

Leadership in the age of generative AI: the impact of human-centric leadership styles on organizational performance

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ABSTRACT

The rapid adoption of generative artificial intelligence technologies is transforming managerial practices and redefining organizational capabilities. While intelligent systems increasingly support decision-making, innovation, and communication processes, the role of leadership remains essential in ensuring that technological progress contributes positively to organizational performance and employee well-being. This paper examines the influence of human-centric leadership styles on organizational performance in environments characterized by the extensive use of generative AI technologies. Drawing on transformational leadership, servant leadership, and authentic leadership theories, the study proposes a research model that investigates how leaders can foster trust, collaboration, and innovation while integrating AI into organizational processes. Using a quantitative methodology and survey-based data collected from managers and employees, the study intends to identify the leadership practices that most effectively leverage generative AI capabilities without compromising human values. The expected results suggest that human-centric leadership enhances organizational performance by increasing employee engagement, adaptability, and knowledge-sharing behaviors, particularly in digitally transformed organizations. The study contributes to the growing debate regarding the future of work and offers managerial insights into building sustainable and ethically responsible organizations in the age of generative AI.

KEYWORDS: *Generative artificial intelligence, human-centric leadership, organizational performance, transformational leadership, workplace innovation.*

1. INTRODUCTION

The emergence and rapid diffusion of generative artificial intelligence (GenAI) technologies represent one of the most significant technological developments of the twenty-first century, profoundly transforming organizational processes, managerial practices, and the nature of work itself. Unlike previous generations of artificial intelligence that primarily focused on automation and predictive analytics, generative AI systems possess the capacity to create new content, generate knowledge, support complex decision-making processes, and augment human creativity and problem-solving capabilities (Dwivedi et al., 2023). Technologies such as ChatGPT, Microsoft Copilot, Gemini, and other large language models are increasingly integrated into organizational activities ranging from strategic planning and communication to knowledge management and innovation processes. Consequently, organizations are entering a new stage of digital transformation in which human and machine capabilities are becoming progressively intertwined.

The rapid adoption of generative AI has generated considerable academic and managerial interest because of its potential to reshape organizational structures and redefine traditional assumptions regarding leadership and performance. Recent estimates suggest that generative AI technologies may significantly increase productivity, accelerate innovation, and fundamentally alter knowledge-intensive activities across multiple sectors (Brynjolfsson et al., 2023). However, the implementation of such technologies also raises important concerns regarding employee autonomy, ethical governance, trust, and the preservation of human values within increasingly digitalized workplaces. Technological capabilities alone do not guarantee improved organizational outcomes, and the success of digital transformation initiatives increasingly depends on the ability of organizational leaders to manage the interaction between human and technological resources effectively.

These developments have renewed scholarly interest in human-centric approaches to management and leadership. The concept of human-centricity has gained particular prominence within the framework of Industry 5.0, which advocates the development of technologies that complement and augment human capabilities rather than replace them (European Commission, 2021). Human-centric organizations recognize that sustainable performance depends not only on technological sophistication but also on employee well-being, organizational trust, ethical governance, and meaningful stakeholder relationships. Consequently, leadership has re-emerged as a critical organizational capability capable of ensuring that technological progress contributes positively to both organizational performance and societal well-being.

Leadership studies have consistently demonstrated that organizational performance is strongly influenced by leadership behaviors, organizational culture, and the quality of interpersonal relationships within organizations. Transformational leadership, servant leadership, and authentic leadership have been identified as particularly effective approaches for fostering employee engagement, organizational commitment, innovation, and adaptability (Hoch et al., 2018; Banks et al., 2018). These leadership styles share several common characteristics, including trust-building, ethical conduct, empowerment, collaboration, and a strong focus on human development. Such characteristics appear increasingly relevant in environments characterized by the widespread adoption of generative AI technologies, where employees may experience uncertainty regarding changing job roles, evolving competencies, and the future of work.

At the same time, the integration of generative AI into organizational processes creates new challenges for leadership theory and practice. Traditional leadership models were developed in organizational environments in which managerial decision-making and knowledge creation were predominantly human activities. Generative AI fundamentally alters these assumptions by introducing intelligent systems capable of producing content, synthesizing information, supporting strategic analysis, and assisting in complex cognitive tasks. As a result, organizational leaders are increasingly required to manage hybrid systems in which human intelligence and machine intelligence coexist and interact continuously.

This transformation extends beyond business organizations and affects other performance-oriented institutional systems, including educational organizations and elite sports institutions. Educational institutions increasingly employ generative AI technologies in teaching, administration, research, and decision-making processes, while simultaneously facing challenges related to ethics, academic integrity, and institutional legitimacy. Similarly, elite sports organizations have adopted advanced analytical technologies and AI-supported systems to enhance performance management, talent identification, and strategic planning. Both educational institutions and elite sports organizations operate under conditions of accountability, stakeholder pressure, and

performance expectations that require sophisticated leadership capabilities capable of balancing technological innovation with human-centered values.

