

DIGITAL LEADERSHIP CULTURE IN VIETNAMESE STATE-OWNED ENTERPRISES: A QUALITATIVE STUDY BASED ON CORPORATE REPORTS AND STRATEGIC DOCUMENTS

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Received: 16 March 2026; Revised: 20 April 2026; Accepted: 7 May 2026

ABSTRACT

In the context of the Vietnamese Government's acceleration of the National Digital Transformation Strategy for the 2025–2030 period, state-owned enterprises (SOEs) play a pivotal role in promoting governance innovation and shaping digital culture. However, research on digital leadership culture—reflecting leadership mindsets, behaviors, and values in the transformation process—remains relatively limited. This study adopts a qualitative approach to identify the characteristics of digital leadership culture in Vietnamese SOEs through content analysis of recent corporate reports and digital transformation strategies. Data were collected from Viettel Group, Vietnam Electricity, and Petrovietnam, along with official documents issued by state management agencies in the fields of information and communications as well as science and technology. The findings indicate that these three SOEs demonstrate approximately 8–9 out of 13 components of digital leadership culture identified in the international theoretical framework. The study contributes to enriching the theoretical foundation of digital leadership culture in the public sector and provides policy implications for developing more adaptive and innovative leadership models in Vietnam's national digital transformation process.

Keywords: Digital leadership culture, state-owned enterprises, digital transformation, innovation governance.

1. INTRODUCTION

Digital transformation has become a critical driver reshaping governance structures, operational processes, and decision-making mechanisms within Vietnamese SOEs. This transformation extends beyond technological upgrades, requiring profound changes in leadership mindset and organizational culture. In this context, digital leadership culture plays a central role, reflecting how leaders adapt, inspire, and provide value orientation for organizations operating in digital environments. Although numerous studies have addressed digital transformation strategies and leadership competencies, the dimension of digital leadership culture—particularly within SOEs—has not been systematically examined. Existing research predominantly approaches digital transformation from technical or technology management perspectives, while relatively few studies analyze how leadership culture is manifested in the formulation and implementation of digital strategies. This gap highlights the need for research focusing on the expression of digital leadership culture in the governance context of Vietnamese SOEs. Accordingly, this study seeks to answer the following research question: *How is digital leadership culture manifested in Vietnamese state-owned enterprises during the digital transformation process?* Responding to practical

demands, this study examines the topic: *Digital leadership culture in Vietnamese state-owned enterprises: a qualitative study based on corporate reports and strategic documents*

The research aims to identify and analyze the characteristics of digital leadership culture through content analysis of recent reports and development strategies of three major SOEs—Viettel Group, Vietnam Electricity, and Petrovietnam. The expected findings will clarify the conceptual framework of digital leadership culture and provide policy recommendations for building innovative, transparent, and adaptive leadership models in the Vietnamese SOE sector.

2. THEORETICAL BACKGROUND AND RESEARCH METHODOLOGY

2.1. Theoretical Background

Concept of Digital Leadership Culture

According to Schein [1], organizational culture refers to a pattern of shared basic assumptions that a group has learned as it solved its problems of external adaptation and internal integration. These assumptions have worked well enough to be considered valid and, therefore, are taught to new members as the correct way to perceive, think, and feel in relation to those problems.

Similarly, the Association for Talent Development defines organizational culture as the collective values, beliefs, practices, and behaviors that shape the social and psychological environment of an organization [2].

In the context of digital transformation, TechTarget describes digital leadership as the strategic use of digital assets and emerging technologies to achieve business objectives. A digital leader is the individual who guides and directs this digital approach within the organization [3].

Drawing on these perspectives, digital leadership culture in state-owned enterprises (SOEs) can be understood as the set of leadership values, beliefs, and behaviors that foster innovation, transparency, collaboration, and continuous learning throughout the digital transformation process.

Components of Digital Leadership Culture

The components of digital leadership culture in this study are synthesized from international theoretical frameworks on digital leadership and organizational culture in the era of digital transformation, particularly the works of George Westerman et al. [4], Kane et al. [5], Bettina Schwarzmüller et al. [6], and Paul Leinwand and Mahadeva Matt Mani [7].

These frameworks highlight key dimensions such as digital vision and strategic orientation, openness to innovation, data-driven decision-making, cross-functional collaboration, empowerment and talent development, agility, and ethical responsibility in digital environments. Based on these theoretical foundations, this study develops an analytical framework consisting of 13 components of digital leadership culture to examine their manifestation in Vietnamese SOEs.

Table 1. Analytical Framework of Digital Leadership Culture Components

Component	Content / Meaning	Role in Digital Leadership Culture
1. Digital vision and Strategy	Leaders need to articulate a clear vision for the digital future, prioritize appropriate technologies, and define the organization’s digital objectives.	This vision should not only inspire members of the organization but also provide strategic direction, shaping a shared pathway and guiding decisions related to both technology and organizational culture.

