

A Study on the Driving Factors of Employees' Adaptive Performance in the Context of Digital Transformation

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Abstract: *The deepening advancement of digital transformation has made employees' adaptive performance a core element for organizations to maintain competitive advantage. Starting from the transformation of digital work scenarios, this study re-examines the conceptual boundary and structural dimensions of adaptive performance, and constructs a driving mechanism model featuring dual pathways of individual cognition and organizational support. At the level of conceptual reconstruction, this study proposes that adaptive performance in the digital context presents a three-dimensional dynamic structure comprising technological integration, relationship reshaping, and self-regulation. At the level of individual drivers, this study reveals that digital cognitive schemas form a chain activation through the mediating role of digital agility and the digital self-efficacy triggered by cognitive reappraisal, thereby constituting an internal dynamic cycle. At the level of organizational support, this study elucidates the immersive effect of digital climate, the coupling mechanism between technological adaptability and individual adjustment capabilities, as well as the cross-level penetration of team transactive memory systems, which together form the contextual foundation for the generation of adaptive behaviors. Through theoretical integration and mechanism analysis, this study provides a systematic analytical framework for understanding the multiple driving pathways of employees' adaptive performance in the context of digital transformation.*

Keywords: *digital transformation; employees' adaptive performance; digital cognitive schemas; digital agility; team transactive memory systems*

Introduction

The systematic embedding of digital technology is reshaping the operational logic of organizations and the work scenarios of individuals. The proliferation of intelligent platforms and collaborative software has gradually blurred traditional job boundaries, rendering work tasks variable, compound, and unstructured. Against this backdrop, employees' adaptive performance — as the capability of individuals to adjust behaviors, integrate resources, and effectively respond to changes in a dynamic environment — has gradually become a key support for organizations to maintain resilience in digital competition. However, existing research on adaptive performance is still largely based on assumptions of relatively stable organizational environments, making it difficult to fully capture the complexity of continuous interaction between individuals and technology in the digital field. Meanwhile, the exploration of driving factors tends to focus either on individual psychological traits or on organizational environmental characteristics, lacking a systematic integration of the interactive mechanisms between the two. Therefore, this study focuses on the context of digital transformation, conducting a theoretical analysis from three levels — conceptual reconstruction, individual drivers, and organizational support — aiming to reveal the multidimensional generative pathways of employees' adaptive performance and to provide a new theoretical perspective for research on digital human resource management.

1. The Connotation and Dimensional Reconstruction of Adaptive Performance in the Context of Digital Transformation

1.1 Work Scenario Transformation and the Evolution of Adaptive Demands Under the Embedding of Digital Technology

The deep embedding of digital technology is fundamentally reshaping the operational logic of organizations and the work scenarios of individuals. The introduction of intelligent platforms, collaboration software, and algorithmic systems has gradually blurred the boundaries of traditional fixed job responsibilities, rendering work tasks variable, compound, and unstructured. The real-time flow of information and the decentralization of decision-making authority require employees to rapidly interpret data signals and make accurate judgments in non-preset situations. This digital reconstruction of work scenarios implies that the role of individuals is shifting from executors of established procedures to solvers of dynamic problems, imposing unprecedented adaptive demands on employees that go beyond previous requirements.

The profound transformation of work scenarios has directly driven the evolution of the content of adaptive demands. Before digital transformation, employees' adaptability was primarily reflected in passive adjustments in response to routine task changes; in the current digital field, however, adaptive demands have shifted toward proactive anticipation of technological iteration, deep integration with virtual collaboration, and cognitive accommodation of ambiguous situations. Employees are not only required to master the operational skills of emerging digital tools, but also need to possess the deeper capability to identify opportunities, integrate resources, and rapidly reconstruct behavioral patterns within technology-driven workflows. This evolution signifies that adaptability has transitioned from a supportive work trait to a core competency determining individuals' survival and development within digital organizations^[1].

1.2 The Extension of the Adaptive Performance Concept's Boundaries in the Digital Field

The traditional concept of adaptive performance primarily focuses on individuals' behavioral responses and outcome achievements when facing changes in job responsibilities, task uncertainties, or unexpected events, with its theoretical construction based on a relatively stable organizational environment. However, the digital field, characterized by its high permeability, strong interconnectivity, and continuous iterativity, has broken the organizational boundaries and temporal rhythms presupposed by traditional adaptive performance. What individuals need to cope with is no longer isolated change events but continuous dynamic situations woven together by technological systems, interpersonal networks, and algorithmic rules. This shift necessitates a re-examination of the conceptual boundaries of adaptive performance, extending it from the effectiveness of responding to specific changes to the ability to integrate into and navigate the overall digital ecosystem.