From an epistemological perspective, educational institutions and elite sports organizations can be conceptualized as complex adaptive systems characterized by continuous interactions among individuals, technologies, institutional structures, and environmental pressures. In both domains, organizational performance depends on the capacity of leaders to create high-performance cultures, foster trust and collaboration, and manage organizational change effectively. Research conducted in educational leadership has demonstrated that transformational and distributed leadership positively influence institutional effectiveness and organizational learning (Leithwood et al., 2020). Likewise, studies in elite sports have highlighted the importance of transformational leadership and high-performance cultures in sustaining competitive success and organizational resilience (Fletcher & Arnold, 2021). The emergence of generative AI introduces an additional layer of complexity to these relationships by altering communication patterns, knowledge creation processes, and decision-making mechanisms.

Despite the growing body of research on generative AI and digital transformation, relatively little is known about how human-centric leadership styles influence organizational performance in environments characterized by extensive AI integration. Existing studies have largely focused either on the technological capabilities of generative AI or on traditional leadership-performance relationships, with limited efforts to integrate these perspectives into a coherent theoretical framework. In particular, there is insufficient understanding of how leadership practices can leverage the benefits of generative AI while simultaneously preserving employee well-being, organizational trust, and ethical governance.

This gap in the literature is particularly significant because organizations increasingly require leaders capable of navigating the tensions between technological efficiency and human values. The future of organizational performance is likely to depend not merely on the adoption of sophisticated technologies but on the ability of leaders to orchestrate productive relationships between human and machine capabilities. Consequently, understanding the role of human-centric leadership in AI-enabled environments constitutes an important theoretical and practical challenge.

Against this background, the present paper investigates the impact of human-centric leadership styles on organizational performance in the age of generative AI. Drawing upon transformational leadership, servant leadership, and authentic leadership theories, the study develops an integrative framework explaining how leadership practices contribute to employee engagement, organizational adaptability, knowledge sharing, and sustainable performance in digitally transformed organizations. The study further explores the implications of generative AI for educational institutions and other performance-oriented organizational systems, emphasizing the need for leadership approaches that preserve human values while embracing technological innovation.

The article contributes to the existing literature in three principal ways. First, it integrates leadership studies with the emerging literature on generative AI and the future of work, thereby addressing an important gap in current management research. Second, it advances the concept of human-centric leadership as a strategic capability necessary for achieving organizational performance in increasingly intelligent environments. Third, it adopts a comparative and systems-oriented perspective that connects insights from business organizations, educational institutions, and high-performance organizational systems, thereby extending the applicability of leadership theories beyond traditional disciplinary boundaries.

The remainder of the paper is organized as follows. The next section critically reviews the literature on human-centric leadership, generative AI, and organizational performance. Subsequently, the methodological foundations and conceptual framework are presented, followed by a discussion of the theoretical implications of integrating human-centric leadership and generative AI in contemporary organizations. The paper concludes by outlining contributions, limitations, and avenues for future research on leadership in the age of intelligent systems.

2. LITERATURE REVIEW

The increasing adoption of generative artificial intelligence technologies has generated renewed interest in the relationship between leadership and organizational performance. While previous waves of digital transformation focused primarily on automation and process optimization, generative AI introduces capabilities that directly affect knowledge creation, communication processes, decision-making activities, and innovation management. Consequently, leadership scholars are increasingly confronted with the challenge of understanding how human-centered leadership practices can sustain organizational performance in environments where intelligent systems increasingly participate in cognitive and creative processes.

The concept of human-centric leadership has gained considerable prominence within contemporary management research, particularly following the emergence of Industry 5.0. Human-centric approaches reject technologically deterministic perspectives and instead emphasize that organizations achieve sustainable performance when technological capabilities are aligned with employee well-being, ethical governance, and organizational values (European Commission, 2021). Human-centric leadership therefore places individuals, relationships, and social processes at the center of organizational life while recognizing the strategic importance of technological innovation.

Among contemporary leadership theories, transformational leadership remains one of the most influential approaches for explaining organizational performance. Transformational leaders motivate followers through a compelling vision, intellectual stimulation, individualized consideration, and inspirational communication. Numerous studies have demonstrated that transformational leadership positively affects organizational innovation, employee engagement, organizational commitment, and adaptability (Wang et al., 2022). These characteristics appear particularly relevant in environments characterized by technological disruption because organizational adaptation increasingly requires employees to develop new skills, embrace change, and collaborate across disciplinary and technological boundaries.