Component	Content / Meaning	Role in Digital Leadership Culture
2. Digital savviness	Leaders and managers at all levels need to possess a solid understanding of technology, data, and digital trends in order to make informed decisions.	Without sufficient digital literacy and technological competence, leaders may struggle to build credibility, persuade stakeholders, and effectively drive digital transformation initiatives.
3. Data-driven mindset	Organizations should base their decisions on data, analytics, and performance indicators rather than relying primarily on intuition or past experience.	A data-driven approach enables faster and more transparent decision-making, while reducing risks associated with subjective judgment.
4. Innovation and Experimentation	Leaders should encourage employees to experiment with new ideas—such as developing prototypes or minimum viable products (MVPs)—and to challenge or redesign outdated processes.	Such an approach fosters a culture of continuous improvement, enabling the organization to adapt to change proactively and avoid falling behind in a rapidly evolving environment.
5. Empowerment / Decentralization	Leaders should reduce excessive centralization of control and empower employees at different levels to make decisions within their areas of responsibility.	This decentralization enhances responsiveness, strengthens employee engagement, and fosters innovation by enabling ideas to emerge from those closest to operational realities.
6. Continuous learning / Upskilling / Reskilling	Organizations need to build a continuous learning ecosystem that provides training in emerging technologies, digital skills, and new ways of thinking for both employees and leaders.	Such an approach ensures that organizational capabilities remain current and adaptive, preventing obsolescence in the face of rapid technological change.
7. Risk-taking / Tolerance of failure	Leaders should create an environment in which employees are allowed to experiment, learn from failure, and refine their ideas without being penalized for innovation-related setbacks.	When employees fear risk or punishment, they are unlikely to explore new approaches, and innovation efforts may stagnate or fail prematurely.
8. Organizational flexibility / Agile structures	Organizations should adopt flatter structures with fewer hierarchical layers, greater flexibility, and stronger cross-functional interaction.	Such structural arrangements facilitate agility, enhance coordination across units, and help break down silos, enabling faster information flow and collaborative problem-solving.
9. Transparency and Open communication	Leaders should communicate transparently about organizational goals, challenges, and progress, while actively encouraging the sharing of ideas.	Transparent communication fosters trust, reduces uncertainty and skepticism, and promotes stronger alignment and collective commitment across the organization.
10. Adaptability / Agility	In a rapidly changing environment, organizations and their leaders must remain adaptive and responsive to emerging disruptions and uncertainties.	Clinging to outdated practices and rigid routines may hinder competitiveness and increase the risk of organizational decline in dynamic contexts.
11. People-Centric Leadership / Focus on	Organizations should prioritize human development by fostering employee motivation, well-being, productivity, and creativity, with	As a core element of digital leadership culture, this approach emphasizes trust-building, active listening, and continuous support for employees in

Component	Content / Meaning	Role in Digital Leadership Culture
Employees / Coaching	leaders acting as facilitators and coaches rather than mere supervisors.	developing new competencies. Digital leaders shift from a command-and-control style to a coaching-oriented role, nurturing intrinsic motivation and promoting a lifelong learning mindset across the organization.
12. Collaboration / Interconnected Thinking	Organizations should promote cross-departmental collaboration and mobilize internal networks to address complex, cross-functional challenges.	Such collaboration fosters interconnected thinking—encouraging members to recognize how individual decisions affect the broader digital system. At the same time, it supports the expansion of partnerships with external stakeholders, including business partners, customers, and technology communities, thereby enabling open innovation and shared value creation
13. Ethical Leadership / Ethical Use of Technology	Organizations should ensure that technology, data, and artificial intelligence (AI) are used in a transparent, responsible, and ethically grounded manner, particularly within digital environments characterized by heightened risks related to security and privacy.	A sustainable digital leadership culture is closely tied to technological ethics and is built upon the trust of employees and customers. This commitment is reflected in responsible digital practices, including the protection of personal data, respect for human rights, and transparency in AI-driven decision-making processes.

Relationship Between Digital Leadership Culture and Digital Transformation Effectiveness

A growing body of research affirms that Digital Transformation (DT) serves as a critical bridge linking digital leadership to organizational performance.

According to Held et al. [8], digital culture constitutes a foundational element enabling firms—particularly small and medium-sized enterprises (SMEs)—to successfully implement digital transformation when combined with dynamic capabilities. Qiao et al. [9] demonstrate that digital leadership enhances employee performance and commitment; however, this relationship is mediated by the digital transformation process. Nugroho et al. [10] further suggest that digital culture plays a moderating role, whereby higher levels of digital culture strengthen the positive impact of digital leadership on organizational outcomes.

Conversely, conservative and inflexible organizational cultures may hinder digital transformation efforts, limiting the effectiveness of innovation initiatives.

The effectiveness of digital transformation varies by context. For SMEs, it is often reflected in digital business performance, whereas in large organizations, it is associated with innovation capacity, sustainability, and adaptive capability.

In summary, digital leadership and digital culture share a reciprocal relationship: digital leadership shapes and nurtures digital culture, while digital culture determines the extent to which digital transformation succeeds through collaboration, learning, and continuous innovation.

Concept of Qualitative Analysis

According to John W. Creswell [11], qualitative analysis is a research approach aimed at exploring and deeply understanding social phenomena by interpreting meanings, contexts, and relationships among concepts.

In this study, qualitative analysis is employed to examine the content of official reports and development strategies of Vietnamese state-owned enterprises (SOEs) in order to identify characteristics of digital leadership culture reflected in formal documents. Data are collected from publicly available reports and strategic plans and analyzed using content analysis techniques.

