

# Research Status and Enhancement Path of Executive Digital Leadership in the Context of Enterprise Digital Transformation

Wang Shuang

School of Economics and Management, Guangxi Normal University, Guilin, China  
m15678306867@163.com

**Abstract:** Digital transformation is an unprecedented technological innovation facing organizations, with enormous business potential and transformational risks. Digital leadership is an important factor in addressing the challenges of digital transformation and has become a key concept in the discussion of the skills managers need to drive digital transformation. In addition, along with the increasing degree of digitization within organizations, the application and expansion of digital technologies have changed the management context and leadership styles of leaders, placing new demands on the digital leadership skills of business leaders. However, the concept of digital leadership has not yet attracted enough attention, and the lack of a scientific evaluation system for digital leadership has led to little research on the path to improve the digital leadership of corporate executives at this stage. Based on this, this study sorted out the conceptual definition and structural dimensions of digital leadership, extended the research on digital leadership, and provided reference and guidance for corporate executives to improve their digital leadership from the macro environment, organization, team, and individual levels.

**Keywords:** Digital Leadership; Research Status; Enhancement Path

## 1. Introduction

In recent years, along with the penetration of big data, artificial intelligence, and other emerging digital technologies in all areas of society, the digital transformation of organizations has become a major trend worldwide.<sup>[1]</sup> While digital transformation brings opportunities and possibilities to organizations, it also brings challenges and risks. An online survey of 450 digital transformation executives conducted by market research firm Vanson Bourne in 2019 found that more than three-quarters of respondents said they had experienced the failure or downsizing of a digital transformation project in the past year, and nearly half of respondents also said their transformation progress was slow. There are many scholars who have analyzed the reasons why organizations' digital transformation is hindered, among them, Hess's study points out that enterprise digital transformation cannot be achieved without strong support from management, and the lack of leadership drive is one of the important reasons for the failure of organizations' digital transformation.<sup>[2]</sup> In addition, with increasing digitization, new team forms such as virtual teams and work styles such as telecommuting are becoming more common in organizations, creating new leadership situations and leadership styles that require leaders to be able to exert their influence through digital technology platforms and to enhance the development of their own digital leadership capabilities. In this context, the concept of digital leadership has emerged.<sup>[3]</sup>

Effective leadership behaviors are determined by the context in which leadership development takes place.<sup>[4]</sup> While there are similarities between the leadership skills required in the digital environment and traditional leadership, they are not the same, and the differences are critical to the success or failure of digital transformation.<sup>[5]</sup> For example, the fact that leaders' decisions are increasingly based on their knowledge of big data rather than on their own experience and intuition, the fact that more and more employees are working from home or in virtual teams, and that new demands are being placed on leaders' digital communication skills, cross-cultural management skills, and so on, mean that leaders may need to acquire skills and behaviors that are very different from those that they had just a few years ago. Therefore, what are the competencies that need to be enhanced by leaders in the context of changing social environments and leadership situations? What are the concepts and dimensions of digital leadership? What distinguishes it from traditional leadership? What perspectives do current studies focus on? And how can business executives enhance digital leadership in the context of digital transformation? This paper will explore the above questions.

