

Leadership for Sustainable Management Systems: A Qualitative Study of ESG-Oriented Organizational Change

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Citation: Safari, R., Jalali, F., & Ebrahimi, O. (2025). Leadership for Sustainable Management Systems: A Qualitative Study of ESG-Oriented Organizational Change. *Multidisciplinary Engineering Science Open*, 2, 1-14.

Abstract

This study aimed to explore how organizational leaders support ESG-oriented change by embedding sustainability principles into management systems, decision routines, stakeholder relations, and organizational culture. This qualitative study employed an exploratory thematic design based on semi-structured interviews with 22 managers, executives, sustainability officers, and organizational development specialists working in Tehran-based firms undergoing ESG-oriented organizational change. Participants were selected through purposive sampling according to direct experience with sustainability, ESG implementation, governance reform, environmental initiatives, social responsibility programs, or management-system redesign. Interviews lasted between 45 and 75 minutes and continued until theoretical saturation was achieved. Audio-recorded interviews were transcribed verbatim and analyzed using inductive thematic analysis. NVivo software was used to organize transcripts, code textual data, compare emerging categories, and support systematic theme development. Trustworthiness was strengthened through member checking, peer review of codes, reflexive memo writing, and maintenance of an audit trail. Five main categories were identified: strategic translation of ESG into organizational purpose, embedding sustainability accountability into management systems, stakeholder-oriented sensemaking and participation, development of ESG-related capabilities and data infrastructures, and leadership navigation of tensions, resistance, and authenticity gaps. Participants emphasized that ESG-oriented change was most effective when leaders moved sustainability beyond symbolic reporting and linked it to strategy, performance indicators, operational routines, employee participation, and long-term risk management. The findings suggest that leadership for sustainable management systems requires a combination of strategic vision, ethical accountability, systems thinking, stakeholder engagement, and disciplined implementation. ESG-oriented change becomes organizationally meaningful when leaders convert sustainability commitments into everyday managerial practices, measurable responsibilities, learning mechanisms, and participatory cultures. The study contributes to sustainability leadership and organizational change literature by explaining how ESG becomes embedded in management systems rather than remaining a peripheral compliance agenda.

Keywords: Sustainable leadership; ESG; organizational change; management systems; qualitative research; sustainability

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1. Introduction

Digital transformation has become one of the most significant organizational phenomena of the contemporary business environment. Firms increasingly rely on digital technologies such as cloud computing, analytics, artificial intelligence, platform architectures, mobile systems, automation tools, and integrated enterprise software to redesign operations, business models, customer relationships, and decision-making processes. However, the growing availability of digital technologies has also revealed an important managerial paradox: technology investment alone does not guarantee organizational maturity. Many firms adopt digital tools without developing the strategic, cultural, structural, and behavioral conditions required to use those tools effectively. Therefore, digital organizational maturity should be understood not simply as the possession of advanced technologies, but as the extent to which digital capabilities are embedded in strategy, culture, processes, people, governance, and value creation practices.

Digital transformation literature increasingly distinguishes between digitization, digitalization, and digital transformation. Digitization refers to converting analog information into digital form, while digitalization involves using digital technologies to improve existing processes. Digital transformation represents a more comprehensive shift in organizational logic, value creation, and business model configuration (Verhoef et al., 2021). Vial (2019) similarly conceptualized digital transformation as a process through which digital technologies trigger strategic responses and organizational changes that alter value creation pathways. This distinction is important because many organizations describe themselves as digitally transformed after adopting technological systems, while their leadership routines, decision processes, employee capabilities, and organizational culture remain largely unchanged. Digital maturity therefore refers to a deeper organizational condition in which digital technologies are meaningfully integrated into how the organization thinks, learns, coordinates, decides, innovates, and competes.