2.2. Research Methodology

Research Design

The study adopts a descriptive–analytical research design, integrating theoretical synthesis with empirical analysis of reports and strategic documents issued by state-owned enterprises. The research framework includes:

- (1) a theoretical foundation on digital leadership culture;
- (2) contextual analysis of selected Vietnamese SOEs, namely Viettel Group, Vietnam Electricity, and Petrovietnam;
- (3) examination of the role of digital leadership culture as reflected in corporate reports and strategic orientations; and
- (4) identification of distinctive characteristics of digital leadership culture in Vietnamese SOEs, followed by implications and policy recommendations.

This structure ensures logical coherence and a strong linkage between theoretical foundations and practical evidence, aligning with the research objectives.

Research Subjects and Scope

The research focuses on digital leadership culture within Vietnamese state-owned enterprises, particularly the elements outlined in the proposed theoretical framework. Three large-scale SOEs—Viettel Group, Vietnam Electricity (EVN), and Petrovietnam (PVN)—are selected as case studies using a purposive sampling approach.

The selection follows four key criteria: (1) strategic national importance, as all three operate in critical sectors (telecommunications, energy, and oil and gas) that underpin Vietnam’s economic and digital infrastructure; (2) level of digital transformation engagement, as they are recognized as pioneers in implementing national digital transformation initiatives; (3) availability and transparency of data, as they regularly publish sustainability reports, annual reports, and strategic documents, enabling reliable qualitative analysis; and (4) comparative diversity, as they represent different industry characteristics (telecommunications, energy, and oil and gas), allowing for cross-case comparison.

This sampling approach enhances both the analytical depth and the comparative value of the study, while ensuring alignment between theoretical objectives and empirical evidence.

Data Collection Methods

Data are collected from sustainability reports, digital transformation reports, annual reports, corporate development strategies, and official state policy documents on digital transformation. In addition, observational insights and analysis of official media communications are used to contextualize organizational practices and leadership characteristics.

The study employs a qualitative approach based on the analysis of secondary data and documentary sources to clarify the characteristics of digital leadership culture in Vietnamese SOEs. This approach emphasizes systematic comparison across cases to identify the interplay

between people, technology, and governance, thereby uncovering the core values, behaviors, and leadership orientations that characterize digital transformation in the state-owned enterprise sector.

Data Analysis Method

The content analysis followed a structured and systematic multi-step coding process. First, the unit of analysis was defined as meaningful text segments (e.g., sentences or paragraphs) within corporate reports and strategic documents that reflect leadership values, behaviors, or strategic orientations related to digital transformation.

Second, an initial deductive coding scheme was developed based on the 13 components of digital leadership culture identified in the international literature.

Third, open coding was applied to extract relevant concepts from the data without forcing them into predefined categories.

Subsequently, axial coding was used to group similar concepts into broader thematic categories aligned with the research's theoretical framework.

Finally, selective coding was conducted to refine and integrate themes, ensuring coherence between empirical findings and theoretical constructs.

To enhance reliability, the coding process was carried out iteratively, combined with continuous review to ensure consistency in interpretation. Any ambiguous cases were carefully re-examined and compared across sources to minimize subjective bias.

Methodological Rigor

To enhance the methodological rigor of the study, several qualitative validation strategies were employed. First, data triangulation was implemented through the use of multiple data sources, including corporate reports, strategic documents, and policy texts. Second, the coding framework was grounded in established international literature, ensuring theoretical consistency. Third, transparency was maintained by clearly documenting the coding procedures and analytical steps. Fourth, an iterative review process was conducted to minimize subjective bias and improve consistency in interpretation. Finally, the findings were interpreted through analytical generalization rather than statistical generalization.

These strategies collectively enhance the credibility, dependability, and confirmability of the research.

3. RESULTS AND DISCUSSION

3.1. Context and Description of the Case Enterprises

This study focuses on three large-scale Vietnamese state-owned enterprises (SOEs): Viettel Group, Vietnam Electricity, and Petrovietnam. These corporations represent three strategic sectors of the national economy: telecommunications and digital technology, electricity, and oil and gas. They play a critical role in ensuring economic security, energy security, and information infrastructure, while also acting as pioneers of digital transformation within the public sector.

In the context of Vietnam's National Digital Transformation Strategy 2025–2030, which aims for the digital economy to contribute 20% of GDP by 2025 and 30% by 2030, these three groups function as key implementation pillars. Viettel leads in telecommunications infrastructure and data platforms; EVN advances digital governance in the energy sector; and PVN integrates digital technologies into sustainable and green economic development. Their engagement highlights the proactive role of the public sector in operationalizing national strategy and disseminating digital leadership culture within Vietnamese SOEs.

Viettel Group, under the Ministry of National Defense, employs approximately 50,000 staff and operates in 11 countries across Asia, Africa, and Latin America. As of July 2025, Viettel had deployed over 11,000 5G base stations, targeting 99% population coverage in Vietnam by 2030. The Group has invested in nine Tier III-standard data centers and identifies digital transformation as a governance innovation platform aimed at “creating a digital society” by 2030.

