



How Digital Leaders Influence Employees' Digital Creativity: The Mediating Role of Digital Knowledge Scanning

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Abstract. The new round of technological revolution and industrial transformation is unfolding vigorously. Digital technologies such as big data, artificial intelligence, and cloud computing are innovating at a high speed. However, a growing phenomenon in corporate digital transformation practices is that success depends not only on the introduction of advanced digital technologies but also critically on the ability to stimulate and cultivate employee creativity, specifically employee digital creativity. Without the support of employee digital creativity, corporate digital transformation may remain superficial, failing to reach core business and value creation processes.

This study reveals the cognitive transformation pathway through which digital leadership drives employee digital creativity, clarifies the differentiated mediating roles of knowledge scanning strategies, and identifies the contextual dependency effect of corporate digital maturity. These findings provide theoretical foundations and practical insights for enterprises to accurately stimulate employee innovation during digital transformation.

Keywords: Digital Leader; Digital Creativity; Internal Digital Knowledge Scanning; External Digital Knowledge Scanning; Digital Maturity

1 Introduction

Currently, the digital economy is becoming a key force reshaping the global competitive landscape. However, in the practice of corporate digital transformation, an increasingly prominent phenomenon is that the success of transformation depends not only on whether enterprises introduce advanced technologies, but more critically on whether they can effectively stimulate employees' digital creativity.

Digital creativity refers to employees' ability to actively utilize digital technologies to generate novel and practical ideas and solve practical problems.¹ This capability is an important source for enterprises to achieve continuous innovation and build competitive advantages. However, how to systematically cultivate this capability remains a significant challenge for enterprises.

Among the many influencing factors, leadership plays a particularly critical role. With the deepening of digital transformation, an emerging concept—digital leadership—has emerged.² It refers to a new leadership model in which leaders fully leverage digital technologies and platforms to articulate a digital vision, provide digital resources, and implement empowerment and delegation, thereby leading teams to proactively drive digital transformation.

However, a core question remains: Can digital leadership effectively enhance employees' digital creativity? What are its underlying mechanisms? This urgently requires theoretical investigation and empirical testing.

2 Theoretical Foundation and Hypotheses

2.1 Digital Leadership and Digital Creativity

The current digital era presents significant challenges for leaders. Leaders in the digital age need to combine traditional and new digital technologies to effectively guide their organizations toward the future. Therefore, digital leadership is an emerging concept arising from the evolution of digital technology. A review of the literature reveals that digital leadership is a unique leadership paradigm characterized by reshaping strategic vision with digital thinking, stimulating organizational vitality through empowerment and collaboration, and embracing uncertainty with agile practices.³ Therefore, scholars argue that digital leaders possessing these characteristics can leverage digital skills to pursue innovation, lead employees to meet digital challenges, and thereby enhance corporate competitiveness. Furthermore, scholars also believe that digital leaders' capabilities in data management, intelligent decision-making, and articulating a digital vision can help employees improve work efficiency and thereby stimulate their greater potential.

Leadership style influences individual behavior, and leadership is an important factor in promoting employee creativity. Therefore, this study argues that digital leadership, as a positive leadership style, also affects employees' innovative performance, particularly employees' creativity in the digital environment—namely, employees' digital creativity. Digital creativity refers to employees' ability to actively utilize various digital technologies to generate both novel and useful ideas and to transform these ideas into practical solutions for real work problems.⁴ However, digital leadership, with its unique characteristics, differs from transformational leadership, inclusive leadership, ethical leadership, and other leadership styles, and may have distinct mechanisms in promoting individual creative performance.

Given the behaviors of digital leaders, employees are more willing to engage with emerging technologies and use digital tools, thereby generating new ideas and creativity in their work, which enhances their digital creativity. Based on this, this study proposes the following hypothesis:

H1: Digital leadership has a positive impact on employees' digital creativity.

