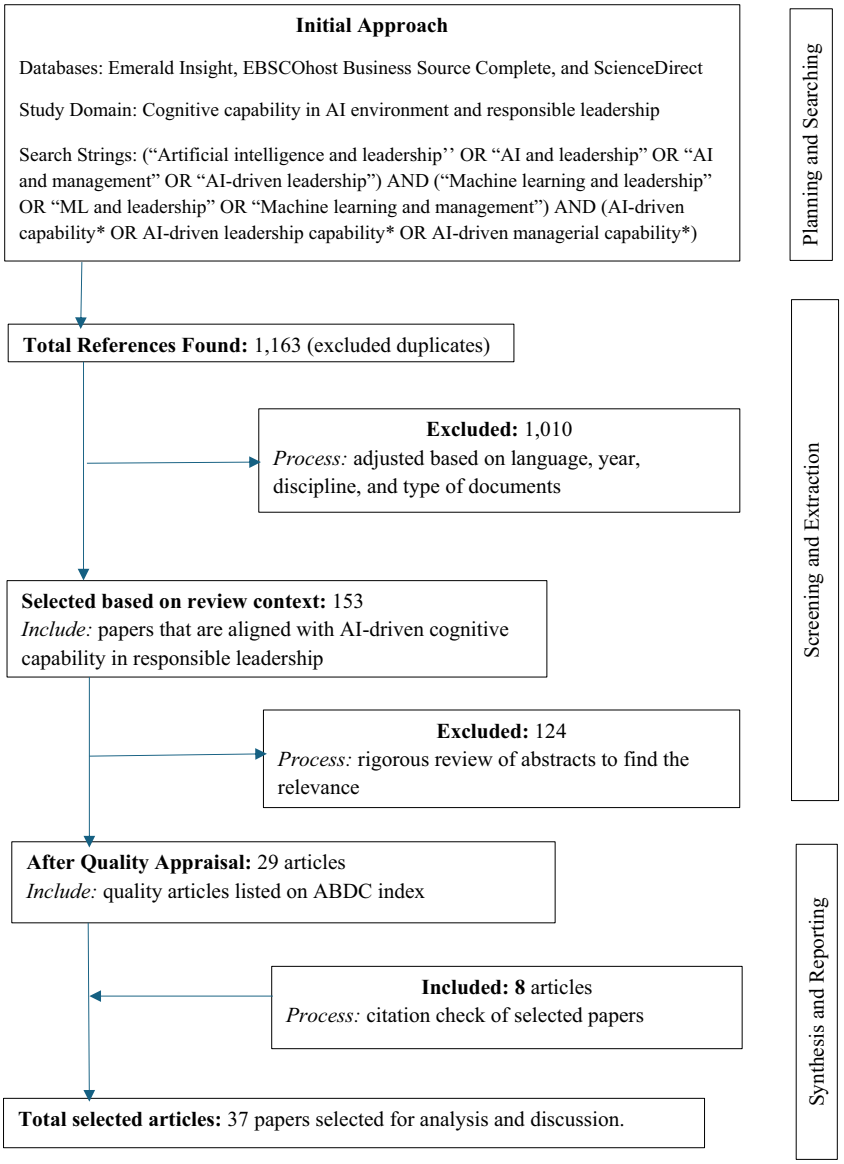

Figure A1. Systematic review protocol.

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Appendix B

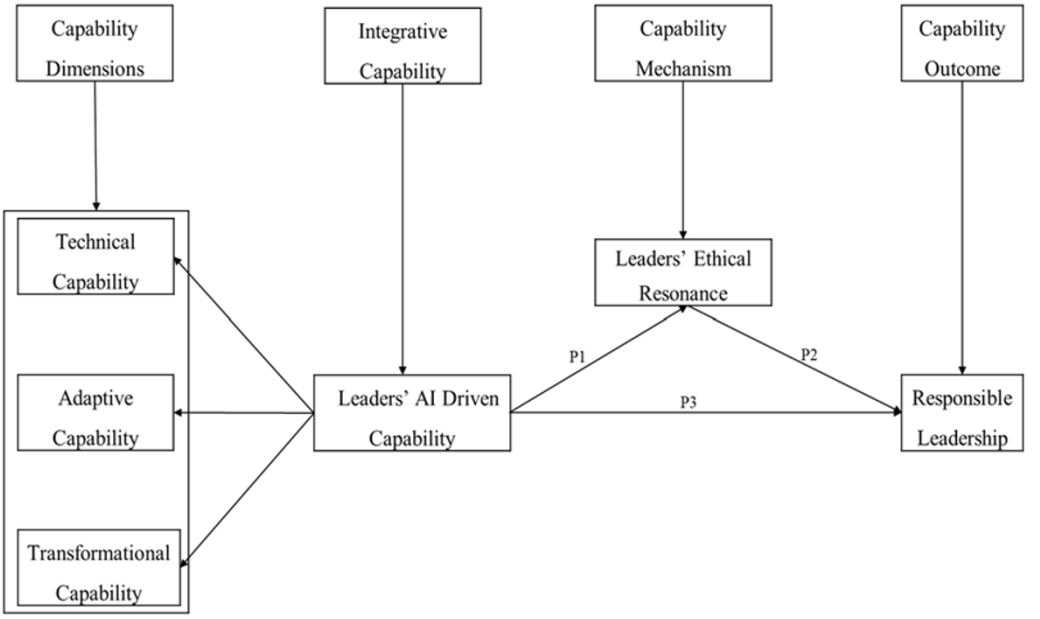

Figure B1. Proposed conceptual model.

Sahadat Hossain is a PhD candidate at the University of Wollongong, Australia. He also works as a Senior Lecturer at the University of Liberal Arts Bangladesh (on leave). He has worked as a Research Assistant with university and development organizations. He is particularly interested in conducting research on the intersection between an organization's strategy and behavior.

Mario Fernando is a Management Professor and the Centre for Cross-Cultural Management Director at the University of Wollongong. His research and teaching interests focus on exploring how responsible managerial action leads to positive social change. He has published in the European Journal of Marketing, the International Journal of Consumer Studies, the Journal of Retailing and Consumer Services, Human Relations, the Journal of Business Ethics, Public Administration and Development and Electronic Markets. Mario has also published three books.

Shahriar Akter is a Professor of Marketing and Associate Dean of Research at the Faculty of Business & Law at the University of Wollongong (UOW), Australia. Shahriar was awarded his PhD from the UNSW Business School, with a doctoral fellowship in research methods from the Oxford Internet Institute, University of Oxford. Shahriar has published in top-ranked business journals. His research areas include big data analytics, digital and social media marketing, digital innovations, service systems and variance-based SEM techniques.

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