In the digital context, the extension of the adaptive performance concept's boundaries is reflected in a dual deepening at both the cognitive and behavioral levels. At the cognitive level, individuals need to establish a digital thinking model that evolves synchronously with the technological environment, enabling them to understand and anticipate the changes in work logic brought about by technological embedding. At the behavioral level, adaptive performance is no longer limited to the adjustment of execution in response to superiors' instructions, but encompasses the meta-competence to actively explore new scenarios for technology application, establish effective interaction models within virtual teams, and continuously update personal knowledge systems. This boundary extension renders adaptive performance a more inclusive and dynamic construct, which more accurately reflects the complex interactive relationship between individuals and the work environment in the digital era.

1.3 Analysis of the Multidimensional Structure of Adaptive Performance From a Dynamic Interaction Perspective

Introducing the dynamic interaction perspective provides a new theoretical lens for analyzing the internal structure of adaptive performance in the digital context. Traditional static dimensional divisions struggle to capture the emergent characteristics generated during the continuous interaction between individuals and the technological environment. The dynamic interaction perspective emphasizes that adaptive performance is not a simple manifestation of individuals' inherent traits, but rather a result that is continuously generated and evolved through cyclical interactions with digital tools, organizational climate, and collaborative networks. This perspective requires the structure of adaptive

performance to be viewed as an open system, in which various dimensions interpenetrate and mutually reinforce one another, collectively constituting individuals' adaptive performance in the digital field^[2].

Based on the dynamic interaction perspective, the structure of adaptive performance can be analyzed from three levels: the technological integration dimension, the relationship reshaping dimension, and the self-regulation dimension. The technological integration dimension focuses on individuals' ability to internalize digital tools as extensions of their cognition and action, which is reflected in the seamless integration and innovative application of workflow technologies. The relationship reshaping dimension points to individuals' ability to establish trust, coordinate conflicts, and build consensus within digital communication media, reflecting their social adaptability in virtual work scenarios. The self-regulation dimension involves individuals' capacity for cognitive management, emotional control, and goal calibration when facing continuous technological updates and information overload. These three dimensions do not exist in isolation; instead, they form a dynamic coupling through individuals' real-time experiences and reflections, collectively constituting a complete structural framework of adaptive performance in the digital context.

2. The Interactive Driving Mechanism of Individual Cognition and Digital Competence

2.1 The Shaping of Employees' Adaptive Intentions by Digital Cognitive Schemas

As an internal knowledge framework for understanding and responding to a technology-embedded work environment, digital cognitive schemas profoundly influence employees' perceptions of and reaction tendencies toward digital transformation. When employees encounter digital work scenarios, their existing cognitive structures regarding technological tools, information flow, and human-computer interaction guide their selective attention to and interpretation of new situations. Individuals with high digital cognitive schemas tend to view technological updates as understandable and manageable work elements, enabling them to quickly extract key clues from complex data interfaces and operational processes and form clear mental representations of digital tasks. This structured cognitive foundation provides the necessary explanatory framework and psychological preparation for the generation of adaptive intentions.

Adaptive intention, as a psychological tendency for employees to proactively adjust their behaviors to match digital requirements, largely depends on the comprehensiveness and flexibility of cognitive schemas. Digital cognitive schemas not only help employees identify patterns and regularities within technological changes, but also transform past experiential responses into coping strategies for current situations through mechanisms of analogy and transfer. When cognitive schemas contain rich digital scenario templates and successful response scripts, employees are more likely to develop a willingness to try and a motivation to explore when facing new technological iterations or system updates. This transmission from deep cognitive structures to surface behavioral tendencies reveals that adaptive intention does not arise from nowhere, but is rooted in individuals' cognitive construction processes of the digital world^[3].

2.2 The Mediating Role of Digital Agility in Technological Iteration

Digital agility represents employees' ability to learn quickly, apply flexibly, and integrate digital tools effectively in the context of continuous changes in the technological environment. In the process of digital transformation, the acceleration of technological iteration makes static knowledge reserves difficult to sustain over time, requiring individuals to possess the capability to master new systems and adapt to new processes within a short period. Employees with higher digital agility can rapidly transfer the general rules and flexible strategies stored in their digital cognitive schemas to the operational practices of new technology platforms, thereby shortening the time lag between cognition and action. This ability enables individuals to maintain continuity in work rhythm and stability in output quality when facing version updates or module replacements.

Digital agility plays a key mediating role between cognitive schemas and adaptive performance. Employees' understanding and expectations of the technological environment, formed through digital cognitive schemas, need to be transformed via digital agility before they can be realized in specific work adjustments and problem-solving efforts. Digital agility serves as a conversion channel that directs cognitive resources toward behavioral output, ensuring that adaptive intentions at the cognitive level can be effectively externalized as coping performances in contexts of technological iteration. When the pace of technological updates exceeds the normal learning cycle, digital agility activates

individuals' improvisational coping mechanisms, enabling them to respond quickly based on experiential intuition in the absence of complete information, thereby maintaining stable output of adaptive performance amidst dynamic changes.

