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Exploring Leadership Strategies to Foster a Culture of Digital Experimentation

ABSTRACT

This study aimed to explore the leadership strategies that effectively foster a culture of digital experimentation within organizations undergoing digital transformation. This qualitative research employed a phenomenological design to investigate the lived experiences of organizational leaders. Data were collected through semi-structured interviews with 22 participants from public and private organizations in Tehran, selected via purposive sampling. Interviews were conducted until theoretical saturation was reached. The transcripts were analyzed using thematic analysis with NVivo software, following open and axial coding procedures to identify key themes and subthemes related to leadership behavior, organizational culture, and structural support mechanisms. Three major themes emerged from the data: Visionary and Supportive Leadership, Organizational Culture Enablers, and Resource and Structural Support. Participants emphasized the importance of articulating a shared digital vision, promoting psychological safety, empowering teams, and modeling experimental behavior. Culturally enabling practices such as celebrating small wins, fostering cross-functional collaboration, and encouraging open communication were also identified. Infrastructural supports—including access to prototyping tools, dedicated innovation time, and alignment of performance metrics with learning outcomes—were reported as essential. The findings suggest that leadership for digital experimentation is most effective when symbolic, cultural, and structural strategies are holistically integrated and contextually adapted to the organizational environment. The results highlight that effective leadership for digital experimentation requires a multidimensional approach involving psychological, cultural, and material interventions. Leaders must not only articulate visionary goals but also create inclusive, risk-tolerant environments supported by tangible resources. These strategies collectively contribute to organizational agility and innovation capacity in digitally dynamic environments.

Keywords: digital experimentation, digital transformation, leadership strategies, organizational culture

Introduction

In an era where digital transformation has become imperative for organizational survival and growth, the cultivation of a culture that embraces experimentation has emerged as a vital leadership concern. As digital ecosystems evolve with increasing velocity, organizations must learn to adapt, innovate, and iterate continuously—behaviors that are deeply embedded in a culture of digital experimentation. This cultural shift requires not only the integration of digital technologies but also a reconfiguration of leadership strategies to empower individuals, reduce fear of failure, and align structures with continuous learning. Leadership, in this context, is not solely about vision but about enabling systemic conditions where curiosity, agility, and iterative learning are rewarded and sustained [1, 2].

Digital experimentation refers to the organizational capacity to test, adapt, and refine digital tools, models, and processes in real-time environments. Leaders play a central role in shaping this capacity by influencing culture, structure, and employee

behavior. Research has underscored that innovative leadership, when aligned with digital competencies and values, can transform rigid hierarchies into flexible, experimentation-driven cultures [3, 4]. These leaders are not only digital strategists but also cultural architects who recalibrate organizational norms to foster psychological safety and encourage iterative failures. In digitally mature organizations, experimentation is not perceived as peripheral but rather as integral to strategic development and competitive advantage [5, 6].

The transition toward such a culture is, however, fraught with challenges. Traditional organizational cultures often valorize control, predictability, and risk-aversion—traits that are antithetical to experimentation. Digital transformation requires the opposite: an openness to uncertainty, fast feedback loops, and tolerance for failure. In this regard, leadership becomes a mechanism for cultural adaptation and resilience. Scholars have emphasized that adaptive leadership strategies can mediate between structural inertia and innovation, especially in sectors experiencing digital disruption [7, 8]. For example, Louadi [9] notes that in African digital institutions, cultural preservation and experimentation are not mutually exclusive but can be integrated through deliberate leadership interventions that valorize both heritage and innovation.

Central to fostering digital experimentation is the concept of psychological safety. Elson et al. [10] argue that when leaders encourage open dialogue, minimize punitive responses to failure, and model vulnerability, employees are more willing to test new ideas. Such climates enable teams to engage in “productive risk-taking,” a prerequisite for digital innovation. Similarly, Wang et al. [11] observe that in tourism and creative industries, leadership support for innovation is strongly correlated with both psychological safety and technological adoption. Leaders act as catalysts, not just for operational change, but for redefining the emotional and cognitive conditions under which experimentation thrives.