Vietnam Electricity (EVN) supplies electricity to more than 30 million customers and has achieved 100% Level-4 online public services. Its non-cash payment rate reached 99.49% by the end of 2024. EVN’s comprehensive digital transformation plan toward 2025 focuses on ERP, SCADA/DMS systems, and centralized databases, positioning the Group as a leading digital enterprise in the energy sector.

Petrovietnam (PVN) manages over 60 subsidiaries and contributes approximately 9–11% of Vietnam’s GDP annually. Its digital transformation strategy for 2022–2026 prioritizes shared data infrastructure, operational automation, and the development of high-quality digital human resources. In 2024, PVN completed the first phase of its group-wide ERP system, marking a significant milestone in governance digitalization.

3.2. The Role of Digital Leadership Culture in Reports and Strategies

Viettel Group

The 2024 Sustainability Report of Viettel reflects a comprehensive expression of digital leadership culture, emphasizing leadership commitment, strategic orientation, and substantial digital infrastructure investment.

Leadership Message and National Commitment

The CEO’s message affirms Viettel’s vision of “creating a digital society,” demonstrating alignment with the Government’s agenda for digital government, digital economy, and digital society. This commitment reflects pioneering spirit, national responsibility, and a distinctive digital leadership mindset characteristic of state-owned enterprises.

Digital Vision and Strategy toward 2030

Viettel’s digital strategy toward 2030 centers on data-driven development and core technologies, including internal service digitalization, national data infrastructure, AI, cloud computing, 5G networks, and cybersecurity. This strategic orientation moves beyond rhetorical vision to concrete action plans, illustrating long-term thinking and strategic governance embedded in digital leadership culture.

Investment in Digital Infrastructure and Capabilities

Viettel has significantly invested in digital infrastructure, including international-standard data centers, nationwide 5G coverage, and AI/cloud platforms serving both public and private sectors. These initiatives demonstrate an action-oriented leadership culture that translates strategy into measurable outcomes.

Government Collaboration and National Digital Projects

The Group participates in major national digital transformation projects, such as national population databases and digital systems for healthcare and education. Through these contributions, Viettel positions itself not only as an internal organizational transformer but also as a national digital enabler.

Data Governance, Cybersecurity, and Digital Talent Development

Viettel has established centralized data governance systems aligned with international security standards and implemented large-scale digital skills training programs. This approach

reflects a knowledge- and data-driven leadership culture that integrates technological investment with human capital development.

Comparative and Analytical Insights

Compared to Vietnam Electricity (EVN) and Petrovietnam (PVN), Viettel demonstrates a more comprehensive and proactive digital leadership culture, particularly in terms of innovation, experimentation, and strategic execution. This distinction can be attributed to Viettel's relatively higher level of organizational autonomy and its exposure to competitive international markets, which require greater adaptability and technological agility.

In contrast, EVN and PVN operate in more regulated and risk-sensitive sectors, which may constrain their ability to implement flexible and decentralized digital initiatives. Furthermore, Viettel's strong emphasis on data governance, digital infrastructure, and human capital development reflects a more mature integration of digital leadership components, aligning closely with the frameworks proposed by Kane et al. [5] and Westerman et al. [4].

Overall, Viettel's case illustrates how a state-owned enterprise can move beyond compliance-driven digital transformation toward a more innovation-oriented and strategically embedded digital leadership culture.

Vietnam Electricity (EVN)

Amid rising electricity demand and systemic pressures, digital leadership culture at EVN plays a crucial role, as reflected in its 2024 operational reports.

Leadership Awareness and Commitment

EVN's leadership has identified digital transformation as a core driver of operational efficiency. In the first half of 2024, total electricity production and imports reached approximately 151.74 billion kWh, a 12.4% increase year-on-year. During peak dry-season days, daily consumption exceeded 1 billion kWh, with system capacity reaching 49,533 MW. Stable electricity supply under high-load conditions reflects strong leadership direction and governance capacity.

Technological Application in Governance and Operations

EVN has accelerated the adoption of modern management and operational technologies. In 2024, commercial electricity output was estimated at 275.95 billion kWh, up 9.05% compared to 2023. Additionally, 57 grid projects (110–500 kV) were commissioned in the first half of 2024. These figures suggest improved operational performance supported by digitalization efforts.

Digital Human Resource Development

EVN has emphasized digital skills training to support smart grid operations. Although specific training statistics are not publicly detailed, the Group achieved a score of 74.76/100 in online public services (National Public Service Portal) in the first half of 2024, indicating progress in digital capability.

Fostering an Innovation-Oriented Culture

EVN promotes initiatives and system-wide innovation. Reliability indicators improved significantly, with SAIDI at 199.83 minutes and SAIFI at 1.95 interruptions per customer in the first eleven months of 2024. These improvements demonstrate the tangible operational impact of digital transformation and innovation culture.

Comparative and Analytical Insights

Compared to Viettel, EVN demonstrates a more cautious and operationally focused digital leadership culture, primarily driven by the need to ensure system stability and national

energy security. While Viettel emphasizes innovation and experimentation, EVN prioritizes reliability, efficiency, and risk control in its digital transformation initiatives.