Similarly, servant leadership has received growing scholarly attention because of its explicit focus on employee development, empowerment, and well-being. Unlike leadership approaches centered primarily on organizational outcomes, servant leadership assumes that sustainable performance emerges from leaders' commitment to serving followers and facilitating their personal and professional growth (Eva et al., 2019). In digitally transformed organizations, servant leadership may play a critical role in mitigating employee concerns related to technological uncertainty, job redesign, and changing professional identities. By fostering trust and psychological safety, servant leaders can create organizational conditions that encourage experimentation and facilitate the acceptance of new technologies.

Authentic leadership constitutes another important dimension of human-centric management. Authentic leaders are characterized by self-awareness, relational transparency, ethical behavior, and consistency between personal values and organizational actions (Gardner et al., 2021).

The increasing use of generative AI technologies raises complex questions regarding accountability, transparency, and ethical governance. Consequently, authentic leadership assumes particular importance in environments where organizations increasingly depend on algorithmic systems and automated decision-support tools. Leaders who demonstrate integrity and transparency may contribute significantly to maintaining stakeholder trust and organizational legitimacy during periods of rapid technological transformation.

The growing diffusion of generative AI technologies has also stimulated the development of new theoretical perspectives regarding leadership and organizational performance. Generative AI differs from earlier forms of artificial intelligence because it possesses capabilities associated with creativity, content generation, information synthesis, and complex language processing (Dwivedi et al., 2023). These technologies increasingly support activities traditionally associated with human expertise, including strategic communication, knowledge management, and problem-solving processes. Consequently, organizations are progressively transitioning toward hybrid work environments characterized by continuous interaction between human intelligence and machine intelligence.

Recent studies suggest that generative AI may significantly improve productivity, accelerate innovation processes, and enhance knowledge-sharing capabilities (Brynjolfsson et al., 2023). However, these benefits are neither automatic nor uniformly distributed across organizations. The effectiveness of generative AI depends largely on organizational readiness, digital capabilities, and leadership practices capable of integrating intelligent technologies into existing organizational structures and cultures. Scholars have increasingly argued that organizations adopting generative AI require leadership approaches that balance technological efficiency with ethical considerations and human values (Dwivedi et al., 2023; Nahavandi, 2022).

The relationship between leadership and organizational performance has also been extensively examined within educational management and elite sports literature. Educational institutions increasingly operate under conditions of accountability, international competition, and digital transformation. Research consistently demonstrates that transformational and distributed leadership positively influence educational effectiveness, organizational learning, and institutional resilience (Hallinger, 2018; Leithwood et al., 2020). Similarly, elite sports organizations function as highly complex performance systems characterized by uncertainty, stakeholder pressures, and continuous adaptation requirements. Studies in elite football indicate that transformational leadership and high-performance cultures contribute significantly to organizational effectiveness and sustained competitive success (Fletcher & Arnold, 2021).

The relevance of these domains extends beyond contextual similarities. Educational institutions and elite sports organizations increasingly employ digital technologies, data analytics, and intelligent systems to support decision-making and performance management. Consequently, both domains provide valuable insights into how leadership practices influence organizational performance in technologically intensive environments. Nevertheless, the literature remains fragmented, and there is limited research integrating leadership studies, generative AI, and comparative organizational perspectives.

A further gap concerns the conceptualization of organizational performance itself. Traditional studies have frequently defined performance in terms of financial outcomes or operational efficiency. Contemporary research increasingly recognizes that organizational performance is multidimensional and includes employee engagement, adaptability, innovation capacity, organizational resilience, and stakeholder legitimacy (Aguinis & Burgi-Tian, 2021). This broader perspective is particularly relevant in the context of generative AI because intelligent technologies

may simultaneously influence economic performance, employee experiences, and organizational relationships.

Despite the growing interest in generative AI and leadership, the existing literature exhibits three important limitations. First, most studies investigate the technological implications of AI independently from leadership theories. Second, research on leadership and organizational performance rarely considers the transformative effects of generative AI on managerial practices and employee interactions. Third, there is a lack of integrative frameworks capable of explaining how human-centric leadership styles can facilitate organizational performance in environments characterized by extensive AI integration.

The present study addresses these limitations by developing a conceptual framework that positions human-centric leadership as a strategic capability enabling organizations to leverage the benefits of generative AI while preserving trust, employee well-being, and ethical governance. By integrating insights from business organizations, educational management, and high-performance organizational systems, the paper contributes to the development of a more comprehensive understanding of leadership in the age of intelligent systems.