## 2. Theoretical framework

### 2.1. *The concept of digital leadership*

Digital leadership is a new concept formed based on the context of the digital era, which embodies a more contemporary and richer connotation than traditional leadership. At present, there is not yet a recognized consensus on the connotation of digital leadership. Based on different perspectives, scholars have put forward different opinions about the connotation of digital leadership. A part of scholars believe that leadership is a series of influence processes to achieve organizational goals,<sup>[6]</sup> for this reason, based on the leadership process perspective, Avoli proposed the concept of digital leadership (E-leadership) for the first time,<sup>[7]</sup> and after a series of previous studies and continuous improvement, the connotation of digital leadership was reinterpreted in 2014 to consider that "Digital leadership is a social influence process mediated by information technology and embedded in proximal and distal contexts that leads to changes in attitudes, thinking, and behaviors of individuals, groups, and organizations". Although this definition is often mentioned by subsequent scholars, it mainly applies to the abstract level, does not involve the aspect of the constituent elements of digital leadership, and is less operational. On this basis, some scholars have begun to interpret digital leadership based on a competency perspective, and Larjovuori proposed that digital leadership refers to the ability of leaders to create a clear and meaningful vision for the digital transformation of the organization and to implement a digital strategy.<sup>[8]</sup> With the continuous deepening of research, scholars' exploration of the concept of digital leadership is no longer limited to the leadership process or a particular leadership trait, but combines the leadership process with leadership competencies and proposes a more comprehensive conceptual framework, Roman argued that the essence of digital leadership is the process of social influence mediated by digital technology, but it requires leaders to have a certain degree of professional and technical knowledge, digital communication skills, and change management skills, as well as the ability to develop digital teams and foster team trust and provide appropriate social interactions in a virtual environment.<sup>[9]</sup>

In summary, the current discussion on the connotation of digital leadership has not yet formed a unified consensus, and scholars have mainly proposed the concept of digital leadership based on three aspects: process perspective, capability perspective, and comprehensive perspective. Overall, digital leadership plays an important role in the successful implementation of digital transformation in organizations, relying on the use of digital technology, devices of digital resources, and the implementation of a management model based on digital intelligence.<sup>[10]</sup>

### 2.2. *Contrasts with Traditional Leadership*

The study of leadership types has gradually diversified from leadership trait theories to behavioral theories to contingency theories. Early on, scholars supported the idea that leaders differ from other individuals and have a universal set of leadership traits and behaviors that can be applied to all organizations and business environments.<sup>[11]</sup> For this reason, early research focused on discovering the traits and behavioral patterns that distinguish leaders from others, with a view to finding a universal leadership trait or leadership behavior that ensures leader success. Contrary to the above view, Tannenbaum and Schmidt stated that to enhance managerial effectiveness, leaders should adopt styles and behaviors that match the environment. In other words, effective leadership behaviors are determined by the environment in which the leader develops,<sup>[12]</sup> and exceptional leaders should adapt their leadership behaviors and thus their environment according to the differences in the environment. As the basic assumption of the contingency theory presupposes, what works in some environments may not work in others.

Interpreting digital leadership based on leadership trait theory or behavioral theory, it can be found that it has commonalities with traditional leadership styles such as spiritual leadership and benevolent leadership, e.g., in digital environments, leaders should also demonstrate inclusive leadership styles,<sup>[13]</sup> and leadership traits such as competence, caring, and benevolence are still indispensable for leaders. In addition, the requirement for leaders to cultivate team trust and build harmonious and strong relationships between supervisors and subordinates remains unchanged.<sup>[14]</sup> Some features of general leadership theory can still be applied to digital leadership.<sup>[15]</sup> Leadership contingency theory, on the other hand, highlights the consideration of situational factors. According to the basic assumptions of Contingency Theory, leadership is context-specific and must be adapted to today's needs. Environmental changes due to technological advances may affect leadership. In the digital era, the development of digital technologies not only requires leaders to have new skills, but also provides a new vehicle for the leadership process, and the differences brought about by such changes can be decisive for the effectiveness of traditional

leadership practices.

Therefore, compared with traditional leadership, the specificity of digital leadership is mainly reflected in the following: first, digital leaders should not only have the ability to apply technology themselves, but also make key choices about which technologies to adopt in the organization, be able to control through digital technology, and pay attention to promoting the digital security of the organization; second, in the digital environment, some of the leader's traits have become even more important, such as the willingness to learn and relearn, the sense of adventure, etc.; finally, digital technology also brings changes in organizational structure and leadership objects, which have an impact on leadership practices. From the perspective of organizational structure, the early enterprise organizational structure is a more strict hierarchical system, the existence of this hierarchical system hinders the flexibility of team members' cooperation and communication.<sup>[16]</sup> Digital technology has changed the way information is acquired, stored, understood, and transmitted in organizations, which has impacted the hierarchical organizational structure and leadership style,<sup>[17]</sup> and leaders in the digital era need to break down organizational barriers and establish a flat organizational structure. From the perspective of the leadership object, digital technology makes the formation of virtual teams possible, and the diverse backgrounds and characteristics of the members also put forward higher requirements for leadership, and leaders need to make corresponding adjustments to the form and frequency of members' reporting, as well as the team's collaboration and communication and other factors. In addition, digitally mediated leadership processes lack audio-visual interaction, and the absence of facial expressions, tone of voice, and accents can lead to distorted interpretations of information, which can lead to misunderstandings and reduced employee motivation. Therefore, leaders need to change in order to cope with the changes in the way they communicate and carry out their work as a result of information technology.