This difference can be explained by the highly regulated and capital-intensive nature of the electricity sector, where disruptions may have significant economic and social consequences. As a result, EVN's digital leadership tends to favor centralized decision-making and incremental innovation rather than radical transformation.

Nevertheless, EVN's progress in digitalizing operations, improving service delivery, and enhancing system reliability indicates a growing alignment with data-driven and efficiency-oriented leadership principles. This approach is consistent with the perspectives of Westerman et al. [4], which emphasize the importance of integrating digital technologies into core operational processes to achieve performance improvements.

Overall, EVN's case illustrates a form of digital leadership culture that is stability-oriented and operationally embedded, reflecting the structural constraints and governance characteristics of large-scale public utility enterprises.

Petrovietnam (PVN)

PVN's 2024 Sustainability Report clearly demonstrates top-level commitment to strategic, comprehensive, and action-oriented digital transformation, with a human-centered approach integrated into sustainable development objectives.

Leadership Commitment and Digital Vision

PVN established a Science, Technology, and Digital Transformation Committee directly led by the Chairman of the Members' Council, highlighting high-level engagement. Guided by the motto "Accelerating transformation, expanding value, elevating position," PVN aims to become a digital value-creating enterprise. Completion of Phase 1 of its ERP system across more than 60 subsidiaries reflects substantive progress.

Digital Strategy and Governance Integration

Digital transformation is embedded within PVN's ESG-oriented sustainable development strategy. The Group maintains traditional energy operations while expanding into renewable and clean energy, with five clean energy projects underway, demonstrating strategic alignment between digitalization and green economic transition.

Investment in Digital Infrastructure and Technologies

PVN has digitized over 70% of operational processes, implemented five greenhouse gas monitoring systems, and ensured progress in key national energy projects. These initiatives reinforce the integration of digital technologies into operational and environmental governance.

Development of Digital Competencies

The Group implemented programs such as "Enhancing Cultural Synergy" and "The 7 Habits of Highly Effective People," training more than 5,000 employees in digital skills in 2024. These efforts lay the foundation for building adaptive and collaborative digital capabilities.

Learning and Innovation Culture

PVN actively promotes innovation through competitions, workshops, and recognition programs, with more than 50 digital initiatives implemented in 2024. This environment encourages proactive engagement and sustains momentum for long-term digital transformation.

Comparative and Analytical Insights

Compared to Viettel and EVN, Petrovietnam (PVN) demonstrates a more balanced and sustainability-oriented digital leadership culture, integrating digital transformation with ESG principles and long-term value creation. While Viettel emphasizes technological leadership and EVN prioritizes operational stability, PVN positions digital transformation as a strategic enabler for both economic and environmental objectives.

This approach can be explained by the transitional nature of the oil and gas sector, which is under increasing pressure to align with global sustainability standards and energy transition trends. As a result, PVN's digital leadership not only focuses on operational efficiency but also incorporates environmental governance, data transparency, and human-centered development.

Furthermore, PVN's emphasis on organizational learning, cultural transformation, and large-scale workforce training reflects a deliberate effort to build long-term adaptive capabilities. This aligns with the arguments of Kane et al. [5], which highlight the critical role of people and organizational culture in sustaining digital transformation outcomes.

Overall, PVN's case illustrates a hybrid model of digital leadership culture that combines strategic transformation, sustainability orientation, and gradual organizational change, reflecting both the opportunities and constraints of state-owned enterprises in resource-intensive industries.

3.3. Comparative Assessment of Digital Leadership Culture in Three Major Vietnamese SOEs Based on Public Information

Entities analyzed:

- Viettel Group
- Vietnam Electricity
- Petrovietnam

Table 2. Comparison of the Three Enterprises Against the Theoretical Framework

Theoretical Components	Viettel	EVN	PVN	General Observations
1.Digital Vision and Digital Strategy	Very clear, nationally oriented, with a strategy extending to 2030.	Yes, but primarily internally focused.	Yes, integrated with ESG principles and green energy transition.	All three meet the criteria, with Viettel demonstrating the strongest alignment.
2.Digital Savviness	Leaders demonstrate strong technological understanding and practical experience.	Developing, but not yet consistent across all levels.	Strategic-level understanding is evident, though gaps remain at the operational level.	EVN and PVN require further strengthening in this dimension.
3.Data-driven mindset	Established data systems with international certifications...	Currently focused on ERP/PMIS implementation	Initial steps taken in environmental and emissions data governance	Comprehensive and integrated data systems remain underdeveloped in EVN and PVN.
4.Innovation and Experimentation	Strong, with active encouragement of experimentation.	Present, but approached cautiously.	Exists, yet constrained by sector-specific technical characteristics.	EVN and PVN lack truly flexible experimentation spaces.