The concept of digital maturity has gained prominence because it captures the developmental nature of digital transformation. Rather than treating transformation as a one-time project, maturity models emphasize progressive stages through which organizations develop digital strategy, customer orientation, data capabilities, agile structures, innovation practices, governance systems, and cultural readiness. Berghaus and Back (2016), for example, showed that digital maturity can be understood through multiple organizational dimensions rather than a single technological index. Similarly, Kane et al. (2015, 2017) argued that digitally maturing organizations are distinguished less by specific technologies than by strategy, leadership, talent development, experimentation, and cultural adaptability. This line of research suggests that organizational maturity depends on the alignment between digital tools and organizational behaviors. In this sense, the central question is not whether firms



possess digital technologies, but whether they have developed the leadership behaviors and organizational routines required to use them productively.

Leadership is particularly important in digital maturity because digital transformation challenges established assumptions about authority, coordination, expertise, control, and learning. Traditional leadership approaches often rely on hierarchical planning, centralized decision-making, and stable performance indicators. Digital environments, by contrast, require rapid sensing, iterative learning, cross-functional collaboration, decentralized problem-solving, and continuous adaptation. Bharadwaj et al. (2013) argued that digital business strategy reflects a fusion between information technology strategy and business strategy, implying that digital leadership must integrate technological understanding with strategic and organizational judgment. Similarly, Nambisan et al. (2017) emphasized that digital innovation changes the locus and distribution of innovation agency, making collaboration, openness, and distributed expertise more central to innovation management. These arguments indicate that leadership in digitally maturing firms is not limited to top-down technology sponsorship; it involves creating the conditions under which digital resources can be converted into organizational learning, innovation, and strategic renewal.

Digital organizational maturity also depends on dynamic capabilities. Dynamic capability theory explains how organizations sense opportunities and threats, seize opportunities, and reconfigure resources in changing environments (Teece, 2007). Digital transformation intensifies the need for such capabilities because firms must continuously interpret technological change, experiment with new solutions, redesign processes, and reconfigure business models. Warner and Wäger (2019), in their qualitative study of digital transformation, showed that organizations build dynamic capabilities through strategic renewal processes involving digital sensing, digital seizing, and digital transforming. This perspective highlights the behavioral role of leaders: leaders must help organizations notice technological opportunities, allocate resources to promising initiatives, coordinate experimentation, remove structural obstacles, and institutionalize new digital routines. Therefore, digital maturity is not simply an outcome of technical capability; it is the result of repeated leadership behaviors that make adaptation possible.

A further body of literature emphasizes the role of digital leadership, organizational agility, and digital culture. Digital leadership refers to leadership behaviors that enable organizations to define digital vision, mobilize digital capabilities, support innovation, promote collaboration, and guide technology-enabled change. AlNuaimi et al. (2022) found that digital transformational leadership and organizational agility positively influence digital transformation, while digital strategy strengthens the transformation process. Uhl-Bien and Arena (2018) argued that leadership for adaptability requires enabling adaptive processes, creating space for ideas, and helping innovations scale into the operational system. These perspectives are highly relevant to digital maturity because they suggest that leaders must

balance exploration and exploitation: they must encourage experimentation while ensuring that successful digital practices become stable organizational routines.

Despite the growing literature on digital transformation, several gaps remain. First, many studies examine digital maturity through quantitative surveys or maturity models, but fewer studies explore how managers and leaders experience and enact the behaviors that support maturity in everyday organizational life. Second, much of the existing literature focuses on large firms or Western contexts, while less is known about leadership behaviors in technology-driven firms in emerging or transitional business environments. Third, digital transformation research often emphasizes strategy, technology, or capabilities, but the behavioral micro-processes through which leaders create digital maturity require deeper qualitative exploration. These gaps are significant because digital maturity develops through daily leadership practices: how leaders frame digital change, respond to uncertainty, encourage data use, tolerate failure, support learning, coordinate teams, and govern digital initiatives.

