

Leadership in the Age of Generative Artificial Intelligence (AI): A Comparative Study of Managers with Extensive and Limited AI Use

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ABSTRACT

This article investigates the impact of generative AI on leadership in contemporary and future business environments. It examines how generative AI influences leaders' attributes, behaviors, and perceived use cases for the technology, comparing the responses of leaders who use AI tools extensively with those who use them only in limited ways. The study draws on established leadership theories—including trait, behavioral, situational, and post-heroic approaches—to build a comprehensive theoretical framework. Data were collected through semi-structured interviews with managers from diverse backgrounds. The results suggest that leaders who actively leverage generative AI tend to exhibit attributes more relevant at the organizational level, display task-focused leadership behaviors, and view generative AI as having a functional role. In contrast, leaders with limited AI use tend to exhibit attributes more relevant at the group level, display people-focused leadership behaviors, and see generative AI as a supportive tool. This research contributes to the evolving field of leadership studies by highlighting the transformative potential of AI technologies and offering practical implications for leaders operating in AI-integrated environments.

Keywords: Generative AI, Leadership, Human-AI Interaction, Managers, AI Adoption, Digital Transformation.

INTRODUCTION

Leadership as a subject has been extensively studied in response to societal transformations and technological revolutions. From the industrial age to the digital era, leadership theories have evolved to address the changing nature of organizations and work. This evolution is evident in the progressive shift from trait-based theories to behavioral, situational, and, more recently, post-heroic models focused on leader–follower dynamics and contextual complexity (Kohnová & Salajová, 2019; Clark & Harrison, 2018; Sobral & Furtado, 2019). However, the rise of generative artificial intelligence (generative AI) has introduced new and significant challenges to the relevance of both traditional and contemporary leadership models.

Generative AI encompasses a range of systems powered by large language models (LLMs), capable of producing human-like text, images, audio, and video that mimic creativity and reasoning (Dencik et al., 2023). Tools such as ChatGPT and DALL·E have already been widely adopted across sectors, signaling a transformative moment in how knowledge work is conducted. Although still in the early stages of adoption, consulting reports and academic studies suggest that generative AI could automate 44–62% of managerial and professional tasks (Cardon et al., 2023). This shift has the potential to redefine not only what leaders do, but also the attributes, behaviors, and perceptions associated with effective leadership (Hossain, Fernando, & Akter, 2025).

Several recent studies have explored these developments. Larson and DeChurch (2020) argue that leaders will increasingly need to manage hybrid human–AI teams. Schafheile et al. (2021) envision a “two-leader” workplace, in which AI assumes operational decisions while human leaders provide ethical oversight and manage high-uncertainty situations. Quaquebeke and Gerpott (2023) go further, suggesting that AI may eventually assume core leadership functions entirely, reducing human leaders to AI system supervisors. However, while these studies present compelling perspectives, they remain largely theoretical. There is a critical lack of empirical research examining how current leaders perceive and adapt to generative AI in real-world organizational contexts.

This article addresses that gap by comparing two distinct groups of managers: those who use generative AI extensively and those who use it only in limited ways. This comparative design is particularly valuable, as it captures leadership perceptions across a spectrum of AI integration, offering insights into how different levels of exposure influence leadership thinking and behavior. After all, AI adoption is not uniform. By contrasting these two groups, the study explores how generative AI may reshape leadership archetypes and create new distinctions between “traditional” and “AI-augmented” leadership.

To guide this inquiry, the study poses the following core research question: *What are the attributes, behaviors, and perceived use cases for generative AI that leaders who use it extensively consider important, compared to those who use it in limited ways?* This question rests on the premise that generative AI does not merely enhance productivity but fundamentally transforms how leadership is practiced and understood. For example, extensive AI users may adopt attributes aligned with systems thinking, data fluency, and digital strategy. Their behaviors may emphasize process optimization, human–AI collaboration, and adaptive learning. Conversely, leaders with limited AI use may continue to value more traditional traits such as empathy, interpersonal judgment, and intuition, seeing AI as a supplementary tool rather than a transformative force.

To examine these dynamics, the study employs a qualitative methodology based on semi-structured interviews with six managers from Brazil, Russia, and Iran. Three participants use generative AI extensively, while the other three use it only in limited contexts. Thematic content analysis and abductive reasoning are applied to synthesize

findings across three dimensions: leadership attributes, leadership behaviors, and perceived AI use cases. The results have both theoretical and practical implications. Theoretically, the study extends traditional leadership models by incorporating AI-mediated contexts. Practically, it offers insights for organizations and leadership development programs seeking to prepare leaders for increasingly AI-integrated work environments. This is particularly relevant given forecasts that 92% of Fortune 500 companies will increase their AI investments over the next three years (Mayer et al., 2025).

In sum, this article contributes to the emerging field of AI-integrated leadership studies by providing an empirical, comparative analysis of how generative AI is redefining what it means to lead. As generative tools continue to evolve, understanding the divergence between high- and low-AI adoption leaders becomes essential – not only for advancing leadership theory but also for developing ethical, resilient, and adaptive leadership for the future of work.