Theoretical Components	Viettel	EVN	PVN	General Observations
5. Empowerment / Decentralization	Flexible delegation of authority to business units.	Highly centralized management with limited decentralization.	Initial steps toward decentralization in digital projects.	EVN appears weakest in this dimension, while PVN is showing gradual improvement
6. Continuous Learning	Established digital training systems and internal innovation programs.	Mindset-oriented initiatives are present, but not yet deeply embedded.	Structured training programs implemented, including “The 7 Habits of Highly Effective People.”	All three organizations demonstrate this dimension, with PVN standing out in terms of soft cultural development.
7. Risk-taking	Strong, with a willingness to experiment and take bold action.	Cautious, prioritizing safety and system stability.	Controlled approach, reflecting high technical and operational risks.	EVN and PVN lack well-defined mechanisms that enable safe experimentation and learning from failure.
8. Organizational Flexibility	Open structure with high adaptability and rapid innovation.	Rigid organizational structure with strong administrative control.	Highly centralized governance, with dependent subsidiary units.	All three organizations require further structural improvement, though Viettel appears to be the most flexible.
9. Transparency and Open Communication	Strong communication and transparent reporting practices.	Public reporting is available, but internal communication remains limited	Active internal communication, though external disclosure is less extensive.	Internal transparency remains a common weakness across the three organizations.
10. Adaptability / Agility	High flexibility, with rapid adaptation to market changes.	Demonstrates responsive capacity, though administrative procedures remain relatively rigid.	Currently adjusting organizational models to align with emerging energy transitions.	Adaptive capacity exists, but remains uneven across hierarchical levels.
11. People-Centric Leadership	Digital human resource development closely aligned with technological advancement.	Promotion of a culture centered on role modeling and guidance.	Implementation of training, coaching, and initiatives encouraging creativity.	All three meet this dimension, with PVN standing out most prominently.
12. Collaboration / Interconnected Thinking	Strong task-based collaboration, yet lacking a stable horizontal culture of peer-level cooperation across units..	Technical connectivity is present, but the absence of interconnected thinking across departments leads	Value-chain collaboration platforms exist; however, a culture of knowledge sharing and co-creation has not	Viettel: Not yet fully achieved in terms of sustained horizontal collaborative culture. EVN: Limited evidence of substantive, deeply embedded collaboration.

Theoretical Components	Viettel	EVN	PVN	General Observations
		to persistent data silos	been fully institutionalized.	PVN: Collaboration remains largely platform-based rather than deeply embedded in the organizational culture.
13. Ethical Leadership	Compliance with international standards and high-level cybersecurity protection.	Transparency and strong safeguards to ensure customer data security.	Integration of technological ethics with ESG principles and sustainable development.	All three organizations meet this dimension, with PVN demonstrating the most comprehensive and deeply embedded approach.

Overall Assessment

- Fully Demonstrated Components

The following dimensions of digital leadership culture are clearly reflected across the three enterprises—Viettel Group, Vietnam Electricity, and Petrovietnam:

- + Digital vision and strategy
- + Continuous learning orientation
- + Human-centered focus
- + Ethical leadership and responsible technology governance

All three organizations demonstrate these four pillars, although with varying degrees of depth and implementation. Viettel stands out in strategic clarity and concrete execution; EVN emphasizes digital mindset development; and PVN integrates technological ethics with sustainable development principles.

- Moderately Developed or Underdeveloped Components

The following elements appear present but not yet fully institutionalized:

- + Digital competence of leadership
- + Data-driven mindset
- + Organizational flexibility and empowerment
- + Transparent communication and open culture

These dimensions are closely linked to internal organizational culture and managerial behavior. Due to the centralized governance model and strict control mechanisms typical of state-owned conglomerates, all three enterprises encounter challenges in fostering flexibility, internal transparency, and substantive empowerment at middle-management levels.

- Missing or Weakly Articulated Components

+ Risk-taking and tolerance for failure: Viettel provides a relatively flexible experimental environment, whereas EVN and PVN lack structured mechanisms that encourage safe “trial-and-error” learning, resulting in more cautious innovation.

+ Empowerment and organizational agility: All three enterprises continue to operate under centralized management models. Decision-making authority remains concentrated at senior levels and has not fully diffused to functional units.

+ Open internal communication: Two-way communication culture is not yet strongly institutionalized, particularly in EVN and PVN, where communication remains more administrative and report-oriented than dialogic and digitally interactive.

+ Cross-functional collaboration: Collaboration largely remains technical or task-based. A knowledge-sharing and co-creation culture—where departments collectively generate value, share data, and solve cross-functional challenges—is not yet fully developed. This represents the most significant gap in digital leadership culture across the three enterprises.

+ Innovation and experimentation: Viettel demonstrates proactive innovation and experimentation capacity, whereas EVN and PVN remain more cautious due to sector-specific risks and regulatory constraints.

Comparative Alignment with the Theoretical Framework

Based on the 13-component theoretical framework of digital leadership culture:

- **Viettel:** 12/13 components clearly demonstrated

- **EVN:** Approximately 9/13

- **PVN:** Approximately 10/13

However, when assessed against deeper qualitative thresholds rather than mere presence, all three enterprises effectively fulfill approximately 8–9 of the 13 components. Core dimensions such as open collaboration, organizational flexibility, and risk tolerance remain “soft gaps” requiring further reinforcement to ensure the sustainability and diffusion of digital leadership culture throughout the system.

Overall, despite varying levels of digital maturity, the three cases reflect common characteristics of the Vietnamese state-owned sector, where governance mechanisms, organizational culture, and power structures directly influence the formation and implementation of digital leadership culture.