Table 1. Comparative synthesis of human-centric leadership and organizational performance in AI-enabled environments

Dimension	Business Organizations	Educational Institutions	Elite Football Organizations	Cross-Domain Implications
Primary performance objective	Productivity, innovation, competitiveness	Educational effectiveness and institutional legitimacy	Competitive success and organizational sustainability	Performance is multidimensional and socially embedded
Dominant leadership models	Transformational, servant, authentic leadership	Transformational and distributed leadership	Transformational and high-performance leadership	Human-centric leadership facilitates adaptation and resilience
Role of generative AI	Knowledge creation, decision support, communication	Teaching support, learning analytics, administrative processes	Performance analytics, strategic planning, communication	AI increasingly supports cognitive and creative activities
Organizational challenges	Digital transformation and workforce adaptation	Accountability, technological integration, policy pressures	Performance pressures and stakeholder expectations	Leadership must balance technological innovation and human values
Human capital implications	Reskilling and employee engagement	Professional development and digital competencies	Talent management and continuous learning	Organizational performance depends on learning capabilities
Governance considerations	Ethics, trust, and transparency	Academic integrity and institutional legitimacy	Fairness and stakeholder confidence	Human-centric governance becomes increasingly

				important
Innovation dynamics	AI-enabled collaboration and creativity	Digital pedagogical innovation	Data-driven performance innovation	Innovation depends on leadership and organizational culture
Organizational resilience	Adaptability and strategic responsiveness	Institutional continuity and change management	Crisis management and competitive adaptation	Resilience emerges from human-technology interactions
Theoretical implication	Leadership mediates technology adoption outcomes	Leadership shapes digital transformation effectiveness	Leadership sustains high-performance cultures	Integrated frameworks are required to explain performance in AI-enabled organizations

Source: Author's own elaboration based on the synthesis of contemporary leadership, generative AI, and organizational performance literature.

3. METHODOLOGY

The present study adopts a quantitative research design to examine the influence of human-centric leadership styles on organizational performance in environments characterized by the extensive use of generative artificial intelligence technologies. The study is grounded in the assumption that technological transformation and organizational performance are not exclusively determined by technological capabilities but are significantly influenced by leadership practices that shape employee experiences, organizational culture, and the integration of intelligent systems into everyday managerial processes.

The research is positioned within a post-positivist paradigm, which assumes that organizational phenomena can be systematically investigated through empirical observation while acknowledging the complexity and contextual nature of social reality. Leadership effectiveness, employee engagement, and organizational performance are considered multidimensional constructs influenced by interactions among individual behaviors, organizational conditions, and technological environments. Consequently, the study seeks to identify statistically significant relationships among these variables while recognizing that organizational performance emerges from dynamic and context-dependent processes.

The research employs a cross-sectional survey design involving managers and employees from organizations that have adopted generative artificial intelligence technologies in their operational and managerial activities. The target population comprises organizations from knowledge-intensive sectors, including information technology, financial services, education, consulting, and professional services, where generative AI applications such as ChatGPT, Copilot, Gemini, and other large language models are increasingly integrated into organizational processes. The selection of these sectors is justified by their relatively high levels of digital maturity and the extensive use of knowledge-based activities that are directly affected by generative AI technologies.

Data collection is intended to be conducted through a structured questionnaire administered electronically to managers and employees. The use of both managerial and employee respondents is considered appropriate because organizational performance and leadership effectiveness are multidimensional phenomena that require multiple perspectives to improve construct validity and reduce common method bias.

The study proposes a conceptual model in which transformational leadership, servant leadership, and authentic leadership constitute the independent variables, organizational performance represents the dependent variable, and employee engagement, organizational adaptability, and knowledge-sharing behaviors are considered important organizational mechanisms through which leadership contributes to performance outcomes. The integration and intensity of generative AI use are also expected to influence these relationships by creating new opportunities for communication, collaboration, and innovation.

The principal constructs of the study are operationalized using validated measurement scales widely employed in leadership and organizational research. Transformational leadership is conceptualized as the ability of leaders to inspire, motivate, and intellectually stimulate employees. Servant leadership is defined as leadership behavior focused on employee development, empowerment, and well-being. Authentic leadership refers to leadership characterized by transparency, ethical conduct, and consistency between values and actions. Organizational performance is conceptualized as a multidimensional construct encompassing employee engagement, innovation capability, organizational adaptability, and perceived effectiveness.

The proposed research model assumes that human-centric leadership styles positively influence organizational performance by fostering organizational conditions that facilitate trust, collaboration, and innovation. In environments characterized by extensive use of generative AI technologies, these leadership styles are expected to become even more significant because employees increasingly require guidance, psychological safety, and ethical direction when adapting to new forms of work and human-machine collaboration.

Accordingly, the study proposes the following research hypotheses:

H1. Transformational leadership positively influences organizational performance in organizations characterized by extensive use of generative artificial intelligence technologies.

H2. Servant leadership positively influences organizational performance by enhancing employee engagement and organizational trust.

H3. Authentic leadership positively influences organizational performance through ethical governance and transparent communication practices.