THEORETICAL BACKGROUND

Leadership theory has evolved in response to societal transformations, economic shifts, and technological disruptions. From the early focus on dispositional traits to the more recent emphasis on relational dynamics and ethical conduct, the concept of leadership has expanded in complexity and scope (Antonakis & Day, 2017). The rise of generative artificial intelligence (AI) represents a new chapter in this evolution, prompting scholars to revisit traditional leadership models and assess their applicability in AI-integrated environment (Hossain et al., 2025). This section draws from classical and contemporary leadership theories to build a framework for understanding how generative AI may be reshaping leadership attributes, behaviors, and role conceptualizations.

Trait-Based Approaches to Leadership

The earliest systematic efforts to explain leadership effectiveness focused on inherent characteristics of individuals. Great Man theories and their successors, known collectively as trait-based theories, posited that certain personal attributes predispose individuals to be effective leaders. While early trait theories were criticized for their deterministic and reductionist assumptions, modern trait models have become more sophisticated and integrative. Zaccaro's (2004) model, in particular, offers a comprehensive view of leadership traits by distinguishing between distal attributes (e.g., cognitive abilities, personality, motives and values) and proximal attributes (e.g., problem-solving skills, social skills, and domain-specific expertise). This framework acknowledges both the internal disposition of the leader and the observable skills that enable leadership in action.

In AI-mediated contexts, certain traits may gain new importance. For instance, tech literacy, adaptability, and systems thinking may become critical for leaders navigating increasingly automated and data-driven environments. The Zaccaro model serves as a foundational framework in this study for analyzing how generative AI might shift the trait profile of effective leadership.

Behavioral and Transformational Perspectives

By the mid-20th century, leadership scholars began to shift attention from who leaders are to what leaders do. Behavioral theories proposed that leadership is composed of specific, observable behaviors that can be learned and developed. Traditional behavioral models, such as Lewin's leadership styles, classified leadership according to the degree of control and involvement exercised by leaders. In more recent decades, transformational and transactional leadership theories emerged as dominant paradigms.

Transformational leadership, in particular, emphasizes behaviors such as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 1994). These behaviors are associated with positive employee outcomes, including increased motivation, engagement, and performance. In the context of generative AI, however, these behaviors may be reframed. For example, “inspirational motivation” might now include championing digital transformation and helping teams envision new human-AI collaborations. Similarly, “intellectual stimulation” could involve fostering innovation through the integration of AI tools in decision-making.

Ethical leadership, a related construct that gained prominence after corporate scandals and financial crises, emphasizes transparency, accountability, and value-driven behavior (Brown & Treviño, 2006). With the advent of AI tools capable of making consequential decisions, ethical leadership takes on renewed urgency. Leaders must not only make ethical decisions themselves but also ensure that algorithmic tools reflect organizational values and avoid harm. These frameworks guide the behavioral dimension of this study.

Situational and Post-Heroic Theories

Situational and contingency theories introduced the idea that leadership effectiveness is context-dependent. The Hersey-Blanchard model, for instance, proposed that the optimal leadership style depends on employees’ readiness—a function of motivation and competence. Later situational models expanded this logic to include cultural context, organizational environment, and technological infrastructure.

These ideas paved the way for post-heroic leadership theories, which emphasize shared leadership, relational dynamics, and leader-follower co-construction of meaning (Uhl-Bien, 2006; Walumbwa et al., 2008). Post-heroic models emerged in response to growing complexity, ethical failures, and workforce diversity. They reflect a shift from hierarchical authority to facilitative influence, focusing on authenticity, trust-building, and participatory decision-making.

The integration of generative AI into organizational life aligns closely with this paradigm shift. As leaders interact not only with human teams but also with intelligent systems, they must manage new dynamics of trust, transparency, and ethical ambiguity. Leadership is increasingly defined by one’s ability to coordinate hybrid teams composed of humans and machines, reinforcing the relational and contextual sensitivity emphasized in post-heroic models.

Digital Technologies and the Evolution of Leadership Roles

Over the past 30 years, digital technologies have progressively reshaped the boundaries and expectations of leadership. In the 1990s, technologies like email and video conferencing changed team dynamics, prompting research on virtual leadership and distributed teams (Larson & DeChurch, 2020). In the 2000s and 2010s, social media and digital platforms accelerated the rise of informal and network-based leadership, as employees gained new avenues for visibility, voice, and influence.

With the rise of generative AI, we are entering a new phase in which technology is not merely a contextual factor but a co-actor in leadership systems. Larson and DeChurch (2020) propose four frames to understand this shift: technology as context, technology as tool, technology as teammate, and technology as leader. Generative AI, with its capacity to generate language, images, and decisions, sits at the intersection of the last three. It can serve as an assistant, collaborator, or even autonomous agent, depending on the organizational context and leadership philosophy.

Schafheile et al. (2021) describe a "two-leader" workplace in which AI assumes routine operational decisions, while human leaders focus on ethics, ambiguity, and crisis.

Quaquebeke and Gerpott (2023) extend this argument, suggesting that human leaders may become system supervisors rather than direct influencers. These evolving views require a reconceptualization of leadership identity, scope, and function.

Integrative Framework for Studying AI-Augmented Leadership

To empirically explore these developments, the present study integrates three theoretical lenses. First, Zaccaro's (2004) model is used to assess how the adoption of generative AI may influence the prominence of specific leadership traits. Second, transformational and ethical leadership theories provide a foundation for analyzing changes in leader behaviors in AI-intensive contexts. Finally, a modified version of Chowdhury et al.'s (2023) AI capabilities model is used to explore leaders' perceptions of how AI can be applied to leadership work itself.