Technology-driven firms provide an appropriate context for studying leadership and digital maturity because they operate in environments where digital technologies are not merely support tools but central elements of value creation. Such firms often depend on platform-based operations, digital products, analytics, software development, online customer interfaces, and rapid innovation cycles. However, even technology-driven firms may differ substantially in maturity. Some firms may possess strong technical talent but weak strategic alignment; others may develop sophisticated data systems but lack cross-functional collaboration; still others may experiment actively but fail to scale learning into stable routines. Therefore, studying leadership behaviors in technology-driven firms can reveal how digital maturity is actively constructed rather than passively acquired.

In the Tehran business context, technology-driven firms have grown in areas such as fintech, e-commerce, software services, digital marketing, health technology, logistics platforms, online education, and enterprise technology solutions. These firms face intense competitive pressure, regulatory uncertainty, talent retention challenges, infrastructure constraints, and fast-changing customer expectations. Such conditions make leadership behavior especially important. Leaders must not only adopt digital technologies but also create interpretive clarity, organizational confidence, adaptive capacity, and disciplined execution. A qualitative study can capture these lived managerial experiences more effectively than purely quantitative measurement because it allows participants to describe how leadership behaviors shape digital work, collaboration, learning, and maturity in practice.

Accordingly, the aim of this study was to explore the leadership behaviors that support digital organizational maturity in technology-driven firms in Tehran.

2. Methods and Materials

This study used a qualitative research design to explore how leadership behaviors support digital organizational maturity in technology-driven firms. A qualitative approach was appropriate because the study aimed to understand participants' experiences, meanings,



interpretations, and practical accounts of leadership behavior in digital transformation contexts. Rather than measuring predetermined variables, the study sought to identify behavioral categories emerging from the narratives of managers and professionals directly involved in digital initiatives.

Participants were selected through purposive sampling. Inclusion criteria were: having at least three years of professional experience in a technology-driven firm, direct involvement in digital transformation or digital maturity initiatives, and experience working with or observing leadership practices related to technology-enabled change. Participants were recruited from technology-driven firms located in Tehran, including fintech companies, software-as-a-service firms, e-commerce platforms, digital marketing companies, health technology firms, logistics platforms, online education providers, and enterprise technology service organizations.

A total of 24 participants took part in the study. The sample included senior executives, middle managers, product managers, technology leads, digital transformation managers, human resource managers, and data/analytics managers. The number of participants was determined based on theoretical saturation. Saturation was reached after the twenty-first interview, when no substantially new categories emerged from the data. Three additional interviews were conducted to confirm the stability and completeness of the categories.

Data were collected using semi-structured interviews. Semi-structured interviews were selected because they allow the researcher to maintain focus on the research objectives while giving participants enough flexibility to describe their experiences in depth. The interview guide was developed based on previous literature on digital transformation, digital maturity, digital leadership, organizational agility, and dynamic capabilities. The guide included open-ended questions such as: “How do leaders in your organization support digital maturity?”, “What leadership behaviors help digital initiatives become part of everyday organizational routines?”, “How do leaders encourage or limit experimentation with digital technologies?”, “How are data and digital tools used in decision-making?”, and “What behaviors distinguish leaders in more digitally mature organizations?”

Interviews lasted between 45 and 75 minutes. All interviews were conducted in a private and convenient setting, either in person or through secure online meeting platforms, depending on participant availability. With participant consent, interviews were audio-recorded and transcribed verbatim. Field notes were written after each interview to capture contextual observations, initial analytic impressions, and emerging patterns. Data collection continued until theoretical saturation was achieved.

Data were analyzed using thematic analysis. Thematic analysis was appropriate because it provides a flexible and systematic method for identifying, analyzing, and reporting patterns within qualitative data (Braun & Clarke, 2006). The analysis followed six recursive phases: familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. NVivo software was

used to organize transcripts, manage codes, compare categories, retrieve quotations, and support transparency in the analytic process.