3.4. Distinctive Characteristics of Vietnamese State-Owned Enterprises and Implications for Digital Transformation

Analysis of Viettel, EVN, and PVN reveals several distinctive features of Vietnamese SOEs as national economic pillars:

- Hierarchical and High-Control Organizational Culture

Vietnamese SOEs typically operate under multi-layered management structures with strong administrative control. Decision-making tends to follow formal directives rather than decentralized innovation processes. This structure constrains key digital leadership values such as empowerment, experimentation, and risk acceptance. Consequently, leaders must transition from a command-and-control model toward a more inspirational and facilitative leadership style to foster innovation.

- Centralized Authority and Decision-Making

Highly centralized governance mechanisms may slow decision-making and knowledge diffusion compared to private-sector firms. However, they also provide stability and the capacity to mobilize substantial resources. This advantage enables large-scale digital projects—such as ERP systems, 5G infrastructure, and nationwide online electricity services—to be implemented effectively.

- Long-Term Vision and Strategic Stability

SOEs benefit from long-term policy commitments and strategic continuity, allowing them to pursue national-scale digital strategies aligned with sustainable development goals.

All three enterprises demonstrate the integration of digital transformation with broader sustainability and national development objectives.

- Implications for Digital Transformation

These characteristics function simultaneously as constraints and enablers. Strong top-level commitment can accelerate change through a top-down transformation approach. Therefore, fostering digital leadership culture within Vietnamese SOEs requires a dual strategy:

1. Reducing excessive hierarchical rigidity and enhancing organizational flexibility, and
2. Leveraging high-level leadership commitment as a driving force for systemic change.

Only by balancing structural reform with visionary leadership can digital leadership culture become deeply embedded and sustainably institutionalized across the state-owned enterprise sector.

3.5. Managerial Implications and Policy Recommendations for Developing Digital Leadership Culture in Vietnamese SOEs

Drawing from the findings of the three case studies—Viettel Group, Vietnam Electricity, and Petrovietnam—the following managerial and policy implications are proposed:

3.5.1. Managerial Implications

- Shift from “Technology Transformation” to “Leadership Culture Transformation”

Evidence from Viettel, EVN, and PVN indicates that the greatest challenge in digital transformation lies not in technology itself, but in leadership mindset and organizational culture. Enterprises should move beyond technical implementation toward reshaping leadership beliefs, decision-making philosophies, and value creation approaches. Digital transformation must be understood as a new logic of power, governance, and strategic thinking—not merely a technological upgrade.

This is evident in the case of Viettel, where leadership commitment goes beyond technology adoption to shaping organizational mindset and long-term strategic vision. In contrast, EVN and PVN still exhibit a more operational focus, suggesting the need for a deeper transformation of leadership culture rather than a sole emphasis on technological implementation.

- Digital Leaders as Change Ambassadors

Digital leaders—especially at the middle-management level—must act as **Digital Ambassadors**, bridging strategy and execution. Rather than functioning solely as administrative approvers, they should inspire innovation, facilitate knowledge-sharing, and cultivate a culture of experimentation and collaboration throughout the organization.

For instance, PVN’s large-scale training programs and internal cultural initiatives demonstrate the role of middle managers in fostering digital awareness and organizational learning.

- Restructuring “Soft Power” Within Organizations

Empowerment mechanisms should encourage safe experimentation and managed risk-taking. Viettel’s experience demonstrates that treating risk as an investment in knowledge accelerates organizational learning. EVN and PVN could adopt internal **digital sandboxes** that allow new technological models and digital processes to be tested within controlled environments, minimizing bureaucratic constraints while maintaining governance standards.

While Viettel has successfully implemented experimental environments, EVN and PVN remain constrained by hierarchical structures, highlighting the need for institutionalized sandbox mechanisms to support controlled experimentation.

- Data as the New Governance Language

Data-driven decision-making should be institutionalized across all managerial levels. Leaders should utilize digital dashboards not only to monitor operational performance but also to track collaboration, innovation, and learning indicators. Governance should increasingly rely on evidence-based metrics and human-centered values rather than solely production or financial outcomes.

This is reflected in Viettel's advanced data governance systems, whereas EVN and PVN are still in the early stages of integrating data into decision-making processes.

- Building "Collaboration by Design"

Cross-functional collaboration should be systematically embedded into organizational structures rather than occurring on an ad hoc basis. This requires the integration of data-sharing mechanisms, cross-departmental coordination, and collaborative performance indicators into formal governance systems, including KPIs and incentive schemes.

Empirical evidence from Viettel, EVN, and PVN suggests that collaboration remains largely fragmented and operationally driven, with limited strategic alignment across functions. While digital tools have facilitated information exchange, they have not fully addressed structural silos or fostered co-creation of value.

To address this limitation, organizations should institutionalize collaboration through formal mechanisms such as shared digital platforms, cross-functional project teams, and performance metrics that explicitly reward collaborative outcomes. Embedding collaboration "by design" will not only enhance organizational integration but also strengthen innovation capacity and long-term value creation.

- Institutionalizing Technological Ethics as a Cultural Standard

Digital leadership culture should embed ethical technology governance as a core organizational principle, ensuring responsible data use, privacy protection, and the prioritization of human-centered values. Rather than treating ethics as a compliance requirement, it needs to be integrated into everyday decision-making and strategic direction.