2.2 The Mediating Role of Digital Knowledge Scanning

Digital knowledge scanning refers to the process through which employees identify, acquire, and process valuable information and knowledge from the external digital environment and internal digital systems. It comprises external digital knowledge scanning and internal digital knowledge scanning. External digital knowledge scanning refers to employees' systematic search for knowledge, skills, and information from the external environment (e.g., technological trends, competitor dynamics, market intelligence, policies and regulations, etc.). Internal digital knowledge scanning refers to employees' systematic search and integration of knowledge, skills, and information embedded within the organization (e.g., cross-departmental databases, colleagues' expertise and experiences, etc.).⁵ According to Social Information Processing Theory, employees, as key agents of organizational information processing, base their decision-making and innovative behaviors on the effective acquisition, interpretation, and application of information from their environment. In the digital context, employees' knowledge scanning activities have fully shifted to focus on digital platforms and data flows as core objects. Employees' digital knowledge scanning is a critical pathway for acquiring novel and diverse information, which is essential for stimulating and enhancing their digital creativity. Digital leadership, by constructing a supportive environment and providing systematic resources, plays a crucial role in driving and enabling employees' knowledge scanning behaviors.⁶ Therefore, digital leadership enhances employees' digital creativity by promoting both their internal and external knowledge scanning.

Based on Social Information Processing Theory, this study argues that employees' digital knowledge scanning behavior positively influences their digital creativity. From the perspective of external digital knowledge scanning, employees, as input ports of the information processing system, can acquire novel information beyond organizational boundaries through systematic scanning of external technological trends, market dynamics, and competitive intelligence. After being encoded and interpreted by employees, this heterogeneous information can break existing cognitive frameworks and provide diverse material for creative recombination.⁷ From the perspective of internal digital knowledge scanning, employees can directly access contextualized, high-quality knowledge resources by systematically acquiring validated project experiences, technical documentation, and operational data from within the organization. This internal knowledge not only provides a reliable information base for innovation but, more importantly, helps employees deeply understand the systemic interconnections and constraints of organizational operations. By effectively integrating internal knowledge, employees can enhance the organizational fit and implementation feasibility of their creative solutions while maintaining innovativeness.

Digital leadership, as a key contextual factor, provides necessary guidance and support for employees' digital knowledge scanning behaviors, and digital knowledge scanning systematically transforms the aforementioned environmental support into individual employees' digital creativity output.⁸ Therefore, this study proposes the following hypotheses:

H2: Internal digital knowledge scanning mediates the relationship between digital leadership and employees' digital creativity.

H3: External digital knowledge scanning mediates the relationship between digital leadership and employees' digital creativity.

2.3 The Moderating Role of Corporate Digital Maturity

The attention-based view of the firm posits that the allocation of individual attention within an organization is systematically guided and constrained by its structures, processes, and contexts. Therefore, based on the attention-based view of the firm, exploring the moderating role of corporate digital maturity in the relationship between digital leadership and employees' internal and external knowledge scanning behaviors is of great significance for understanding how digital leadership influences employees' cognitive behaviors through attention guidance.

When digital leaders advocate for external knowledge scanning, employees, constrained by existing cognitive patterns, struggle to break through the information boundaries set by these systems to engage in genuine exploratory learning.⁹ Furthermore, highly digitalized operational environments require employees to continuously invest cognitive resources to master and apply complex internal digital tools and processes. Therefore, corporate digital maturity may weaken the positive effect of digital leadership on employees' external digital knowledge scanning.

The integrated digital platforms and unified collaboration tool systems of enterprises with high digital maturity effectively consolidate professional knowledge resources dispersed across various departments, establishing a standardized knowledge storage and retrieval architecture. This system design can reduce the difficulty and time cost for employees to search for internal professional information, enabling the knowledge-sharing philosophy advocated by digital leaders to be quickly transformed into executable workflows.¹⁰ When employees need professional knowledge support, they can efficiently acquire it through established digital channels, greatly enhancing the systematic nature and efficiency of internal knowledge scanning. Moreover, in highly digitalized organizations, data-driven decision-making has become a basic working principle, and various analytical tools within the organization provide ample data support for employees. This fosters a cognitive orientation that prioritizes internal knowledge among employees. When facing work decisions, employees will naturally direct their attention first to digital knowledge resources within the organization. Therefore, corporate digital maturity may enhance the positive effect of digital leadership on employees' internal knowledge scanning.

From the perspective of the attention-based view of the firm, corporate digital maturity systematically shapes employees' information environment and cognitive frameworks in the workplace.¹¹ By configuring internal and external knowledge acquisition channels, optimizing information processing procedures, and reinforcing specific cognitive orientations, it can influence the effectiveness of digital leadership in guiding employees' knowledge scanning behaviors. Therefore, the following hypotheses are proposed:

H4: Corporate digital maturity positively moderates the relationship between digital leadership and employees' internal digital knowledge scanning. That is, the higher the corporate digital maturity, the more pronounced the positive impact of digital leadership on employees' internal digital knowledge scanning, and vice versa.