The first stage involved repeated reading of transcripts to develop familiarity with the data. In the second stage, meaningful units related to leadership behavior and digital maturity were coded. Codes included examples such as “connecting technology to strategy,” “protecting experimentation,” “using data in meetings,” “reducing fear of failure,” “developing digital skills,” “breaking departmental silos,” “scaling successful pilots,” and “clarifying digital accountability.” In the third stage, codes were compared and clustered into broader categories. In the fourth stage, emerging categories were reviewed against the original transcripts to ensure that they accurately reflected participant accounts. In the fifth stage, final categories were named and defined. The analysis produced four main categories: strategic digital sensegiving, empowerment of experimentation and cross-functional collaboration, human-centered digital capability development, and governance-oriented institutionalization of digital routines.

To enhance trustworthiness, several strategies were used. Credibility was supported through prolonged engagement with the data, participant diversity, and member checking with selected participants. Dependability was strengthened through maintaining an audit trail of coding decisions, category development, and analytic memos. Confirmability was addressed through reflexive memo-writing and peer review of selected coded transcripts. Transferability was supported by providing detailed descriptions of the study context, participant characteristics, and organizational settings. These procedures were consistent with qualitative trustworthiness criteria proposed by Lincoln and Guba (1985).

Participation was voluntary, and all participants received information about the purpose of the study, the interview process, confidentiality, and their right to withdraw at any stage. Written informed consent was obtained before each interview. Identifying information about participants and organizations was removed from transcripts, and participants were assigned codes such as P1, P2, and P3. Audio files and transcripts were stored securely and accessed only by the research team.

3. Findings

The study included 24 participants from technology-driven firms in Tehran. Fourteen participants were male and ten were female. Participants' ages ranged from 28 to 52 years. Six participants were between 28 and 34 years old, nine were between 35 and 41 years old, six were between 42 and 48 years old, and three were older than 48 years. Regarding educational level, four participants held bachelor's degrees, sixteen held master's degrees, and four held doctoral degrees. In terms of organizational role, five participants were senior executives, six were middle managers, four were product managers, three were technology team leads, three were digital transformation managers, two were human resource or talent development managers, and one was a data analytics manager. Participants' work experience ranged from 5 to 24 years, with an average professional experience of approximately 11.8



years. The firms represented in the sample included fintech companies ($n = 5$), software-as-a-service firms ($n = 4$), e-commerce platforms ($n = 4$), digital marketing firms ($n = 3$), health technology firms ($n = 3$), logistics platform companies ($n = 2$), online education firms ($n = 2$), and enterprise technology service providers ($n = 1$).

The first main category was strategic digital sensegiving. Participants explained that leaders supported digital maturity when they translated digital transformation from a vague technological slogan into a clear organizational direction. In less mature firms, digital initiatives were often described as isolated projects, software purchases, or responses to competitors. In more mature firms, leaders connected digital tools to strategic priorities such as customer experience, operational speed, scalability, data-informed decision-making, and business model renewal. Participants emphasized that employees were more willing to adopt digital routines when leaders explained why digital change mattered and how it was connected to organizational survival and growth. One senior executive stated, “When our CEO talks about digital transformation, he does not start with software. He starts with the customer problem and then explains how technology helps us solve it faster” (P4). Another participant noted, “Before, every department had its own digital project. Now leadership has created a shared roadmap, so people understand which projects matter and which ones are only noise” (P11). This category included subcategories such as communicating a digital vision, linking technology to business value, prioritizing digital initiatives, and creating shared language around maturity.

The second category was empowerment of experimentation and cross-functional collaboration. Participants repeatedly described digital maturity as a learning process that required leaders to create space for testing, iteration, and collaboration across departments. In their view, digitally mature firms did not punish every failed experiment; instead, leaders asked what had been learned, whether the assumptions were valid, and how the next iteration should be designed. This behavior reduced fear and encouraged teams to explore new tools, product features, automation opportunities, and customer solutions. Participants also emphasized that digital maturity depended on collaboration among technology, marketing, operations, product, finance, and customer service teams. A product manager explained, “The leader who helped us most was not the one who gave technical answers. It was the one who forced product, tech, and sales to sit together and test the idea with real users” (P8). A technology lead stated, “In immature companies, failure becomes a person’s fault. In mature companies, failure becomes data. That difference comes from leadership behavior” (P17). This category included subcategories such as encouraging pilots, protecting intelligent failure, supporting agile teams, reducing departmental silos, and promoting user-centered experimentation.