### ***2.3. Dimensions and measurement of digital leadership***

Digital leadership belongs to a relatively cutting-edge research field, and there are limited studies involving the dimensional structure and measurement scales of digital leadership. Zeike anchored digital leadership to the attitudinal and skill dimensions and designed a six-item measurement scale.<sup>[18]</sup> Claassen designed a unidimensional, seven-item digital leadership scale, which measured digital leadership from the perspectives of digital literacy, organizational support, access to digital skill information, etc.<sup>[19]</sup> This scale relies on the subjective evaluation of employees but fails to reflect the characteristics of digital leadership. Claassen designed a single-dimensional seven-item digital leadership scale, which mainly measured digital leadership from the perspectives of digital literacy, organizational support, and access to digital skills information, etc. The determination of the questions on the scale mainly relied on the subjective evaluation of employees but failed to reflect the characteristics of digital leadership. Roman constructed the SEC model of digital leadership from the theoretical perspective, and classified digital leadership into E-communication, E-socialization, E-socialization, E-socialization, E-socialization, and E-socialization, and so forth. social, E-change, E-team, E-tech, and E-trust. Ma Liang summarized digital leadership into six dimensions: digital science and technology, digital economy, digital society, digital government, digital security, and digital ecology from the perspective of the construction of digital China, and the target of the study is the leading cadres in the government system, which is far away from the enterprise context.<sup>[20]</sup> Du Xiaozhen and Dai Dongdong focused on the construction of digital leadership in the public sector and summarized digital leadership as digital cognitive application ability, digital strategic leadership ability, digital change promotion ability, digital coordination and communication ability, digital change assessment ability, and digital culture construction ability.<sup>[21]</sup> Focusing on the Chinese context, Zhang Zhixin and Zheng developed a digital leadership scale with localization, which classified digital leadership into four dimensions: digital mindset change ability, digital resource construction ability, digital ethical empathy ability, and digital cognitive practice ability.<sup>[22]</sup>

## **3. The Path to Enhancement of Executive Digital Leadership**

Under Digital leadership has become an important and unique capability in today's organizational management, but digital leadership does not require leaders to become "technology masters", but rather requires leaders to be able to understand the new technology and know how to effectively use digital technology to meet the needs of employees and achieve the organization's vision. This study proposes the following management strategies from four levels: macro-environment, organization, team and individual.

First, at the macro-environmental level, to improve digital insight capabilities and acumen. Relevant

studies have shown that companies that miss the trend of today's digital transformation will be less flexible or even lose their competitiveness in the future, and the success of enterprise digital transformation depends on the strong leadership ability of leaders to foresee and drive the transformation. Therefore, combining the cognitive-attitudinal-behavioral framework, this study argues that effective digital leaders should start from themselves, strengthen their cognition of digitalization, break their inherent thinking patterns, embrace digital change with a positive attitude, cultivate their keen insight, grasp the macro policy environment and the industry environment as a whole, adapt to the new digital environment by actively adjusting their own behaviors, grasp the digital opportunities and avoid the digital risks.