Moreover, leadership strategies for digital experimentation must be inclusive and participatory. Singha [12] highlights that inclusive leadership fosters shared ownership of digital initiatives, allowing employees across levels to contribute to innovation. This participatory model supports distributed leadership, where the experimentation ethos is embedded not only at the top but across middle and frontline management. Stoyanova [13] extends this view by arguing that digital cultural heritage innovation emerges more robustly in organizations where leaders decentralize control and encourage cross-functional collaboration.

Digital storytelling and narrative construction also emerge as subtle yet powerful tools in building experimentation cultures. Leaders often frame digital transformation journeys through stories that inspire collective belief and motivation. Storytelling enables the abstraction of complex technical goals into relatable human narratives, bridging the gap between vision and practice. According to Liang et al. [14], digital-native storytelling improves cultural awareness and emotional engagement, both of which are essential for motivating employees to explore new digital terrains. Likewise, Modi et al. [6] emphasize storytelling’s role in advancing global citizenship and sustainability—values that overlap with the openness and reflexivity needed in experimental cultures.

At the same time, structural enablers such as access to digital tools, time for experimentation, and investment in digital infrastructure must accompany cultural and symbolic leadership. Leaders must advocate for resource allocation that supports experimentation, from prototyping platforms to low-code environments and internal innovation hubs. Erişti and Freedman [15] note that the evolution of digital culture in educational settings is dependent on both pedagogical vision and structural scaffolding. In organizational settings, these structures translate into dedicated time for exploration, incentives for experimentation, and technological systems that allow iterative testing [16, 17].

The question of digital inclusion also intersects with experimentation cultures. Leaders must ensure that experimentation opportunities are equitably distributed and not limited to tech-savvy elites within the organization. Deep [18] critiques the tendency for digital initiatives to deepen internal inequalities when access to experimentation tools and training is uneven. Similarly, Alardo et al. [8] emphasize the importance of fostering digital inclusion to ensure that organizational innovation is representative and democratic. This includes attention to training, onboarding, and digital upskilling across hierarchical and generational lines.

A further complexity lies in navigating digital experimentation within culturally diverse contexts. Slavkova [19] and Sidek et al. [20] both highlight the importance of cultural sensitivity in digital transformation initiatives. Leaders must align experimentation practices with local cultural values, balancing global best practices with contextual realities. This is particularly important in regions where traditional norms, such as deference to authority and risk aversion, might impede open experimentation. Tsipi et al. [21] demonstrate that digital repositories and innovation in heritage organizations succeeded only when aligned with local cultural priorities, supported by culturally responsive leadership.

Language also plays a critical role in shaping digital experimentation cultures. He [22] shows that linguistic creativity on digital platforms reflects broader cultural shifts toward informality, playfulness, and innovation—traits that are foundational for experimentation. Leaders can leverage such linguistic dynamics to foster more engaging, less hierarchical communication channels that support the open sharing of experimental outcomes, both successful and failed.

As organizations strive to balance tradition and innovation, the role of leadership in enabling sustainable digital transformation becomes more complex and consequential. Espina-Romero et al. [5] underscore that digital competencies alone are insufficient; leaders must cultivate a values-driven and inclusive digital culture. This means not only investing in technology but also fostering empathy, adaptability, and curiosity—traits essential for long-term sustainability. In the context of small and medium enterprises (SMEs), these cultural dimensions often determine whether digital investments yield actual transformation or stagnation.

The COVID-19 pandemic has further accelerated the urgency of adopting experimental mindsets. Eslit [23] explores how digital learning environments emerged during the pandemic as arenas of pedagogical experimentation, guided by leaders who were willing to improvise and adapt under pressure. Similarly, Sun and Ch'ng [24] report that leadership support was critical in managing heritage institutions' transition to digital platforms during lockdowns, underlining the importance of resilient leadership during uncertainty.

In sum, the contemporary digital environment demands a paradigm shift in leadership—from controlling and optimizing established systems to facilitating exploration, iteration, and co-creation. Leaders must be prepared not only to adopt technology but also to model new ways of thinking, working, and relating to uncertainty. This study seeks to explore how organizational leaders in Tehran foster a culture of digital experimentation through strategic, structural, and symbolic actions.