This integrative framework enables the study to move beyond abstract theorizing and examine how real-world managers conceptualize and enact leadership in the age of generative AI. In doing so, the research contributes to the theoretical expansion of leadership models while offering practical insight for organizations preparing their leaders for increasingly AI-integrated work environments.

METHODS

The study employs a qualitative, exploratory research design, grounded in Flick's (2014) approach to qualitative content analysis. There are a couple of reasons for this methodology. The main one is because of the novelty and rapidly evolving nature of generative AI in organizational contexts. Due to that qualitative methods become ideal since they are focused mainly on emerging patterns, experiences, and frameworks. In addition, the goal of the study is to analyze the perceptions, behaviors, and values which are again the areas in which qualitative methods excel.

To explore these dimensions in depth, the study utilizes semi-structured interviews as the primary data collection method. This approach employs predefined theoretical frameworks while retaining the flexibility to capture unanticipated insights. Interviews were designed based on three conceptual foundations: Zaccaro's (2004) trait leadership model, transformational and ethical leadership theories, and Chowdhury et al.'s (2023) AI capabilities model.

Participants were selected through purposive sampling to ensure relevance to the study's aims. The sample includes six managers or professionals with managerial responsibilities: three of them use generative AI extensively in theory work and three who use it only in limited cases. Interviews were conducted remotely, recorded with participant consent, and subsequently transcribed and coded. Each conversation lasted approximately one hour.

The participants were drawn from Brazil, Russia, and Iran which are three major emerging economies. These countries were chosen for strategic and conceptual reasons. They represent a distinct context within the Global South and BRICS+ ecosystem, where AI adoption is rising but not yet fully institutionalized.

In addition, they have diverse economic, technological, and regulatory backdrops that help identify patterns applicable to broader organizational ecosystems. Finally, the author had access to professional and academic networks in these regions, enabling ethical and reliable participant recruitment. To illustrate the diversity and background of participants, Tables 1 and 2 present key demographic and professional information for both groups.

All six interviews were analyzed using a six-step content analysis approach based on

Flick’s (2014) methodology. The first step was initial familiarization, where all transcripts and field notes were reviewed in full. The second step involved open coding, where segments of text were labeled according to the conceptual categories of attributes, behaviors, and AI use cases. The third step focused on comparative analysis, systematically contrasting the perceptions of extensive AI users and limited cases AI users. In the fourth step, ethical and contextual dimensions—such as risk perception, empathy, and technological literacy—were integrated into the coding framework. The fifth step, pattern matching, aligned participant responses with existing leadership theories and emerging AI research. Finally, the sixth step produced a synthesized analytical framework, organizing the findings into three main dimensions: attributes, behaviors, and applications of generative AI.

To preserve the voices of participants and add authenticity to the findings, representative quotes were selected to illustrate key themes. Where possible, multiple participants’ perspectives were triangulated to reinforce interpretative reliability. While the limited sample size makes generalization impossible, the comparative and theory-anchored design of the study ensures relevance and rigor.

Ethical considerations were central throughout the research process. All participants were informed about the study’s purpose and the voluntary nature of participation was ensured. Audio recordings and transcripts were securely stored, anonymized, and used exclusively for academic purposes. The study received ethical clearance from the researcher’s home institution. This research design allows for an in-depth, comparative understanding of how generative AI is influencing leadership from the inside. By combining semi-structured interviews, abductive reasoning, and Flick’s content analysis, the study provides rich empirical insights into an emerging and under-theorized phenomenon. The next section presents the results, structured according to the three focal areas of inquiry: attributes, behaviors, and AI use cases, differentiated by the extent of participants’ engagement with generative AI.

Table 1. Characteristics of Participants from Brazil

Participant	Age	Education	Current Role	Company Type	Generative AI Use	Team Size
4	25	Bachelor in Electrical Engineering	Business Development Manager in Green Hydrogen Projects	International	ChatGPT for legal comparison + Microsoft Copilot	10–15
5	50	MBA	General Manager of Commercial Banking Platform	Regional	ChatGPT for credit proposals, personalization, and process optimization	10–15
6	30	Bachelor in Engineering	Senior IT Professional	International	Manages internal AI adoption projects	3–5

Source: Author

Table 2. Characteristics of Participants from Iran and Russia

Participant	Age	Education	Current Role	Country	Team Size
1	37	PhD in Polymer Science	Manager in Ultra-Luxury Personal Care Manufacturing	Iran	15–20
2	34	Master in Environmental Planning	Business Manager	Iran	3–5
3	35	MBA	Junior Finance Professional (Budget & Accounting)	Russia	10–15

Source: Author

RESULTS

The findings are presented in three parts. In the beginning the full range of attributes, behaviors, and AI use cases mentioned by each group is shown. Next overlapping elements are removed to highlight clear distinctions between extensive and limited AI users. Table 3 maps all the attributes, behaviors, and AI use cases reported by each participant group. This overview captures both the breadth and complexity of perceptions across the spectrum of AI use. It distinguishes what each group emphasized without yet removing shared elements.