2.3 The Chain Activation Path of Cognitive Reappraisal and Digital Self-Efficacy

Cognitive reappraisal, as a deep-level information processing strategy, refers to the process through which individuals reinterpret and assign meaning to stimuli in digital work situations. Faced with the uncertainties brought about by digital transformation, employees often need to engage in continuous cognitive adjustments concerning the operational logic of technological systems, the changing implications of task requirements, and the redefinition of their own roles. Through cognitive reappraisal, individuals can reinterpret technological factors originally perceived as disruptions or obstacles as opportunities to enhance work efficiency or expand the boundaries of their capabilities. This process of meaning reconstruction helps alleviate the cognitive tension triggered by technological changes, thereby freeing up psychological space for subsequent behavioral engagement^[4].

Digital self-efficacy is gradually activated and continuously strengthened in this process of cognitive adjustment. When employees establish a positive interpretation of digital situations through cognitive reappraisal, their sense of control and confidence in operating new systems or addressing technical issues subsequently increase. Each successful experience of technology application serves as empirical evidence for the accumulation of digital self-efficacy, and this sense of efficacy in turn supports individuals in remaining composed when facing more complex technological challenges. A chain activation relationship is formed between cognitive reappraisal and digital self-efficacy: the former reduces psychological resistance by altering cognitive appraisals of technological situations, while the latter sustains continuous behavioral engagement by providing confidence in action. Together, they constitute an internal dynamic cycle that drives adaptive performance.

3. The Generative Logic of Organizational Support Elements and Adaptive Behavior

3.1 The Infiltration Effect of Digital Climate on Employees' Exploratory Behavior

Digital climate, as the shared psychological perception among organizational members regarding the technological application environment, constitutes the contextual background for the occurrence of employees' adaptive behavior. This climate is reflected in multiple dimensions, including the organization's emphasis on digital tools, its tolerance for technological trial and error, and its degree of support for innovative applications. Through symbolic transmission and interactive cues in daily work, it gradually internalizes into employees' latent cognitive scripts regarding digital work methods. When the digital climate exhibits openness and encouragement, employees perceive safety in attempting new technologies and exploring new paths, thereby reducing psychological concerns about operational errors or fluctuations in efficiency, and providing the necessary psychological safety for the germination of exploratory behavior. The establishment of this psychological safety does not stem from explicit institutional commitments, but rather from mutual understanding among colleagues, supervisors' tolerance of reasonable mistakes during technological exploration, and the implicit organizational approval of innovative attempts, collectively forming an emotional support network permeating the work scenario^[5].

Under the continuous infiltration of digital climate, exploratory behavior gradually evolves from occasional individual attempts into a normalized behavioral pattern. The infiltration effect, distinct from direct incentives or instructions, shapes employees' overall understanding of the work environment, leading them to regard technological exploration as an inherent component of their work roles rather than an additional burden. Within such a climate, employees are more inclined to proactively explore hidden features following interface updates, attempt cross-platform data integration pathways, and construct personalized digital workflows. The infiltration of digital climate not only activates employees' willingness to explore, but also fosters the diffusion and solidification of exploratory behavior at the organizational level through behavioral demonstration and experience sharing among groups. When innovative practices by some employees are observed and imitated by others, these behaviors gradually transcend the realm of individual spontaneity and become embedded as shared work routines and technological culture within teams, ultimately constituting the collective adaptive assets through which organizations respond to digital transformation.

3.2 The Coupling Mechanism Between the Supply of Technological Adaptability and Individual Adjustment Capabilities

The supply of technological adaptability refers to the degree to which the digital tools, platforms, and systems provided by an organization align with employees' work tasks and operational habits in terms of functional design. A higher level of technological adaptability in the supply can reduce employees' cognitive switching costs, enabling them to understand the system logic and integrate into daily workflows within a shorter period. When the interface layout, operational feedback, and information presentation methods of technological tools conform to users' cognitive habits, employees are able to devote more psychological resources to processing task content rather than grappling with the tools themselves, thereby reserving cognitive space for subsequent deep application and creative utilization^[6].