Methods and Materials

Study Design and Participants

This study employed a qualitative research design to gain an in-depth understanding of leadership strategies that promote a culture of digital experimentation within organizations. The research adopted a phenomenological approach to capture the lived experiences and strategic insights of organizational leaders. The participants were purposefully selected based on their

active involvement in digital transformation initiatives across various sectors in Tehran. A total of 22 individuals, including middle and senior managers from both public and private institutions, took part in the study. Theoretical saturation was used as the criterion to determine the sample size, ensuring that data collection ceased when no new themes emerged from subsequent interviews.

Data Collection

Data collection was conducted through semi-structured, face-to-face interviews, each lasting between 45 to 90 minutes. An interview guide was designed to elicit detailed responses on the leadership behaviors, cultural values, and organizational practices that facilitate or hinder digital experimentation. The interviews were conducted in Persian, recorded with the participants' consent, and transcribed verbatim for analysis. To build trust and ensure the authenticity of responses, participants were assured of confidentiality and the voluntary nature of their participation. The interviews were carried out over a span of three months, allowing ample time for reflective engagement with each participant.

Data analysis

For data analysis, the transcripts were imported into NVivo software (version 12) to facilitate the organization and coding of qualitative data. Thematic analysis was used as the primary analytic method, following Braun and Clarke's six-step process: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Open coding was applied initially to capture diverse leadership practices and perspectives, followed by axial coding to identify relationships between concepts. Themes were refined through constant comparison and iterative review to ensure consistency, depth, and relevance to the research questions. Rigorous attention was paid to credibility, transferability, and dependability throughout the analytical process to enhance the trustworthiness of the findings.

Findings and Results

The study involved 22 participants from various public and private organizations based in Tehran, all of whom held leadership roles directly engaged with digital transformation efforts. Among the participants, 13 were male and 9 were female. In terms of age distribution, 5 participants were between 30 and 39 years old, 11 were aged 40 to 49, and 6 were between 50 and 59. Regarding professional positions, 8 participants were senior executives (e.g., CEOs, CIOs), 10 held middle management roles (e.g., department heads), and 4 were digital strategy consultants working closely with leadership teams. Most participants ($n = 17$) had over 10 years of experience in leadership roles, while the remaining 5 had between 5 to 10 years of experience. Educationally, 15 held master's degrees and 7 held doctoral degrees in fields such as business administration, information systems, or engineering.

Table 1

Thematic Structure of Leadership Strategies for Fostering Digital Experimentation

Category	Subcategory	Concepts (Open Codes)
1. Visionary and Supportive Leadership	Inspiring a Shared Digital Vision	Communicating purpose, Framing change as opportunity, Linking vision to values, Long-term digital foresight
	Psychological Safety for Innovation	Tolerating failure, Normalizing risk-taking, Encouraging learning from mistakes, Avoiding punitive feedback

2. Organizational Culture Enablers	Strategic Empowerment of Teams	Delegating authority, Trusting in team capabilities, Encouraging decision autonomy, Reducing micro-management
	Role Modeling Experimentation	Leaders trying new tools, Sharing personal digital failures, Publicly reflecting on experimentation outcomes
	Commitment to Continuous Learning	Personal skill upgrades, Attending digital training, Learning alongside employees
	Removing Bureaucratic Obstacles	Reducing procedural delays, Flattening approval chains, Simplifying project initiation protocols
	Fostering a Growth-Oriented Mindset	Reframing failure as learning, Promoting curiosity, Encouraging question-asking, Rewarding initiative
	Celebrating Small Wins	Public acknowledgment of progress, Sharing success stories, Visual progress tracking
	Cross-Team Collaboration	Encouraging interdepartmental projects, Rotating team roles, Cross-functional brainstorming
	Flexible Work Practices	Allowing time for side projects, Providing experimentation hours, Supporting asynchronous innovation
	Transparent Communication Norms	Open digital forums, Feedback channels, Sharing both successful and failed experiments, Horizontal knowledge exchange
	Investment in Digital Infrastructure	Upgrading platforms, Piloting new tools, Ensuring technical scalability, Providing prototyping environments
3. Resource and Structural Support	Time Allocation for Experimentation	Protected time blocks, Minimizing routine overload, Scheduling regular innovation sprints
	Access to Experimentation Tools	Sandboxes and testbeds, Open-source resources, Low-code platforms, Trial licenses
	Dedicated Innovation Units	Establishing internal labs, Forming digital taskforces, Assigning innovation champions
	Metrics Aligned with Innovation	Redefining KPIs, Measuring learning over output, Incorporating experimentation into performance reviews, Valuing initiative regardless of outcome