The third category was human-centered digital capability development. Participants argued that digital maturity required leaders to invest in people, not only platforms. Several participants noted that employees often resisted digital transformation not because they

opposed technology, but because they lacked confidence, training, time, or psychological safety. Leaders supported maturity when they created opportunities for digital skill development, encouraged peer learning, recognized learning effort, and avoided humiliating employees who were slower to adapt. A human resource manager commented, “The biggest mistake is assuming that because employees use smartphones, they are digitally ready for organizational transformation. Digital maturity needs structured learning” (P19). Another participant explained, “Our director always says, ‘No one should feel stupid because they ask a basic data question.’ That sentence changed the atmosphere in meetings” (P6). This category included subcategories such as digital literacy development, psychological safety, coaching-oriented leadership, learning routines, and talent retention. Participants emphasized that human-centered leadership transformed digital maturity from a technical agenda into a collective capability.

The fourth category was governance-oriented institutionalization of digital routines. Participants explained that experimentation alone was not sufficient for maturity. Leadership also had to create governance mechanisms through which successful digital practices became repeatable, measurable, ethical, and scalable. These mechanisms included data governance, accountability for digital projects, standard operating procedures, cybersecurity awareness, platform integration, performance dashboards, and decision rules for scaling pilots. Participants observed that some firms had many digital experiments but weak maturity because they lacked governance and follow-through. A digital transformation manager noted, “We had many pilots, but no one knew who owned the results. Leadership maturity started when each digital initiative had an owner, a metric, and a review cycle” (P14). A data analytics manager added, “Data-driven leadership is not just asking for dashboards. It is asking whether the data is reliable, who is responsible for it, and how decisions will change because of it” (P21). This category included subcategories such as digital accountability, data governance, scaling mechanisms, ethical technology use, and integration of digital routines into organizational processes.

4. Discussion

The purpose of this study was to explore leadership behaviors that support digital organizational maturity in technology-driven firms in Tehran. The findings generated four main categories: strategic digital sensegiving, empowerment of experimentation and cross-functional collaboration, human-centered digital capability development, and governance-oriented institutionalization of digital routines. Together, these categories suggest that digital maturity is not produced by technology adoption alone. Rather, it emerges when leaders create strategic meaning, enable adaptive learning, build employee capability, and institutionalize digital practices through governance. This finding aligns with the broader digital transformation literature, which argues that digital transformation involves changes in strategy, value creation, organizational structure, and capabilities, not merely the implementation of digital technologies (Vial, 2019; Verhoef et al., 2021). It also supports Kane



et al.'s (2015, 2017) argument that digitally maturing organizations are distinguished by leadership, strategy, culture, and talent rather than by technology alone.

The first category, strategic digital sensegiving, showed that leaders support digital maturity by connecting digital initiatives to organizational purpose and strategic priorities. Participants emphasized that employees were more likely to engage with digital change when leaders explained why digital initiatives mattered, how they created customer or operational value, and how they related to the firm's competitive direction. This finding is consistent with Bharadwaj et al. (2013), who argued that digital business strategy represents the integration of IT strategy and business strategy. When leaders treat digital transformation as an IT function only, digital work remains fragmented and peripheral. However, when leaders frame digital transformation as a strategic organizational agenda, digital initiatives become connected to value creation, customer experience, and business model renewal. The finding also aligns with Westerman et al. (2014), who emphasized that successful digital transformation requires both digital capability and leadership capability. Strategic sensegiving therefore operates as a behavioral bridge between digital investment and organizational maturity. It helps employees interpret digital change not as a temporary technological project but as a coherent direction for organizational development.