Second, at the organizational level, leaders should strengthen their execution capabilities. First, establish the organization's digital vision and development direction, carry out the top-level design of digital transformation, and coordinate information technology and strategic goals. Second, the digital era requires leaders to be culturally flexible. Employees from different cultural backgrounds, countries and regions work together, in such a work environment, leaders must develop their own "cultural flexibility", to establish an inclusive and innovative cultural environment. Finally, from the perspective of organizational structure, the early enterprise organizational structure is a strict hierarchical system, the existence of this hierarchical system hinders the flexibility of team members' cooperation and communication. With the help of digital technology, the way of obtaining, storing, and transmitting information in the organization has changed to impact on the hierarchical organizational structure and leadership, leaders in the digital era need to break down organizational barriers, establish a flat organizational structure, accelerate the deciphering of organizational boundaries between internal and external stakeholders, and promote the flow of information. In addition, the traditional leader-centered information and decision-making process should give way to collaborative decision-making by multiple actors and data-based decision-making.

Third, at the team level, leadership and communication capabilities are enhanced. First, digital technology has made it possible to form virtual teams, and diverse member backgrounds and characteristics place higher demands on leadership, with team members developing in physical labor. It is worth noting that leaders also need to pay attention to the "dark side" of digital transformation, such as digital task management process may cause information overload to employees, blurring the boundaries between personal work and life, which triggers employee dissatisfaction. Finally, frequent online communication in the workplace can lead to misinterpretation of information, which can lead to misunderstandings and demotivation. Therefore, leaders should learn to master online communication skills to ensure the sincerity, fairness, and reliability of communication.

Fourth, at the individual level, digital learning is enhanced. Leaders' proficiency or skill level differences in digital technology play an important role in teams. From the leaders' own perspective, they should get rid of the inherent thinking mode and improve the learning initiative. From the perspective of enterprises, on the one hand, enterprises combined with the digital leadership evaluation scale, launch the digital leadership assessment, adhere to the combination of examination and use, conduct targeted training on weak links, and customize digital leadership learning programs for leaders at different levels; on the other hand, enterprises stimulate the intrinsic motivation of leaders through propaganda, and set up corresponding incentive mechanisms to encourage proactive behaviors of improving the digital leadership ability.

### **3.1. Conclusion**

Digital transformation accelerates the ability to upgrade the digital governance of organizations, leading to the expansion of the temporal and spatial boundaries of management work, and organizations need to understand and respond to the challenges of digital transformation in the digital environment. Among them, traditional leadership advantages cannot be automatically carried over to the digital era, and digital leadership has thus emerged. Today's organizations are in a critical period of digital transformation, relying on continuous innovation and change to adapt to rapidly changing market demand, digital leadership can make data-driven decision-making analysis based on the effective combination of digital technology and organizational strategy, to promote innovation, change and transformation of the implementation of the ground. Actively cultivating digital leadership can play a huge role in promoting the digital transformation of organizations and help them to carry out digital transformation and change smoothly. Therefore, this study sorted out the conceptual definition and structural dimensions of digital leadership, compared digital leadership with traditional leadership, and provided reference and guidance for business managers to enhance digital leadership from the macro-environmental, organizational, team and individual levels.

### 3.2. Contribution

On the one hand, it enriches digital leadership research. With the advent of the digital economy, the traditional enterprise management model is no longer sufficient to support enterprises to participate in the complex market competition, enterprises are in urgent need of a kind of leadership that can use digital technology to help enterprises quickly respond to market changes and support the digital transformation of the organization. To this end, this paper focuses on digital leadership, a new type of leadership in line with the trend of the times, and discusses the current state of digital leadership, which not only responds to the current call for cutting-edge research on digital leadership, but also further enriches and fleshes out the research on digital leadership, expands the understanding of the impact of digital leadership, and powerfully improves the understanding of the role of digital leadership in the process of enterprise digital transformation. .

On the other hand, digital leadership has become indispensable in the era of digital economy, where data has become a core asset to drive the transformation and development of enterprises, and the profound changes brought about by digitization have led to unprecedented pressure and challenges for managers. Therefore, from a practical point of view, in the process of digital transformation, enterprise managers should not only maintain a positive and optimistic mindset, set an example, and shape their own digital leadership; but also develop different digital leadership training programs for members of different levels of the organization, to help members of the organization to actively change their way of thinking, cognitive ability and leadership mode, and successfully realize the transformation of digital talents, so as to Effectively promote organizational innovation and change, and point out the direction for enterprises to successfully realize digital transformation.