Table 3. Attributes, Behaviors, and AI Use Cases Mentioned by Each Group

Dimension	Extensive AI Users	Limited AI Users
Attributes	Creativity, Openness, Adaptability, Strategic thinking, Interpersonal skills, Tech literacy, Management skills, Conscientiousness, Performance-oriented	Effective communication, Adaptability, Interpersonal skills, Openness, Management skills, Tech literacy, Intelligence, Human intuition
Behaviors	Talking optimistically about the future, Showing a sense of power and competence, Adapting to AI- driven changes, Considering different perspectives while solving problems, Talking seriously about things that should be done, Creating a living conversation about ethics and values, Helping others develop their capabilities, Managing human-AI interaction, Maintaining human context and understanding, Allocating time for guidance and training	Considering different perspectives while solving a problem, Talking optimistically about the future, Giving hope to members about achievable goals, Treating members as people, not just team members, Helping others develop capabilities, Allocating time for guidance and training, Qualitative performance assessment
AI Use Cases	Automating day-to-day managerial tasks, Reducing time requirements for work, Augmenting leadership itself, Better manage organizational culture, Improving change capacity, Using AI for guidance in complex or ambiguous scenarios,	Augmenting leadership itself, Automating day-to-day managerial tasks, Improving governance and regulations, Improving change capacity

	Improving knowledge management	
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Source: Author, based on interview data

While both groups occasionally mentioned shared ideas like adaptability or innovation, a clearer theoretical picture emerges when these overlapping elements are removed. The Table 4 second shows unique responses from each group, helping define distinct leadership mindsets and practices in the context of AI integration.

Table 4. Distinct Attributes, Behaviors, and AI Use Cases (Overlapping Elements Removed)

Dimension	Unique to Extensive AI Users	Unique to Limited AI Users
Attributes	Creativity, Strategic thinking, Performance-oriented	Effective communication, Human intuition, Intelligence
Behaviors	Showing a sense of power and competence, Adapting to AI-driven changes, Talking seriously about things that should be done, Creating a living conversation about ethics and values, Managing human-AI interaction, Maintaining human context and understanding	Qualitative performance assessment, Treating members as people, not just team members, Giving hope to members about achievable goals
AI Use Cases	Better managing organizational culture, Using AI for guidance in complex or ambiguous scenarios	Improving governance and regulations

Source: Author, from filtered participant data

DISCUSSION

The results of this study reveal a clear divergence in how leaders perceive their roles, behaviors, and relationship with generative AI, depending on their level of usage. These differences, summarized in Table 5, provide a foundation for deeper interpretation through the lens of leadership theory and AI conceptual frameworks.

Table 5. Theoretical Interpretation of Group Differences

Dimension	Extensive AI Users	Limited AI Users
Leadership Level Focus	Organizational-Level Traits (Systems & Strategy)	Group-Level Traits (Empathy & Interpersonal Insight)
Behavioral Orientation	Task-Focused Leadership (Structure & Efficiency)	People-Focused Leadership (Development & Trust)
AI Conceptualization	Functional Worker (Performs Tasks, Frees Leader for Strategy)	Support Tool (Enhances Human Tasks, Not Replaces)

Source: Author, theory-driven interpretation

These findings suggest that the use of generative AI is a factor that restructures core leadership orientations. The remainder of this discussion elaborates on each of the three

dimensions presented in Table 5, grounding them in relevant theoretical and empirical literature.

Extensive AI users consistently emphasized attributes related to strategic vision and systems thinking—qualities commonly associated with organizational-level leadership. Zaccaro (2004) identifies these as critical for leaders who operate within complex structures and aim to align systems with dynamic environments. Similarly, Nadkarni and Prügl (2021) argue that digital transformation requires leaders to act not only as visionaries but also as architects of system-wide change.

This perspective aligns with findings in digital leadership research, which show that high-AI leaders often redefine their roles to include process redesign, technological foresight, and platform thinking (Wang et al., 2018; Li et al., 2023). Their leadership identity becomes intertwined with socio-technical systems, diverging from traditional, team-centric management models.

In contrast, limited AI users emphasized interpersonal connection and empathy—attributes that are particularly salient at the team level. These findings reflect the values of authentic leadership (Walumbwa et al., 2008) and servant leadership (Greenleaf, 1977), both of which prioritize relational integrity, trust-building, and moral guidance in everyday organizational life.

This divergence suggests that AI adoption is not only a matter of technological competence or openness, but also of leadership identity—whether one sees themselves as a systemic coordinator or as an interpersonal guide.

A second key difference lies in leadership behaviors. Extensive AI users exhibited behaviors aligned with task-focused leadership, such as designing AI-supported processes, promoting AI awareness among colleagues, and experimenting with AI-based solutions. These behaviors echo the task structure and performance focus of transactional leadership (Bass & Avolio, 1994), as well as the innovation emphasis found in transformational leadership, particularly in navigating disruptive change (Li et al., 2023).

They are also consistent with the concept of digital ambidexterity in leadership, which refers to the ability to balance the exploitation of existing processes with the exploration of new digital capabilities (Tschang & Almirall, 2023). Leaders in this group perceive themselves not merely as decision-makers, but as architects of digital transformation.