H5: Corporate digital maturity negatively moderates the relationship between digital leadership and employees' external digital knowledge scanning. That is, the higher the corporate digital maturity, the more constrained the positive impact of digital leadership on employees' external digital knowledge scanning, and vice versa.

3 Research Methods

3.1 Research Sample and Data Collection

The research context of this study is predicated on the condition that the surveyed participants have been exposed to digital technologies. Therefore, it was necessary to select individuals working in companies that have already adopted digital technologies or digital tools as the research subjects. Based on the research background and context, the survey targets were enterprise employees, covering industries such as manufacturing, finance, and the internet, as well as various types of enterprises including state-owned enterprises, private enterprises, foreign-invested enterprises, and joint ventures.¹² Given the specificity of the sample, questionnaires were primarily distributed through online channels. In addition to asking friends and relatives to distribute and complete the questionnaires within their respective companies, electronic questionnaires were also distributed through online platforms to collect sample data.

To ensure the objectivity and authenticity of the survey results, respondents were assured that the questionnaire would be anonymous, that the results would be used solely for academic analysis, and that their personal privacy and security would not be compromised. Respondents were only allowed to proceed after providing their consent.¹³ To mitigate the influence of common method bias, the survey was conducted in two stages with a time interval of two weeks. To ensure data quality, one attention-check question (e.g., "Please select the fifth option - 'Completely Agree' for this question") was included in each stage to ensure that respondents answered carefully.

3.2 Measurement Instruments

This study adopted established scales developed by domestic and international scholars and made appropriate contextual revisions. English scales were strictly subjected to a translation-back translation procedure to ensure content accuracy in the Chinese context.¹⁴ All scales employed a 5-point Likert scale, where 1 represented "Completely Disagree" and 5 represented "Completely Agree."

3.3 Data Analysis

3.3.1 Confirmatory Factor Analysis.

This study used Mplus 8.3 to conduct confirmatory factor analysis (CFA) to examine the discriminant validity among the variables. The results are shown. The hypothesized model, i.e., the five-factor model (Digital Leadership, External Digital Knowledge Scanning, Internal Digital Knowledge Scanning, Corporate Digital Maturity, and Digital Creativity), demonstrated a good fit to the data, and was significantly superior to alternative models.¹⁵ This indicates that the five variables involved in this study possess good discriminant validity.

3.3.2 Common Method Bias Test.

Although this study employed a multi-time-point, multi-source approach to collect data, since the questionnaires were all completed by enterprise employees using self-report measures, common method bias may still be a concern.¹⁶ Therefore, Harman's single-factor test was conducted for examination (Podsakoff et al., 2003). The results showed that the variance explained by the first factor was 27.799%, which is below the threshold of 40%. Additionally, the one-factor model demonstrated the poorest fit. Therefore, this study does not have a serious common method bias problem. Furthermore, multicollinearity analysis revealed that the tolerance values for all variables were greater than 0.5, and the variance inflation factor (VIF) values were all less than 2, indicating that there is no multicollinearity problem among the variables in this study.

3.3.3 Descriptive Statistics and Correlation Analysis.

This study used SPSS 27.0 to analyze the means, standard deviations, and correlation coefficients of each variable.¹⁷ The results of descriptive statistics and correlation analysis are shown. Digital leadership was positively correlated with both external digital knowledge scanning ($r = 0.169$, $p = 0.012$) and internal digital knowledge scanning ($r = 0.178$, $p = 0.008$). Furthermore, both external digital knowledge scanning ($r = 0.358$, $p < 0.001$) and internal digital knowledge scanning ($r = 0.257$, $p < 0.001$) were positively correlated with employee digital creativity. The results indicate that the correlations among the variables are consistent with theoretical expectations, providing preliminary support for the research hypotheses.

4 Conclusion

This study makes theoretical contributions in three dimensions: it focuses on the emerging concept of digital leader, revealing its underlying mechanism of influencing employees' digital creativity through digital knowledge scanning; it distinguishes the differentiated transmission roles of internal and external knowledge scanning; and it introduces digital maturity as a contextual boundary that shapes leadership effectiveness. At the practical level, enterprises should prioritize the cultivation of digital leaders, foster an organizational atmosphere that encourages knowledge scanning, and implement tailored strategies according to their digital maturity level.

This study has limitations including sample constraints and cross-sectional data biases. Future research may employ longitudinal designs and multi-source data collection, and further explore additional variables to refine the theoretical model.

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