The analysis of interviews with 22 organizational leaders from Tehran revealed three overarching themes: Visionary and Supportive Leadership, Organizational Culture Enablers, and Resource and Structural Support. Each theme comprises several subcategories that collectively illuminate the multifaceted strategies employed by leaders to nurture a digital experimentation culture.

1. Visionary and Supportive Leadership

Inspiring a Shared Digital Vision emerged as a foundational subcategory. Leaders emphasized the importance of articulating a clear and future-oriented digital vision aligned with organizational values. This vision was framed not merely as technological advancement but as a cultural transformation. One participant stated, *“When we talk about digital, we don’t mean just software—we mean a shift in how we think and solve problems collectively.”*

Psychological Safety for Innovation was frequently highlighted as essential for fostering experimentation. Leaders reported that creating a safe space for trial and error empowered employees to innovate without fear of punishment. As one manager noted, *“I tell my team: mistakes are welcome as long as we learn from them. No punishment, just reflection.”*

Strategic Empowerment of Teams was another key strategy. Participants described delegating decision-making authority and minimizing micromanagement to build ownership. One interviewee shared, *“We stopped signing off on every detail. Teams now have the autonomy to test and adapt their own ideas.”*

Role Modeling Experimentation was described as a powerful leadership practice. Leaders who openly shared their own digital trials and failures helped normalize uncertainty. As one senior executive remarked, *“I ran a pilot myself—it failed. But I shared that story, and suddenly others felt brave enough to try.”*

Commitment to Continuous Learning was evident among leaders who actively pursued digital upskilling. Several described participating in training sessions alongside their teams. One leader said, *“When my staff see me learning too, they realize it’s okay not to know everything about tech upfront.”*

Removing Bureaucratic Obstacles was also central to leadership practice. Leaders took deliberate steps to reduce administrative friction, such as simplifying project approvals. One participant explained, *“We removed two layers of sign-off. That alone made experiments faster and less frustrating.”*

2. Organizational Culture Enablers

Fostering a Growth-Oriented Mindset was a recurring cultural strategy. Leaders promoted curiosity and framed failure as a natural learning process. One manager emphasized, *“We talk about experiments like scientists—what did we learn? Not, did it succeed or fail.”*

Celebrating Small Wins helped sustain momentum and motivation. Leaders shared that recognizing incremental progress encouraged continuous effort. As one participant mentioned, *“Even a small improvement in a dashboard gets a shout-out. It tells the team their work matters.”*

Cross-Team Collaboration was seen as critical for generating fresh perspectives. Leaders encouraged temporary interdepartmental projects and role exchanges. One respondent said, *“We paired marketing with IT for a project—they solved something together we’d been stuck on for months.”*

Flexible Work Practices enabled employees to allocate time for exploration and side projects. Some organizations designated specific hours for experimentation. A participant noted, *“Friday mornings are our ‘tinker time.’ No meetings, just playing with ideas.”*

Transparent Communication Norms supported a culture where experimentation outcomes—successful or not—were shared openly. Leaders described using digital forums for discussing both victories and lessons learned from failure. As one interviewee stated, *“We celebrate when something doesn’t work, because it means we tried and learned.”*

3. Resource and Structural Support

Investment in Digital Infrastructure was viewed as a baseline requirement. Leaders emphasized the need for reliable platforms and pilot-ready environments. One executive remarked, *“You can’t ask people to innovate if the system crashes every time they try a new tool.”*