### References

- [1] Bharadwaj, A. (2013). *Digital business strategy: toward a next generation of insights*. *MIS quarterly*, 471-482.
- [2] Hess, T. (2016). *Options for formulating a digital transformation strategy*. *MIS Quarterly Executive*, 15(2).
- [3] Avolio, B.J., Kahai, S., and Dodge, G.E. (2000). *E-leadership: Implications for theory, research, and practice*. *The leadership quarterly*, 11(4), 615-668.
- [4] Li Ming, Mao Junquan. (2015). *Theoretical Review of Leadership Research*. *Journal of Shanghai Administrative Institute*, (6), 91-102.
- [5] Roman, A. (2017). *Operationalizing the definition of e-leadership: identifying the elements of e-leadership*. *International Review of Administrative Sciences*, 85(1), 80-97.
- [6] Zhong, L. (2017). *Indicators of digital leadership in the context of K-12 education*. *Journal of Educational Technology Development and Exchange*, 10(1), 3.
- [7] Avolio, B.J. (2014). *E-leadership: Re-examining transformations in leadership source and transmission*. *The Leadership Quarterly*, 25(1), 105-131.
- [8] Bordi, L. (2018). *Leadership in the digital business transformation*. *Proceedings of the 22nd international academic mindtrek conference*, 212-221.
- [9] Roman, A.V., Van Wart, M., Wang, X., et al. (2019). *Defining e-leadership as competence in ICT-mediated communications: an exploratory assessment*. *Public Administration Review*, 79(6), 853-866.
- [10] Amsinck, H. (2020). *How LEGO built the foundations and enterprise capabilities for digital leadership*, *Strategic information management: Routledge*, 174-201.
- [11] Lord, R. G., De Vader, C., Alliger, G. M. (1986). *A meta-analysis of the relation between personality traits and leadership perceptions: an application of validity generalization procedures*. *Journal of Applied Psychology*, 71(3), 402-410.
- [12] Tannenbaum, R., Schmidt, W.H. (1957). *How to Choose a Leadership Pattern*. *Harvard Business Review*.
- [13] Brosi, P., Duman, D., et al. (2018). *How Does the Digital Transformation Affect Organizations? Key Themes of Change in Work Design and Leadership*. *Management revue-Socio-Economic Studies*, 29(2), 114-138.
- [14] Cowan, L.D. (2014). *E-Leadership: Leading in a Virtual Environment - Guiding Principles for Nurse Leaders*. *Nursing Economics*, 32(6), 312.
- [15] Liu, C., Van Wart, M., Kim, S., et al. (2020). *The effects of national cultures on two technologically advanced countries: The case of e-leadership in South Korea and the United States*. *Australian Journal of Public Administration*, 79(3), 298-329.
- [16] Jones, N., O'shea, J. (2004). *Challenging hierarchies: The impact of e-learning*. *Higher Education*,

48(3), 379-395.

[17] Den Hartog, D. N., Keegan, A. E., Verburg, R. M. (2007). *Limits to leadership in virtual contexts. The Electronic Journal for Virtual Organizations and Networks*, (09).

[18] Zeike, S., Bradbury, K., Lindert, L., et al.(2019). *Digital leadership skills and associations with psychological well-being. International journal of environmental research and public health*, 16(14), 2628.

[19] Claassen, K. (2021). *How to evaluate digital leadership: a cross-sectional study. Journal of Occupational Medicine and Toxicology*, 16(1), 1-8.

[20] Du Xiaozhen, Dai Dongdong. (2022). *Structural Dimensions and Construction Paths of Digital Leadership in the Public Sector. The Journal of Shanghai Administration Institute*, 23(06), 70-83.

[21] Ma Liang. (2022). *The structure and dimensions of digital leadership. Seeker*, (06), 100-110.

[22] Zhang zhixin, Zheng Xiaoming. (2023). *Digital leadership: structural dimensions and scale development. Economic Management*, 1-18.