The second category, empowerment of experimentation and cross-functional collaboration, indicated that digital maturity develops through iterative learning and boundary-spanning work. Participants described digitally mature leaders as those who protected intelligent experimentation, encouraged pilots, reduced fear of failure, and brought different functions into shared problem-solving processes. This finding is strongly aligned with dynamic capability theory. Teece (2007) argued that organizations must sense, seize, and reconfigure resources in changing environments. Warner and Wäger (2019) extended this logic to digital transformation by showing that digital dynamic capabilities are built through ongoing strategic renewal. In the present study, leaders enabled such renewal by legitimizing experimentation and creating collaborative structures in which technological, commercial, and operational knowledge could interact. The finding is also consistent with Nambisan et al. (2017), who argued that digital innovation expands the distribution of innovation agency. In digital contexts, innovation rarely occurs within one department; it depends on the interaction of product teams, software developers, data specialists, marketers, operations experts, and customers. Leadership behaviors that reduce silos and support cross-functional experimentation therefore appear central to digital maturity.

The third category, human-centered digital capability development, showed that leadership support for digital maturity depends on developing people's confidence, skills, and psychological safety. Participants emphasized that resistance to digital transformation often reflected uncertainty, skill gaps, fear of embarrassment, or lack of support rather than opposition to technology itself. This finding extends digital maturity literature by highlighting the emotional and developmental dimensions of digital transformation. While maturity

models often include dimensions such as technology, strategy, culture, and processes, the present findings suggest that employees' perceived safety and capability are critical mechanisms through which maturity becomes possible. This is consistent with research on digital culture, which shows that digital strategy alone is insufficient unless organizations develop digital capabilities and cultural readiness (Proksch et al., 2024). It also aligns with leadership theories emphasizing empowerment, learning, and psychological safety as conditions for innovation. In technology-driven firms, leaders must therefore act not only as strategists but also as learning architects. They must normalize skill development, create opportunities for experimentation, and ensure that employees can participate in digital transformation without fear of humiliation or exclusion.

The fourth category, governance-oriented institutionalization of digital routines, demonstrated that digital maturity requires disciplined governance as well as experimentation. Participants explained that many firms had multiple digital pilots, dashboards, software systems, and automation initiatives, but these did not necessarily produce maturity unless leadership established ownership, metrics, data reliability, ethical standards, and mechanisms for scaling. This finding supports the view that digital transformation requires changes in organizational structures, metrics, and governance systems (Verhoef et al., 2021). It also complements Uhl-Bien and Arena's (2018) argument that leadership for adaptability involves enabling innovation while helping successful innovations scale into the operational system. In the present study, governance did not mean bureaucratic control; rather, it meant creating the accountability and integration required for digital learning to become organizational capability. Leaders supported maturity when they asked who owned a digital initiative, what data would be used to evaluate it, how the learning would be transferred, and how ethical and security concerns would be managed. Thus, digital maturity requires a balance between flexibility and discipline.

An important theoretical implication of these findings is that leadership behaviors supporting digital maturity are paradoxical. Leaders must provide strategic clarity while allowing experimentation; they must empower decentralized teams while maintaining governance; they must encourage speed while protecting data quality and ethical responsibility; and they must promote technological adoption while remaining attentive to human capability and psychological safety. This paradoxical nature of digital leadership helps explain why some firms with strong technology resources remain immature. Digital maturity requires leaders who can manage tensions rather than choose one side of them. A purely control-oriented leadership approach may suppress experimentation, while a purely experimental approach may generate fragmented initiatives without organizational learning. The findings suggest that digitally mature leadership integrates direction, autonomy, learning, and governance.

Another implication concerns the distinction between technology-driven firms and digitally mature firms. The participants came from firms where technology was central to products or



services, yet their accounts showed that being technology-driven does not automatically mean being digitally mature. Some firms had advanced technical teams but weak shared vision; others had many digital tools but limited governance; others had experimentation but poor scaling. This distinction is important because it prevents digital maturity from being reduced to industry classification. A firm may operate in a technology sector and still lack maturity if leadership behaviors do not support strategic alignment, collaboration, employee development, and institutionalized digital routines. Conversely, organizations in non-technology sectors may develop digital maturity if leadership behaviors support these conditions.