By contrast, limited AI users emphasized mentoring, trust-building, and emotional support—characteristics aligned with people-focused leadership models. This orientation prioritizes the emotional and ethical well-being of team members and places greater value on human connection than on system optimization (Uhl-Bien, 2006; Brown & Treviño, 2006). Several participants highlighted the importance of presence, intuition, and deep listening. These findings suggest that AI exposure is associated with a shift in behavioral priorities: from managing people as the core of work to managing processes in which people and AI collaborate.

The third point of divergence concerns how leaders conceptualize AI itself within the leadership environment. Extensive AI users viewed generative AI as a functional collaborator—a tool for automating routine leadership tasks that allows the human leader to focus on strategy, alignment, and foresight.

This view aligns with Huang and Rust's (2021) AI-as-colleague model, which positions AI not merely as a tool, but as a semi-autonomous partner in knowledge work. It also supports Schafheile et al.'s (2021) "two-leader model," in which AI handles operational tasks while human leaders provide ethical judgment, empathy, and oversight.

In contrast, limited AI users described AI as a support tool or assistant. They saw it as helpful for specific tasks but not suitable for decision-making or complex judgment. This view aligns with Kahneman et al. (2021), who argue that AI excels at "thinking fast," while

humans remain superior at “thinking slow.”

For extensive users, delegating responsibilities to AI signals a natural evolution of leadership. For limited users, however, such delegation represents a boundary that must not be crossed, as it threatens the emotional and ethical dimensions of leadership. These contrasting perspectives echo prior concerns raised by Dinh et al. (2020), who warned that AI may fundamentally redefine leadership if not carefully balanced with human-centered values.

CONTRIBUTIONS, LIMITATIONS AND FUTURE STUDIES

Overall, this study offers several contributions to leadership theory in the context of generative AI. First, it extends traditional trait and behavioral leadership models by demonstrating how new attributes are emerging as essential in AI-intensive environments. These findings build upon the work of Zaccaro (2004) by showing that evolving contexts such as AI integration require an expansion of the leadership competency framework beyond interpersonal skills and classical traits. As Nadkarni and Prügl (2021) argue, digital transformation demands that leaders function as system navigators who can align complex technological and organizational variables. This study supports that argument empirically by illustrating how extensive AI users tend to frame their roles in precisely those terms.

Second, the research contributes to level-based leadership models by emphasizing the distinction between group-level and organizational-level leadership orientations. While group-level leadership has long been studied in terms of relational dynamics and trust-building (e.g., Walumbwa et al., 2008; Uhl-Bien, 2006), this study shows how exposure to generative AI may lead some leaders to adopt a more systems-level identity. This vertical scaling of leadership identity reveals a nuanced way in which technology may shape not only what leaders do, but also how broadly they perceive the scope of their leadership.

Third, the findings provide evidence of a growing divergence in leadership identities driven by AI exposure. This bifurcation supports the conceptual warning issued by Schafheile et al. (2021), who suggest that AI may lead to the emergence of entirely new leadership archetypes. The present study reinforces this concern and indicates that this divergence is already taking shape in practice.

Finally, the research helps bridge the gap between AI theory and leadership studies. AI is not merely an external tool to be managed by leaders, but a co-defining force. As Tschang and Almirall (2023) and Brynjolfsson and McAfee (2014) argue, the second wave of AI adoption is not only about automating tasks, but also about reconfiguring authority, responsibility, and even personal identity within the workplace. This study makes that conceptual insight tangible in real-world leadership discourse.

The study’s findings also carry direct implications for leadership development, talent management, and organizational design. First, they suggest that leadership training should be contextually adaptive—tailored to whether leaders operate in high- or low-AI adoption environments. In contexts where generative AI is integrated into daily operations, training programs should emphasize strategic thinking with AI, cross-functional collaboration, systems design, and ethical decision-making involving intelligent machines. Leaders in these environments must be capable of guiding both people and technologies effectively, ensuring not only performance but also legitimacy and trust in automated decisions.

Conversely, in organizations where AI is less central or cautiously adopted, training efforts should focus on strengthening emotional intelligence, ethical leadership, and relational communication. These leaders play a crucial role in maintaining human connection and morale, especially in settings where AI may be viewed with skepticism or fear. Such people-centered skills are essential counterbalances to impersonal or overly rational work systems.

Second, organizations must reconsider how they evaluate leadership effectiveness.

Traditional metrics may fail to capture the added complexity of AI-integrated environments. HR departments and executive teams should therefore adopt dual evaluation criteria—one focused on human-centric outcomes, and another on AI-enabled innovation and operational impact.

Finally, the findings suggest that organizational cultures should be more explicit about their philosophical stance toward AI—whether it is viewed as a supportive tool or as a central component of the team's work. Clarifying this stance can reduce confusion and help align leadership styles with organizational strategy.

As with all qualitative research, this study has limitations that must be acknowledged. The sample size—six participants—was intentionally small and not statistically representative. While this allowed for in-depth, comparative insights, the findings should be interpreted as exploratory rather than definitive. Additionally, participants were drawn from only three countries, which, while diverse, may not reflect leadership dynamics in other cultural, political, or technological contexts.