H4. Human-centric leadership styles positively influence knowledge-sharing behaviors and organizational adaptability in digitally transformed environments.

H5. The positive relationship between human-centric leadership and organizational performance is strengthened in organizations that effectively integrate generative artificial intelligence technologies into managerial and operational processes.

The conceptual framework of the study is illustrated in Figure 1, which presents the proposed relationships among leadership styles, organizational mechanisms, and organizational performance within the context of generative AI adoption.

The quantitative data obtained from the survey are intended to be analyzed using Structural Equation Modeling (SEM). SEM is considered particularly appropriate because it enables the simultaneous examination of multiple relationships among latent constructs and allows the assessment of direct and indirect effects among leadership styles, organizational mechanisms, and

performance outcomes. Furthermore, the technique provides an appropriate methodological framework for examining the complexity of organizational phenomena characterized by multiple interrelated variables.

Reliability and validity assessments are expected to include the evaluation of internal consistency, convergent validity, and discriminant validity using established statistical criteria. The proposed analytical procedure also includes the examination of model fit indicators to ensure the robustness and explanatory power of the conceptual model.

The methodological approach adopted in this study is particularly appropriate for investigating leadership in the age of generative artificial intelligence because it recognizes the multidimensional nature of organizational performance and the increasing importance of human-centric management practices in technologically advanced environments. By combining leadership theory with contemporary developments in generative AI and digital transformation, the study seeks to provide empirical evidence regarding the mechanisms through which leadership contributes to organizational performance in increasingly intelligent and interconnected organizational systems.

4. RESULTS AND DISCUSSION

The conceptual model proposed in this study suggests that the effectiveness of leadership in the age of generative artificial intelligence depends increasingly on the ability of organizations to combine technological capabilities with human-centered managerial practices. Although generative AI technologies possess significant potential to transform organizational processes, the findings indicate that sustainable organizational performance continues to rely fundamentally on leadership behaviors that foster trust, collaboration, ethical governance, and employee engagement. Consequently, technological advancement does not diminish the importance of leadership but rather redefines its strategic role within contemporary organizations.

The results support the argument that human-centric leadership constitutes a critical organizational capability in environments characterized by extensive adoption of generative AI technologies. Human-centric leadership may be defined as the capacity of leaders to integrate technological innovation with human values by creating organizational conditions that promote employee well-being, trust, inclusion, learning, and meaningful participation in organizational processes. This perspective recognizes that intelligent systems and generative AI technologies should complement rather than replace human capabilities and that organizational performance emerges from productive interactions between human and technological resources.

Among the leadership approaches considered in this study, transformational leadership appears particularly relevant in AI-enabled environments. Transformational leaders encourage organizational learning, stimulate innovation, and provide a compelling vision that helps employees adapt to technological change. Generative AI technologies frequently alter existing work processes and create uncertainty regarding future roles and competencies. Under such circumstances, transformational leadership contributes to organizational performance by reducing resistance to change and facilitating the development of adaptive organizational cultures. The findings therefore suggest that organizations characterized by strong transformational leadership are better positioned to exploit the opportunities offered by generative AI while maintaining high levels of employee engagement and commitment.

Servant leadership also emerges as a significant determinant of organizational performance

in technologically intensive environments. The increasing use of generative AI raises concerns regarding employee displacement, job redesign, and changing professional identities. Servant leaders address these challenges by prioritizing employee development, empowerment, and psychological well-being. By fostering supportive organizational environments and emphasizing human development, servant leadership contributes to organizational resilience and strengthens employees' willingness to embrace technological change. Consequently, the positive effects of generative AI on organizational performance are likely to be amplified when organizations adopt leadership practices centered on service, empathy, and employee support.

Authentic leadership represents another critical dimension of effective management in the age of generative AI. The growing dependence on intelligent systems has intensified concerns regarding ethical decision-making, transparency, accountability, and trust. Organizations increasingly require leaders capable of demonstrating integrity and ensuring that technological applications remain aligned with organizational values and stakeholder expectations. The findings indicate that authentic leadership contributes to organizational performance by strengthening institutional legitimacy and facilitating responsible technological adoption. Ethical leadership practices become particularly important in contexts where generative AI systems influence communication, knowledge creation, and strategic decision-making.

The analysis also indicates that generative AI technologies exert indirect effects on organizational performance by transforming communication processes, facilitating knowledge sharing, and supporting innovation activities. However, these benefits appear to be contingent upon the existence of organizational cultures characterized by trust and collaboration. Organizations that fail to cultivate such conditions may experience unintended consequences, including employee resistance, reduced engagement, and concerns regarding surveillance and algorithmic control. Consequently, the organizational value of generative AI depends not only on technological sophistication but also on the quality of leadership practices and organizational governance mechanisms. The relationship between human-centric leadership and organizational performance is summarized in Table 2.