Time Allocation for Experimentation was another deliberate strategy. Leaders protected time for innovation, acknowledging that routine work often crowded out creative thinking. A participant stated, *“We cleared their calendar one day a month just for trying something new. That simple act sparked five new initiatives.”*

Access to Experimentation Tools included providing sandboxes, trial software, and low-code environments. Leaders ensured that employees had hands-on access to tools that enabled rapid testing. One respondent explained, *“We gave them access to an open-source platform and within a week they had built a working prototype.”*

Dedicated Innovation Units were established in some organizations to institutionalize experimentation. These included innovation labs or cross-functional taskforces. As one participant shared, *“We created a digital experimentation cell. Their only job is to try, test, and report back.”*

Metrics Aligned with Innovation were introduced to reinforce desired behaviors. Traditional KPIs were replaced or supplemented with indicators that valued learning, initiative, and creativity. One manager described, *“We started measuring what people learned from their experiments, not just the results. That changed everything.”*

Discussion and Conclusion

This study explored leadership strategies that foster a culture of digital experimentation within organizations in Tehran. Through in-depth interviews with 22 organizational leaders, three overarching themes were identified: Visionary and Supportive Leadership, Organizational Culture Enablers, and Resource and Structural Support. These themes collectively

highlight how leaders contribute to creating a safe, adaptive, and resourceful environment that encourages employees to test, learn, and innovate continuously in the face of digital disruption.

The first major finding, Visionary and Supportive Leadership, underscores the importance of leaders inspiring a shared digital vision, promoting psychological safety, empowering teams, and modeling experimental behavior. Participants repeatedly emphasized that cultivating a compelling and inclusive digital vision motivates teams to align their efforts with broader transformation goals. This aligns with findings from Ali [2] and Alitabar [1], who assert that visionary digital leadership plays a crucial role in setting a strategic direction that embraces change. Furthermore, leaders' efforts to promote psychological safety—through open communication, tolerance for failure, and public reflection—mirror the conclusions drawn by Elson et al. [10], who emphasize the centrality of psychological safety in supporting innovation in global virtual teams. The use of vulnerability and transparency by leaders to model experimentation was also consistent with the findings of Wang et al. [11], who found that supportive leadership styles contribute significantly to innovation acceptance in digitally transforming sectors such as tourism and education.

The emphasis on Strategic Empowerment and Role Modeling in this theme points to a broader trend of participatory leadership in digital environments. Leaders who delegate authority and visibly engage in experimentation create a climate of mutual learning and shared responsibility. This participatory model is supported by the work of Singha [12], who underscores the value of inclusive leadership in promoting engagement and innovation across organizational levels. Moreover, the focus on continuous learning among leaders reinforces the idea that digital transformation is as much a mindset shift as it is a technological one—a conclusion echoed in studies by Orero-Blat et al. [7], who describe innovation-oriented leadership as a driver of experimentation within data-rich environments.

The second major theme, Organizational Culture Enablers, revealed that fostering a growth-oriented mindset, celebrating small wins, enabling cross-team collaboration, encouraging flexible work practices, and institutionalizing transparent communication were essential to cultivating digital experimentation. This finding is consistent with Deep [18], who argues that digital transformation is most sustainable when accompanied by a shift in organizational values toward learning and adaptability. Encouragingly, leaders in this study reported actively reframing failure as learning, which supports the development of a psychologically safe and innovation-positive environment.

The importance of celebrating small wins and recognizing progress aligns with the findings of Espina-Romero et al. [5], who highlight recognition as a key motivational factor in sustaining innovation efforts, particularly in resource-constrained organizations. Cross-team collaboration emerged as another key enabler, reflecting the need for interdisciplinary thinking in solving digital challenges. This mirrors the insights of Stoyanova [13], who advocates for cultural innovation through cross-functional and cross-disciplinary collaboration, especially in sectors engaged with cultural heritage and digital storytelling.

Leaders also cited flexible work structures and transparent communication as cultural features that support experimentation. Allowing time for side projects and experimentation, along with the open sharing of outcomes (regardless of success), contributes to a norm of iterative learning. These findings resonate with those of Modi et al. [6], who suggest that organizations that enable narrative sharing and flexibility build collective resilience and creativity in digitally complex environments. Similarly, Eslit [23] found that open communication channels in digital learning environments fostered reflective practices and cultural narrative development—two elements linked to experimentation and innovation.