Empirical evidence from PVN demonstrates how aligning digital transformation with ESG principles can create a more balanced approach between economic performance, environmental responsibility, and social accountability. This suggests that ethical governance is not only a regulatory necessity but also a strategic foundation for building sustainable digital leadership in Vietnamese state-owned enterprises.

3.5.2. Policy Recommendations

- Establish a National Digital Leadership Competency Framework for SOEs

The Government—through coordinated efforts of the Ministry of Science and Technology, Ministry of Home Affairs, and Ministry of Finance—should issue a unified Digital Leadership Competency Framework tailored to SOEs.

This framework should include five core competency groups:

1. Data vision and digital strategy
2. Innovation and change leadership
3. Collaboration and empowerment
4. Technological ethics and responsibility
5. Continuous digital learning

Such a framework would serve as a standardized basis for evaluation, training, and leadership development across the state-owned sector.

This recommendation is grounded in the observed inconsistency in digital leadership capabilities across Viettel, EVN, and PVN, particularly in areas such as data-driven decision-making and cross-functional collaboration.

- Pilot a “Public Digital Leadership Lab”

A state-sponsored **Public Digital Leadership Lab** should be established in partnership with leading SOEs such as Viettel, EVN, and PVN. This initiative would:

- Train next-generation digital leaders;
- Foster interdisciplinary collaboration capabilities;
- Create a national network of SOE digital leaders to exchange best practices;
- Promote innovation capacity aligned with public-sector governance requirements.

Viettel’s experience in implementing innovation centers provides a practical foundation for scaling such initiatives at the national level.

- Institutionalize Controlled Innovation Mechanisms (Sandbox Model)

A regulatory sandbox mechanism tailored for SOEs should be formalized, allowing experimentation with new digital business models and governance processes under controlled supervision. The “small failures for greater success” philosophy—successfully applied by Viettel in its innovation centers—could be adapted more broadly to encourage calculated risk-taking while preserving accountability.

While Viettel has demonstrated the effectiveness of controlled experimentation, EVN and PVN lack formal mechanisms to support such practices, highlighting the need for institutionalized sandbox policies.

- Integrate Digital Leadership Culture into SOE Performance Evaluation

Performance evaluation systems should incorporate digital leadership culture indicators alongside financial metrics. Enterprises demonstrating strong collaboration, transparency, innovation, and knowledge-sharing should receive preferential access to capital allocation and national development programs.

This shift would signal that cultural transformation is as important as financial performance in achieving national digital objectives.

These indicators may include metrics such as innovation initiatives, cross-functional collaboration levels, and digital skill development rates.

- Encourage Interdisciplinary Research and Policy Dialogue

Universities and research institutes should serve as knowledge hubs for digital leadership studies, developing measurement tools and organizing dialogue platforms that connect public-sector leaders, private enterprises, and academia.

Such an ecosystem would support evidence-based policymaking and sustain a national culture of responsible digital leadership.

This is particularly important given the evolving nature of digital leadership, which requires continuous knowledge exchange between academia and practice.

Overall Perspective

Developing digital leadership culture in Vietnamese SOEs is not merely a managerial adjustment—it is a deep organizational transformation process. It requires embedding digital values into governance philosophy, leadership behavior, and institutional norms.

The journey entails cultivating leaders who are transparent, learning-oriented, empowering, and able to embrace controlled risk. Through this transformation, SOEs can

generate new forms of public value and contribute meaningfully to Vietnam's national digital transformation agenda.

4. CONCLUSION

This study demonstrates that digital leadership culture in Vietnamese SOEs is progressively evolving toward a more strategic, comprehensive, and action-oriented model. Through the cases of Viettel, EVN, and PVN, digital technologies have been integrated into vision-setting, governance practices, and human resource development. All three conglomerates exhibit strong top-level commitment, linking digital transformation with sustainable development, energy security, and the national digital economy.

However, hierarchical organizational culture and centralized governance mechanisms remain structural constraints, limiting bottom-up innovation diffusion. Therefore, **“enabling leadership”**—leaders who inspire, empower, and guide change—emerges as the core pillar of digital leadership culture within Vietnamese SOEs.

This research contributes to the conceptualization of a digital leadership culture framework tailored to Vietnamese SOEs and offers theoretical and practical insights for policymaking in the national digital transformation process.

Future research may expand in two directions:

1. Quantitative measurement of the impact of digital leadership culture on digital transformation performance within SOEs;
2. Cross-sectoral comparison between state-owned and private enterprises to identify adaptive digital leadership models suitable for public governance contexts.

Such approaches will further refine theoretical foundations and inform sustainable digital leadership development policies as Vietnam accelerates its national digital transformation agenda.

Acknowledgements

I would like to sincerely thank the Organizing Committee of the International Conference for creating a prestigious academic forum where researchers have the opportunity to exchange ideas, share findings, and discuss professional perspectives.

My heartfelt thanks also go to the professors, experts, and colleagues who have devoted their time to providing valuable comments, constructive feedback, and scholarly guidance throughout the development of this paper.

The suggestions and insights received from the conference will serve as an invaluable foundation for me to further improve the quality of my research in the future.

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