The findings also have contextual significance for technology-driven firms in Tehran. Participants described leadership behaviors that helped firms operate under conditions of market uncertainty, talent competition, regulatory complexity, and rapid technological change. In such environments, digital maturity may be especially dependent on leadership because external uncertainty increases the need for internal clarity, adaptability, and coordinated learning. Leaders who provide sensemaking, protect experimentation, support capability development, and institutionalize governance can help firms avoid fragmented or reactive digitalization. Therefore, this study contributes to the literature by showing how digital maturity is behaviorally constructed in a context where technology-driven firms must continuously adapt while managing constraints.

This study has several limitations. First, the sample was limited to 24 participants from technology-driven firms in Tehran; therefore, the findings may not fully represent firms in other cities, industries, or national contexts. Second, the study relied on self-reported interview data, which may be influenced by participants' memory, role position, personal interpretation, or desire to present their organizations positively. Third, although participants represented different roles and sectors, the study did not compare firms by size, ownership structure, digital maturity level, or market segment. Fourth, because the study used a qualitative design, the findings should be interpreted as contextually grounded explanations rather than statistically generalizable results. Finally, the cross-sectional nature of the interviews limits the ability to examine how leadership behaviors and digital maturity evolve over time.

Future research can extend this study by examining leadership behaviors supporting digital maturity in different organizational and cultural contexts. Comparative studies could investigate whether similar leadership behaviors appear in non-technology industries, public organizations, manufacturing firms, or multinational companies. Longitudinal qualitative research would be especially useful for understanding how digital maturity develops over time and how leadership behaviors change across different stages of transformation. Future studies may also combine qualitative interviews with maturity assessment instruments, employee surveys, or organizational performance indicators to examine the relationship between perceived leadership behaviors and measurable maturity outcomes. In addition,

future research could explore differences between top management, middle management, and team-level leadership in supporting digital maturity.

Managers in technology-driven firms should treat digital maturity as an organizational capability rather than a technology acquisition goal. Leaders should begin by creating a clear digital narrative that connects digital initiatives to customer value, operational improvement, and strategic priorities. They should establish cross-functional teams, encourage controlled experimentation, and treat intelligent failure as a source of learning. At the same time, they should invest in employee digital literacy, coaching, psychological safety, and talent development so that people can confidently participate in digital transformation. Finally, leaders should create governance routines for data quality, project ownership, cybersecurity, ethical technology use, and scaling successful pilots. These practices can help firms move from scattered digital activity toward integrated digital maturity.

5. Conclusion

This qualitative study explored leadership behaviors supporting digital organizational maturity in technology-driven firms in Tehran. The findings showed that digital maturity is shaped through four interconnected leadership behaviors: strategic digital sensegiving, empowerment of experimentation and cross-functional collaboration, human-centered digital capability development, and governance-oriented institutionalization of digital routines. These behaviors help firms move beyond fragmented technology adoption and toward integrated digital capability. The study highlights that digitally mature leadership is not only technical, strategic, or cultural; it is an integrated behavioral pattern that combines vision, learning, empowerment, human development, and disciplined governance. Leaders who support digital maturity create meaning around digital change, enable teams to experiment and collaborate, develop people's digital confidence, and institutionalize data-informed routines. The findings contribute to digital transformation and leadership literature by identifying behavioral mechanisms through which leaders translate technology-driven activity into organizational maturity. For technology-driven firms, the practical message is clear: digital maturity depends not only on what technologies organizations adopt, but on how leaders help people, teams, and systems use those technologies to learn, coordinate, innovate, and create value.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all who helped us through this study.

Conflict of Interest

The authors report no conflict of interest.



Funding/Financial Support

According to the authors, this article has no financial support.

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