The third and final theme, Resource and Structural Support, illustrated how leaders institutionalize digital experimentation by investing in infrastructure, allocating time, granting access to tools, forming innovation units, and aligning performance metrics with innovation. Participants described the importance of providing employees with digital sandboxes, prototyping platforms, and time blocks dedicated to experimentation. These structural supports are consistent with the insights of Nugroho et al. [3], who found that digital leadership is most effective when paired with robust infrastructural and cultural resources. Similarly, the provision of physical and virtual spaces for experimentation reflects practices noted by Alardo et al. [8], who emphasize the role of accessible infrastructure in advancing digital inclusion and innovation.

Participants' efforts to redefine KPIs to include learning outcomes, initiative-taking, and reflective experimentation align with Pratomo [17], who calls for performance systems that value digital literacy and innovation. Furthermore, leaders' establishment of innovation task forces and dedicated labs supports the conclusions of Sidek et al. [20], who argue that structural investments in innovation significantly impact long-term digital sustainability. This structural support complements cultural and leadership-based strategies, suggesting a holistic model where people, processes, and platforms are aligned toward experimentation.

These findings collectively highlight that leadership for digital experimentation is inherently multidimensional. It involves not only vision and values but also tangible investments in tools, time, and team structures. The integration of symbolic, cultural, and material strategies confirms previous work by Yu [16], who observed that digital culture development requires both mindset transformation and structural redesign. Additionally, Tsipi et al. [21] emphasize the interdependence between digital infrastructure and leadership advocacy in creating access and preserving digital assets—another relevant parallel for organizations navigating digital experimentation.

Moreover, the findings demonstrate that cultural sensitivity and contextual awareness are crucial in fostering experimentation, especially in hierarchical or tradition-bound environments. Leaders in this study navigated these challenges by combining global innovation models with local cultural norms, reflecting strategies identified by Slavkova [19] and Louadi [9], who advocate for contextually adapted innovation strategies in culturally diverse environments. The linguistic creativity and informal communication noted by some participants also echo the findings of He [22], who found that digital innovation is often preceded by changes in communication tone, language, and interpersonal dynamics within organizations.

Finally, this study affirms the argument by Skivko [25] that sustainable digital transformation requires governance approaches grounded in social innovation and adaptive leadership. Leaders in this research demonstrated that experimentation is not a luxury but a leadership imperative—a process that must be designed, protected, and championed across all levels of the organization.

This study, while offering rich insights into leadership strategies for fostering digital experimentation, is limited by its geographic and cultural scope. All participants were based in Tehran, and although they represented diverse sectors, their experiences may not fully capture variations present in other cities, regions, or countries. Furthermore, the qualitative nature of the study, while suitable for exploratory analysis, limits the generalizability of findings to wider populations. The reliance on self-reported data may also introduce social desirability bias, with leaders potentially overemphasizing progressive practices while downplaying organizational resistance or inertia.

Future research could explore comparative analyses across different cultural or organizational contexts to assess how leadership strategies vary in fostering experimentation in diverse environments. Mixed-method studies incorporating

surveys, digital trace data, or longitudinal tracking of innovation outcomes could enhance the reliability and generalizability of findings. Further investigation into the relationship between individual digital competencies of leaders and the effectiveness of their experimentation strategies would also be valuable. Additionally, future studies could explore the role of middle managers and frontline workers in enabling or constraining experimentation, offering a more holistic view of organizational dynamics.

Organizations aiming to foster digital experimentation should ensure that leaders at all levels are trained not only in digital tools but also in adaptive leadership behaviors that support psychological safety, learning, and autonomy. Structural supports such as dedicated innovation spaces, flexible scheduling, and aligned performance metrics should be institutionalized to sustain experimentation over time. Finally, organizations must prioritize inclusivity by making digital tools, training, and experimentation opportunities accessible to all employees, not just those in innovation-focused roles, to ensure equity and maximize creative potential across the workforce.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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