Individual adjustment capabilities form a bidirectional coupling relationship with the supply of technological adaptability in this process. On the one hand, a highly adaptable supply of technology lowers the learning threshold for employees, enabling individuals with relatively limited adjustment capabilities to successfully achieve basic technological integration, thereby ensuring a smooth transition for the organization in the early stages of digital transformation. On the other hand, when employees demonstrate strong adjustment capabilities, their feedback and usage data can, in turn, guide the direction for optimizing the supply of technology, prompting the organization to iteratively upgrade systems to better match user needs. This coupling mechanism transcends a unidirectional relationship of supply and adaptation, forming a dynamic balance in which technology and individuals mutually shape each other through continuous interaction. Employees' adjustment behaviors are not merely a compliance with existing technological frameworks, but also encompass the active exploration and redefinition of technological potential. These innovative application practices from the user side are incorporated into the iterative updates of technological systems through feedback loops, driving the supply of technology and individual capabilities to co-evolve in a spiral upward trajectory, collectively supporting the stable generation of adaptive performance in the digital context.

3.3 The Cross-Level Penetration of Team Transactive Memory Systems on Adaptive Performance

Team transactive memory systems refer to the shared cognitive system formed among team members regarding who possesses what knowledge, skills, and information. In the process of digital transformation, the knowledge fragmentation brought about by technological updates and the refinement of specialized division of labor make it difficult for individuals to independently master all the information required to complete tasks. The establishment of transactive memory systems enables team members to quickly locate the knowledge sources needed to solve problems through mutual awareness and collaborative retrieval, thereby integrating dispersed individual expertise into the collective intelligence reserve of the team. Such systems serve a dual function of knowledge routing and cognitive offloading in digital work scenarios.

The cross-level penetration of transactive memory systems on individual adaptive performance is achieved through information flow and cognitive support in daily collaboration. When individuals encounter technical difficulties or operational challenges, they can quickly obtain guidance from colleagues or refer to experiences from past projects through the team memory system, thereby shortening the time spent on exploration. Meanwhile, the technical coping routines and problem-solving templates formed at the team level gradually become internalized as components of individuals' cognitive structures, enhancing their independent coping abilities when facing similar situations. This penetration path from the team's cognitive reserve to individual behavioral performance reveals that the generation of adaptive performance not only depends on personal characteristics, but is also deeply embedded in the knowledge network and collaboration patterns at the team level.

Conclusion

This study focuses on the driving factors of employees' adaptive performance in the context of digital transformation, and systematically constructs a theoretical framework from three levels: conceptual connotation, individual mechanisms, and organizational logic. At the level of conceptual connotation, this study proposes that adaptive performance in the digital context presents a three-dimensional dynamic structure comprising technological integration, relationship reshaping, and self-regulation, with its boundaries extending from the effectiveness of responding to specific changes

to the ability to integrate into the overall digital ecosystem. At the level of individual drivers, this study reveals that digital cognitive schemas provide the cognitive foundation for adaptive intentions, with digital agility playing a mediating role in this process, while cognitive reappraisal and digital self-efficacy form a chain activation path, collectively constituting the internal dynamic cycle for the generation of adaptive performance. At the level of organizational support, this study elucidates that digital climate activates exploratory behavior through infiltration effects, technological adaptability and individual adjustment capabilities form a bidirectional coupling mechanism, and team transactive memory systems achieve cross-level penetration from team cognitive reserve to individual behavioral performance.

Future research can further explore the differentiated manifestations of the aforementioned driving factors in organizations with varying degrees of digital maturity, conduct an in-depth analysis of the moderating effect of the pace of technological iteration on the relationship between individual cognition and organizational support elements, introduce longitudinal research designs to track the dynamic evolutionary trajectory of adaptive performance, and investigate the possible reshaping of traditional driving mechanisms by algorithmic management in human-computer collaboration scenarios.

References

- [1] Wu, Haoran. *A Study on the Influence Mechanism of Digital Strategic Human Resource Management on Employees' Adaptive Performance*. 2025. Beijing University of Posts and Telecommunications, MA thesis.
- [2] Shi, Qing, and Zhenglin Chen. "Acting as the Occasion Requires or Feeling at a Loss? A Study on the Double-Edged Sword Effect of AI Perception on Employees' Adaptive Performance." *Statistics and Management*, vol. 40, no. 01, 2025, pp. 60-68.
- [3] Liu, Rui, Ziyang Chen, and Zhenzhen Wu. "The Impact of Human-Machine Collaboration Mode on Employees' Adaptive Performance in the Hotel Industry." *Modern Business*, no. 15, 2025, pp. 164-168.
- [4] Chi, Kaixun, et al. "Supportive Human Resource Practices, Flexibility Capability, and Adaptive Performance." *China Science & Technology Resources Review*, vol. 56, no. 04, 2024, pp. 24-31+38.
- [5] Zheng, Jiayi. *A Study on the Influence Mechanism of Digital Human Resource Management on Employees' Adaptive Performance*. 2024. Anhui University, MA thesis.
- [6] Zhang, Shan. *A Study on the Impact of Commitment-Based Human Resource Management System on Employees' Adaptive Performance*. 2023. Anhui University, MA thesis.