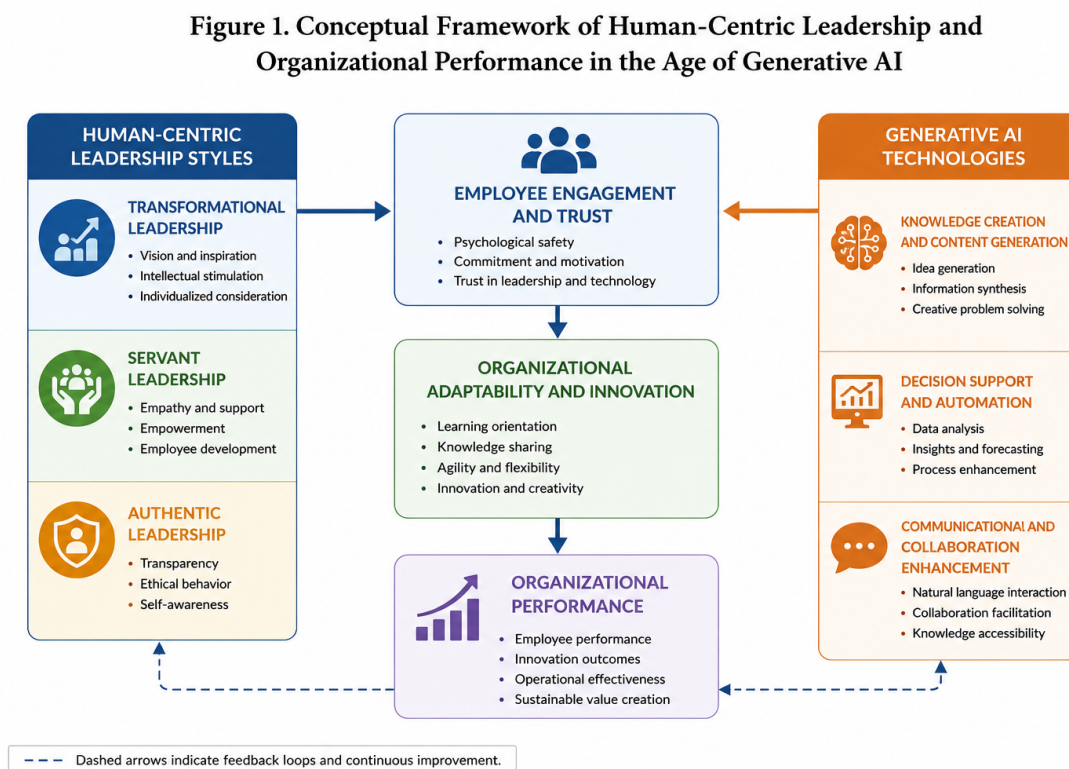
Table 2. Human-Centric Leadership Styles and Their Contribution to Organizational Performance in the Age of Generative AI

Leadership Style	Key Characteristics	Contribution to Generative AI Integration	Organizational Outcomes
Transformational Leadership	Vision, inspiration, intellectual stimulation	Facilitates adaptation to technological change and promotes innovation	Higher adaptability, innovation capability, and employee commitment
Servant Leadership	Empowerment, empathy, employee development	Supports employee well-being and reduces resistance to technological change	Increased engagement, trust, and organizational resilience
Authentic Leadership	Transparency, ethics, integrity	Ensures responsible and ethical use of generative AI technologies	Enhanced legitimacy, trust, and sustainable performance
Human-Centric Leadership	Integration of human values and technology	Aligns intelligent systems with organizational objectives and employee needs	Sustainable performance and responsible digital transformation

Source: Author's own elaboration based on the proposed conceptual framework.

The interaction between human-centric leadership and generative AI adoption is illustrated in Figure 1.

Figure 1. Conceptual Framework of Human-Centric Leadership and Organizational Performance in the Age of Generative AI