Another limitation is the study's cross-sectional design. Interviews were conducted at a single point in time, during the early stages of generative AI adoption. Given the rapid pace of AI integration and the evolution of leadership responses, this study captures only a snapshot of a much longer transformation. Longitudinal research will be critical to tracking how these leadership orientations evolve over time.

Future research should also explore sector-specific differences, as AI may be adopted and interpreted differently across industries such as healthcare, education, manufacturing, or finance. Additionally, quantitative studies could be conducted to validate the typology proposed here by surveying larger and more diverse leadership populations.

REFERENCES

- AIport. (2024, March 7). The first truly global generative AI landscape 2024. AIport Blog.
- Avolio, B. J., & Kahai, S. (2003). Adding the "E" to E-leadership: How it may impact your leadership. *Organizational Dynamics*, 31(4), 325–338. [https://doi.org/10.1016/S0090-2616\(02\)00133-X](https://doi.org/10.1016/S0090-2616(02)00133-X)
- Antonakis, J., & Day, D. V. (Eds.). (2017). *The nature of leadership*. Sage publications.
- Banks, G. C., Dionne, S. D., Mast, M. S., & Sayama, H. (2022). Leadership in the digital era: A review of who, what, when, where, and why. *The Leadership Quarterly*, 33(5), Article 101634. <https://doi.org/10.1016/j.leaqua.2022.101634>
- Bankins, S., Ocampo, A. C., Marrone, M., Restubog, S. L. D., & Woo, S. E. (2024). A multilevel review of artificial intelligence in organizations: Implications for organizational behavior research and practice. *Journal of Organizational Behavior*, 45(2), 159–182. <https://doi.org/10.1002/job.2586>
- Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Sage Publications.
- Bennis, W., & Thomas, R. J. (2002). *Geeks and geezers: How era, values, and defining moments shape leaders*. Harvard Business School Press
- Braf, E., & Melin, U. (2020). Leadership in a digital era – Is "digital leadership" a buzzword or a significant phenomenon? Proceedings of the 11th Scandinavian Conference on Information Systems. <https://aisel.aisnet.org/scis2020/8>
- Break, D. (2023, August 15). AI-powered investment platform becomes first non-human financial advisor regulated by SEC. Fox Business. <https://www.foxbusiness.com/technology/ai-powered-investment-platform-first-non-human-financial-advisor-regulated-sec>

Brown, M. E., & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly*, 17(6), 595–616. <https://doi.org/10.1016/j.leaqua.2006.10.004>

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W.W. Norton & Company.

Cardon, P., Fleischmann, C., Logemann, M., Heidewald, J., Aritz, J., & Swartz, S. (2023). Competencies needed by business professionals in the AI age: Character and communication lead the way. *Business and Professional Communication Quarterly*, 86(1), 7–34. <https://doi.org/10.1177/23294906231208166>

Carton, A. M. (2022). The science of leadership: A theoretical model and research agenda. *Annual Review of Organizational Psychology and Organizational Behavior*, 9, 61–93. <https://doi.org/10.1146/annurev-orgpsych-012420-091227>

Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human Resource Management Review*, 33(1), Article 100899. <https://doi.org/10.1016/j.hrmr.2022.100899>

Chowdhury, S., Budhwar, P., & Wood, G. (2024). Generative artificial intelligence in business: Towards a strategic human resource management framework. *British Journal of Management*, 35(4), 1680–1691. <https://doi.org/10.1111/1467-8551.12824>

Clark, C. M., & Harrison, C. (2018). Leadership: The complexities and state of the field. *European Business Review*, 30(5), 514–528. <https://doi.org/10.1108/EBR-07-2017-0139>

Dencik, J., Goehring, B., & Marshall, A. (2023). Managing the emerging role of generative AI in next-generation business. *Strategy & Leadership*, 51(6), 30–36. <https://doi.org/10.1108/SL-08-2023-0079>

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *The Leadership Quarterly*, 25(1), 36–62. <https://doi.org/10.1016/j.leaqua.2013.11.005>

Dutta, D., & Mishra, S. K. (2021). Chatting with the CEO's virtual assistant: Impact on climate for trust, fairness, employee satisfaction, and engagement. *AIS Transactions on Human-Computer Interaction*, 13(4), 431–452. <https://doi.org/10.17705/1thci.00156>

Flick, U. (Ed.). (2014). *The SAGE handbook of qualitative data analysis*. SAGE Publications. <https://doi.org/10.4135/9781446282243>

Sobral, F., & Furtado, L. (2019). Post-heroic leadership: Current trends and challenges in leadership education. *Revista de administração de empresas*, 59, 209–214.

Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.

Hassan, N., Sumardi, N. A., & Abdul Aziz, R. (2019). The influence of personality traits on communication competence. *International Journal of Academic Research in Business and Social Sciences*, 9(13), 493–505. <https://doi.org/10.6007/ijarbss/v9-i13/6999>

HBR IdeaCast. (2023, May 10). How generative AI changes organizational culture [Audio podcast episode]. In HBR IdeaCast. Harvard Business Review. <https://hbr.org/podcast/2023/05/how-generative-ai-changes-organizational-culture>

Hossain, S., Fernando, M., & Akter, S. (2025). Digital leadership: Towards a dynamic managerial capability perspective of artificial intelligence-driven leader capabilities. *Journal of Leadership & Organizational Studies*, 32(2), 189–208.