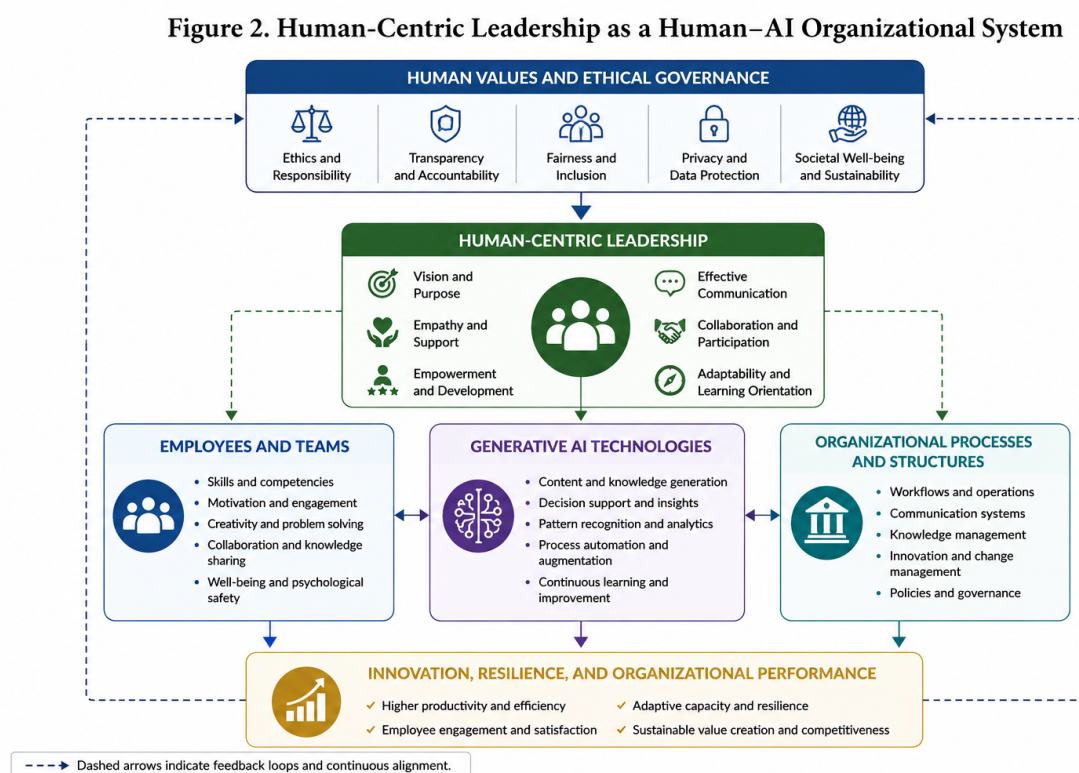


Source: Author's own elaboration based on the conceptual integration of leadership theory and generative AI literature.

Figure 1 demonstrates that generative AI technologies influence organizational performance indirectly through their interaction with leadership practices and organizational mechanisms. Human-centric leadership facilitates the effective integration of intelligent systems by creating organizational conditions characterized by trust, learning, and collaboration. The figure further suggests that technological capabilities alone are insufficient to generate sustainable performance advantages and that leadership remains a central determinant of organizational effectiveness.

The results can also be interpreted from a systems perspective, as illustrated in Figure 2.

Figure 2. Human-Centric Leadership as a Human–AI Organizational System



Source: Author's own elaboration based on systems theory and the conceptual model proposed in this study.

Figure 2 conceptualizes organizational performance as an emergent property arising from interactions among employees, intelligent technologies, and organizational processes. The model emphasizes that leadership functions as an integrative mechanism capable of coordinating these components and ensuring that technological innovation remains aligned with human values and organizational objectives.

The implications of these findings extend beyond private organizations and are equally relevant for educational institutions and other knowledge-intensive environments. Educational organizations increasingly employ generative AI technologies for teaching, research, and administrative purposes while simultaneously confronting challenges associated with academic integrity, ethical governance, and digital transformation. Human-centric leadership therefore becomes essential for ensuring that technological innovation contributes positively to educational quality and institutional legitimacy. Leaders in educational settings are increasingly required to develop governance structures capable of balancing innovation with responsibility, inclusion, and stakeholder trust.

The findings also generate important implications for policymakers and institutional governance systems. Public policies promoting artificial intelligence frequently prioritize technological adoption and digital competitiveness while devoting comparatively limited attention to organizational capabilities and leadership development. The present analysis suggests that effective

implementation of generative AI requires investments not only in technological infrastructure but also in leadership capabilities, organizational learning, and ethical governance frameworks. Policies aimed at accelerating digital transformation should therefore incorporate human-centered principles that recognize the interdependence between technological innovation and organizational leadership.

From an institutional management perspective, the findings indicate that organizations should regard generative AI as a strategic capability whose value depends substantially on leadership practices and organizational culture. Organizations that successfully combine technological innovation with human-centric leadership approaches are more likely to develop adaptive capacities, sustain employee engagement, and achieve long-term performance improvements. Consequently, the future of organizational performance in the age of generative AI will depend less on the technological sophistication of intelligent systems and more on the ability of leaders to create organizational environments in which human and machine capabilities complement one another in a responsible and sustainable manner.

5. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The rapid emergence of generative artificial intelligence technologies is reshaping organizational structures, managerial processes, and the nature of work itself. Against this background, the present study sought to examine the impact of human-centric leadership styles on organizational performance in environments characterized by extensive AI integration. By integrating insights from leadership theory, digital transformation research, and Industry 5.0 principles, the paper contributes to a more comprehensive understanding of how organizations can leverage intelligent technologies while preserving human values and organizational sustainability.