Huang, M.-H., & Rust, R. T. (2021). Artificial intelligence in service. *Journal of Service Research*, 24(1), 3–20. <https://doi.org/10.1177/1094670520902266>

Kapur, R. (2018). *Ethical leadership*. University of Delhi.

Kahneman, D., Sibony, O., & Sunstein, C. R. (2021). *Noise: A flaw in human judgment*. Little, Brown Spark.

- Leonard, K., Martin, K., & Watts, R. (2024, January 15). The best virtual assistant services of 2024. *Forbes Advisor*. <https://www.forbes.com/advisor/business/best-virtual-assistant-services/>
- Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157. <https://doi.org/10.1111/isj.12153>
- Kohnová, L., & Salajová, N. (2019). Industrial revolutions and their impact on managerial practice: Learning from the past. *Problems and Perspectives in Management*, 17(2), 462–478. [https://doi.org/10.21511/ppm.17\(2\).2019.36](https://doi.org/10.21511/ppm.17(2).2019.36)
- Korejan, M. M., & Shahbazi, H. (2016). An analysis of the transformational leadership theory. *Journal of Fundamental and Applied Sciences*, 8(3S), 452–461. <https://doi.org/10.4314/jfas.v8i3s.192>
- Larson, L., & DeChurch, L. A. (2020). Leading teams in the digital age: Four perspectives on technology and what they mean for leading teams. *The Leadership Quarterly*, 31(1), Article 101377. <https://doi.org/10.1016/j.leaqua.2019.101377>
- Larsson, M., Segerstéen, S., & Svensson, C. (2011). Information and informality: Leaders as knowledge brokers in a high-tech firm. *Journal of Leadership & Organizational Studies*, 18(2), 175–191. <https://doi.org/10.1177/1548051810390048>
- Mayer, H., Yee, L., Chui, M., & Roberts, R. (2025). Superagency in the workplace: Empowering people to unlock AI's full potential. McKinsey & Company. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/gen-ai-a-cognitive-industrial-revolution>
- Mitcham, C. (2005). Management. In C. Mitcham (Ed.), *Encyclopedia of science, technology, and ethics* (Vol. 3, pp. 1125–1128). Macmillan Reference USA.
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly*, 71, 233–341. <https://doi.org/10.1007/s11301-020-00185-7>
- Pereira, V., Hadjielias, E., Christofi, M., & Vrontis, D. (2023). A systematic literature review on the impact of artificial intelligence on workplace outcomes: A multi-process perspective. *Human Resource Management Review*, 33(1), Article 100857. <https://doi.org/10.1016/j.hrmr.2021.100857>
- van Quaquebeke, N., & Gerpott, F. H. (2023). The now, new, and next of digital leadership: How artificial intelligence (AI) will take over and change leadership as we know it. *Journal of Leadership & Organizational Studies*, 30(3), 265–275. <https://doi.org/10.1177/154805182311181731>
- Schafheitle, S., Weibel, A., & Rickert, A. (2021). The Bermuda Triangle of leadership in the AI era? Emerging trust implications from “two-leader situations” in the eyes of employees. In *Proceedings of the 54th Hawaii International Conference on System Sciences* (pp. 6612–6621). <https://doi.org/10.24251/HICSS.2021.665>
- Shrestha, Y. R., Ben-Menahem, S. M., & von Krogh, G. (2019). Organizational decision-making structures in the age of artificial intelligence. *California Management Review*, 61(4), 66–83. <https://doi.org/10.1177/0008125619862257>
- Škerlavaj, M. (2020). New normal, new leaders? Time for resilience and post-heroic leadership. In P. Domadenik, M. Koman, & T. Redek (Eds.), *The virus aftermath: A socio-economic twist?* (pp. 347–362). Časnik Finance
- Tavares, G. M., Sobral, F., Goldszmidt, R., & Araújo, F. (2018). Opening the implicit leadership theories' black box: An experimental approach with conjoint analysis. *Frontiers in Psychology*, 9, Article 100. <https://doi.org/10.3389/fpsyg.2018.00100>
- Tschang, F. T., & Almirall, E. (2023). Artificial intelligence as augmenting automation:

- Implications for employment. *Academy of Management Perspectives*, 37(1), 123–139. <https://doi.org/10.5465/amp.2019.0069>
- Uhl-Bien, M. (2006). Relational leadership theory: Exploring the social processes of leadership and organizing. *The Leadership Quarterly*, 17(6), 654–676. <https://doi.org/10.1016/j.leaqua.2006.10.007>
- Van der Ven, H., Corry, D., Elnur, R., Provost, V. J., & Syukron, M. (2024). Generative AI and social media may exacerbate the climate crisis. *Global Environmental Politics*, 24(2), 9–18. https://doi.org/10.1162/glep_a_00747
- Ver Meer, D. (2024). Number of ChatGPT users and key stats. NamePepper. <https://namepepper.com/number-of-chatgpt-users-and-key-stats/>
- Vrontis, D., Chaudhuri, R., & Chatterjee, S. (2023). Role of ChatGPT and skilled workers for business sustainability: Leadership motivation as the moderator. *Sustainability*, 15(16), Article 12196. <https://doi.org/10.3390/su151612196>
- Wang, Y., Kung, L., & Byrd, T. A. (2018). Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations. *Technological Forecasting and Social Change*, 126, 3–13. <https://doi.org/10.1016/j.techfore.2016.02.004>
- Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management*, 34(1), 89–126. <https://doi.org/10.1177/0149206307308913>
- Williams, V., Boylan, A.-M., & Nunan, D. (2019). Critical appraisal of qualitative research: Necessity, partialities, and the issue of bias. *BMJ Evidence-Based Medicine*, 25(1), 9–11. <https://doi.org/10.1136/bmjebm-2018-111132>
- Wilson, H. J., & Daugherty, P. R. (2024, September–October). Embracing Gen AI at work. *Harvard Business Review*. <https://hbr.org/2024/09/embracing-gen-ai-at-work>
- Xi, Z., Chen, W., Guo, X., He, W., Ding, Y., Hong, B., Zhang, M., Wang, J., Jin, S., Zhou, E., Zheng, R., Fan, X., Wang, X., Xiong, L., Liu, Q., Zhou, Y., Wang, W., Jiang, C., Zou, Y., Liu, X., Yin, Z., Dou, S., Weng, R., Cheng, W., Zhang, Q., Qin, W., Zheng, Y., Qiu, X., Huan, X., & Gui, T. (2023). The rise and potential of large language model-based agents: A survey. arXiv. <https://arxiv.org/abs/2309.07864>
- Yammarino, F. J. (2013). Leadership: Past, present, and future. *Journal of Leadership & Organizational Studies*, 20(2), 149–155. <https://doi.org/10.1177/1548051812471559>
- Zaccaro, S. J., Kemp, C., & Bader, P. (2004). Leader traits and attributes. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 101–124). SAGE Publications.

APPENDICES

Interview guide for non-users of generative AI Respondent profile

General Question

Could you tell me a bit about your background, age, education, current role, and industry?

Questions related to defining the traits of leaders who do not use generative AI.

What qualities do you value most in yourself as a leader? How do these traits help you navigate your work without relying on AI?

Can you explain your reasons for not using AI? Are there specific concerns or experiences that have influenced your decision?

How do you keep up with technological changes without adopting AI? Do you feel that not using AI affects your ability to adapt or stay competitive in your field?

Have you encountered any challenges in leading or managing teams in environments where AI is increasingly prevalent? How do you manage them?

Questions related to defining the behaviors of leaders who do not use generative AI.

What specific behaviors do you think make you successful as a leader? How do these behaviors help you navigate the challenges of working in an AI-driven world?

From your observations, how do the behaviors of leaders who don't use AI differ from those who do? What impact do these behaviors have on teams or decision-making?

How do you approach communication and setting goals with your team when AI is not part of your decision-making process? Have you found any methods to be more effective without AI?

How do you help your team members grow and adapt in a world increasingly influenced by AI, even if you are not using it directly? How do you ensure your team remains competitive and innovative?

Without the use of AI, how do you assess the growth and performance of your team? Have you had to adapt your expectations or mentoring style to help your team succeed?

Questions related to understanding current and future use of generative AI by leaders.

What do you think the future of leadership looks like with the increasing integration of AI? Do you believe leaders must adopt AI in the future, or do you see an alternative path? How do you think generative AI might change the leadership landscape over the next 10-20 years? Do you foresee a future where AI becomes unavoidable for leaders, or do you think there will always be space for non-AI-driven leadership?

In complex or uncertain situations, how do you think leaders who don't use AI will continue to guide their teams? What strategies or approaches will they need to stay effective in an AI-driven world?

What concerns or opportunities do you associate with AI in leadership? Do you think your choice to avoid AI presents any unique opportunities or challenges for your leadership style?

Interview guide for users of generative AI Respondent profile

General Question

Can you tell me a bit about your background? Your age, education, current position, industry, and how do you incorporate generative AI into your work?

Questions related to defining the traits of leaders who use generative AI

What qualities do you value in yourself as a leader, especially in today's evolving landscape with generative AI?

How do you think the use of generative AI has influenced the way leaders approach their roles? What has changed the most in your experience?

In what ways have you had to adapt as a leader since generative AI became a key part of your work or industry?

What new challenges or opportunities do you think generative AI presents for leadership, especially in terms of team dynamics or decision-making?

Questions related to defining the behaviors of leaders who use generative AI.

How would you describe the behaviors of leaders who effectively use generative AI?

How do these behaviors differ from those who are less reliant on AI?

Could you share how you manage or oversee teams where both human and AI outputs play a role in the decision-making process?

How do you approach communication and setting goals when you have AI as part of your decision-making toolkit?

In what ways do you help your team members grow and adapt to working alongside AI systems?

How has the way you assess your team's growth and performance changed with the integration of generative AI? Has it impacted your expectations or the way you mentor others?

Questions related to understanding current and future use of generative AI by leaders.

How do you see the role of leadership evolving with the growing use of generative AI? What might leadership look like shortly?

How do you think generative AI will change the way leaders guide their teams through complex or uncertain situations?

What are some everyday leadership tasks you foresee being automated by generative AI?

How might that change the way leaders operate?

Are there areas or tasks where you believe the use of AI might not be appropriate or effective? How do you think leaders need to manage these situations?