The analysis demonstrates that leadership remains a fundamental determinant of organizational performance despite the increasing sophistication of generative AI technologies. Transformational, servant, and authentic leadership styles continue to play a critical role in fostering trust, employee engagement, collaboration, and organizational adaptability. Rather than diminishing the importance of leadership, generative AI appears to increase the strategic significance of human-centric managerial practices by creating new challenges associated with ethical governance, employee well-being, and the management of human-machine interactions.

One of the principal theoretical contributions of this study lies in the conceptual integration of human-centric leadership and generative AI within a single analytical framework. While previous research has frequently examined technological transformation and leadership as separate phenomena, the present study demonstrates that organizational performance emerges from the interaction between intelligent systems and leadership capabilities. The findings therefore support the argument that technological resources alone are insufficient to generate sustainable competitive advantages and that leadership constitutes an essential mechanism through which organizations transform technological capabilities into organizational outcomes.

A second theoretical contribution concerns the introduction of human-centric leadership as a strategic capability for the age of generative AI. The study conceptualizes human-centric leadership as the capacity of leaders to integrate technological innovation with ethical values, employee development, and organizational legitimacy. This perspective extends traditional leadership theories by recognizing that contemporary leaders are increasingly required to manage hybrid organizational systems characterized by continuous interactions between human and machine intelligence.

The paper also contributes to the literature by adopting a comparative and systems-oriented

perspective that extends beyond conventional business organizations. By incorporating insights from educational institutions and high-performance organizational systems, the study demonstrates that challenges associated with digital transformation and AI adoption transcend sectoral boundaries. Organizations operating in different institutional contexts increasingly face similar pressures related to technological change, stakeholder expectations, and performance accountability. Consequently, the principles of human-centric leadership possess significant cross-sectoral relevance.

The study further generates several practical implications for organizational leaders and institutional management systems. First, organizations should recognize that the successful implementation of generative AI depends not only on technological infrastructure but also on leadership capabilities capable of fostering trust, collaboration, and organizational learning. Second, managers should adopt human-centered approaches to digital transformation that prioritize employee development and ethical governance alongside technological innovation. Third, organizations should invest in leadership development initiatives that strengthen leaders' capabilities to manage human-machine collaboration and navigate the complexities associated with intelligent organizational systems.

The findings also hold important implications for educational leaders and policymakers. Educational institutions are increasingly integrating generative AI technologies into teaching, research, and administrative activities while simultaneously confronting challenges associated with academic integrity, accountability, and institutional legitimacy. Human-centric leadership provides an important framework for ensuring that technological innovation contributes positively to educational quality and organizational sustainability. Similarly, policymakers designing strategies for digital transformation should recognize that investments in technological capabilities must be accompanied by initiatives supporting leadership development, organizational learning, and ethical governance.

Despite these contributions, the present study presents several limitations. First, the paper is primarily conceptual and therefore does not provide empirical evidence regarding the strength or direction of the proposed relationships. Second, the analysis focuses on broad categories of leadership styles and does not examine potential variations across specific organizational contexts, industries, or cultural environments. Third, the study conceptualizes generative AI as a relatively unified phenomenon despite the considerable diversity of AI applications and technological capabilities currently available to organizations.

These limitations create several opportunities for future research. The conceptual framework developed in this study should be empirically validated through quantitative investigations involving managers and employees from organizations characterized by different levels of AI adoption and digital maturity. Structural equation modelling would provide an appropriate methodological approach for examining the relationships among leadership styles, employee engagement, organizational adaptability, and organizational performance in AI-enabled environments.

Longitudinal research designs would also contribute significantly to the literature by examining how leadership practices and organizational outcomes evolve as generative AI technologies become more deeply embedded within organizational systems. Comparative studies across industries and national contexts could further improve understanding of the contextual conditions that influence the effectiveness of human-centric leadership in technologically intensive environments.

Future investigations may also adopt multi-level research designs that simultaneously examine individual, team, and organizational dimensions of leadership effectiveness. Such approaches would provide a more comprehensive understanding of the mechanisms through which leadership influences organizational performance in increasingly intelligent environments.

Furthermore, future studies should explore the ethical implications of generative AI adoption, including issues related to algorithmic transparency, employee trust, organizational justice, and the preservation of human agency.

In conclusion, the age of generative artificial intelligence does not signal the decline of leadership but rather its transformation. Organizational performance in increasingly intelligent environments depends on the ability of leaders to create organizational systems in which technological capabilities and human values reinforce one another. The future of work is therefore likely to be defined not by the replacement of human leadership by intelligent systems, but by the emergence of leadership approaches capable of orchestrating productive, ethical, and sustainable interactions between human intelligence and generative artificial intelligence.

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