

Exploring Innovative Pathways for Enterprise Business Administration in the Digital Economy Era

Sen Huang*

Hainan Vocational University of Science and Technology, Haikou, Hainan, 571126, China

**Corresponding author*

Keywords: Digital Economy; Business Administration; Management Innovation; Data-Driven

Abstract: The digital economy, with data as its core production factor, has profoundly disrupted traditional enterprise management paradigms. From the perspective of business administration discipline, this paper systematically explores the innovative pathways of enterprise management in the digital economy era. First, it analyzes the structural mismatches between traditional management and digital scenarios across strategic, organizational, and operational dimensions. Second, from the dynamic capability perspective, it proposes three core innovation pathways: data-driven strategic decision-making, decentralized and platform-based organizational collaboration, and end-to-end intelligent operations. Finally, it discusses the implementation conditions of innovation from two dimensions-managers' digital literacy, and data governance and ethical safeguards-and prospects the evolutionary trend from "digitized management" to "management digitalization". The study indicates that genuine management innovation does not lie in the superposition of technical tools, but in redefining the logic, objectives, and methodologies of management through digital thinking. This paper provides a systematic theoretical framework and practical reference for understanding the digital transformation of enterprise management.

1. Introduction

The digital economy is reshaping the operational logic of the global economy and the competitive landscape of enterprises with unprecedented depth and breadth. New-generation digital technologies represented by big data, cloud computing, artificial intelligence, and the Internet of Things not only have spawned new business forms such as platform economy, sharing economy, and intelligent economy, but also have fundamentally transformed the composition of production factors and the mode of enterprise value creation [1,2]. For micro-level enterprises, this transformation is both an opportunity and a challenge: digital technologies provide enterprises with an unprecedented space for efficiency improvement, but at the same time, they pose a systemic impact on the traditional management paradigms that have been used for decades. Against this background, business administration, as an applied discipline oriented to enterprise practice, is facing the dual pressure of theoretical and practical renewal. In reality, a large number of enterprises are trapped in the "digital paradox": on the one hand, they invest heavily in introducing

various digital systems; on the other hand, their management efficiency has not been significantly improved, and even organizational friction has increased due to the mismatch between systems and processes [3]. The root cause of this dilemma is that many enterprises simply equate "digital transformation" with the application of technical tools, while ignoring the systematic reconstruction of the management paradigm itself. Therefore, this paper focuses on the core issue of the innovative pathways of enterprise business administration in the digital economy era, aiming to clarify the fundamental challenges faced by traditional management paradigms, the key dimensions of enterprise management innovation, and the specific mechanisms for the implementation and continuous evolution of innovative pathways. Through the systematic discussion of the above issues, this paper hopes to provide a theoretical cognitive framework for business administration students and practical reference for enterprise managers, so as to help enterprises build truly adaptive management capabilities in the digital era.

2. Challenges and Reconstruction of Traditional Enterprise Management Paradigms by the Digital Economy

2.1 Techno-Economic Characteristics of the Digital Economy and Changes in Management Logic

To understand the impact of the digital economy on enterprise management, we first need to return to the basic propositions of economics and management: production factors and transaction costs. The digital economy is not a simple "Internet +"; its essence lies in the fact that data has become an independent production factor, and digital technologies have systematically changed the way information is generated, transmitted, and processed. Compared with the traditional industrial economy, the digital economy presents three prominent techno-economic characteristics: the coexistence of high marginal returns and low marginal costs, the dominance of network externalities in market patterns, and the asymmetric reduction of information asymmetry between supply and demand sides. These characteristics collectively point to a fundamental change—the underlying logic of enterprise management is shifting from "control and coordination" to "empowerment and connection" [4].

From the perspective of transaction cost theory, the enterprise boundary issue proposed by Coase has been reactivated in the digital environment. The fundamental reason why traditional management relies on bureaucracy is that the cost of internal administrative coordination is lower than the friction cost of external market transactions. However, digital technologies have significantly reduced the costs of information transmission, supervision, and decision coordination within enterprises. At the same time, the search cost, contracting cost, and performance cost of the external market have also decreased significantly due to the platform economy and digital trust mechanisms. This two-way compression makes the management levels and control ranges that enterprises relied on for survival in the past face the risk of failure. Therefore, the starting point of business administration innovation in the digital era is not to introduce several sets of software systems, but to recognize that the weight and connotation of the five traditional functions of planning, organizing, commanding, coordinating, and controlling are undergoing structural reorganization. Planning has shifted from static budgeting to dynamic rolling forecasting, organization from rigid structure to modular assembly, and control from post-event correction to real-time intervention. These changes are not simple substitutions of technical tools, but fundamental shifts in management logic.

2.2 Main Adaptation Dilemmas of Traditional Business Administration in Digital Scenarios

Directly transplanting traditional management paradigms into digital scenarios often leads to systemic mismatches. This dilemma is not an operational error in the transformation failure of individual enterprises, but a structural tension between the management framework and the conditions of the times. The following is an analysis from three levels: strategy, organization, and operation.

At the strategic management level, the basic assumptions of traditional tools such as annual strategic planning, SWOT analysis, and Boston Matrix are that the market environment is relatively stable, industry boundaries are clear, and the competitive pattern is predictable. However, the core characteristic of the digital economy is precisely non-stationarity: user needs iterate rapidly, cross-border competitors emerge at any time, and there is a high degree of uncertainty in technical paths. A typical dilemma is that the five-year strategy formulated by an enterprise in three months according to the traditional process may have lagged behind market changes at the moment the report is completed. This time-scale mismatch makes it difficult to reconcile long-cycle planning and short-cycle execution. A deeper problem is that traditional strategic management emphasizes positioning and resource matching, while the digital economy requires perception and rapid reconstruction capabilities. When the speed of external environmental changes is faster than the speed of internal strategic adjustments of enterprises, management itself will become a bottleneck for enterprise development [5].

At the organizational management level, the challenges of bureaucracy are more intuitive. Weberian bureaucratic organizations have advantages such as professional division of labor, hierarchical control, and unified rules, but these advantages have become disadvantages in digital scenarios. Professional division of labor leads to data isolation between different departments: sales data cannot be synchronized to the production department in a timely manner, and customer service feedback is difficult to affect product design. Hierarchical control causes information to be filtered and delayed at each level during transmission. The incentive system of traditional organizations is based on departments, so there is no internal motivation for cross-departmental data sharing. A common phenomenon is that although enterprises have launched ERP systems, various departments still maintain manual ledgers for their own performance, resulting in two separate sets of data between the system and actual business. This is not a technical problem, but that the organizational design has not created institutional channels for data flow.

At the operational management level, the gap between empirical decision-making and data decision-making is particularly prominent. Traditional operational management relies on managers' personal experience, industry practices, and regular report feedback, which is effective when the environment is relatively stable. However, in the digital economy, user behavior changes in real time, inventory turnover pressure increases, and supply chain fluctuations are frequent. The demand for event response on a daily or even hourly basis far exceeds the processing capacity of human empirical judgment. Operational management still operates along the traditional chain of "event occurrence-manual recording-report summary-meeting discussion-instruction issuance", while the digital economy requires a response mechanism of "data collection-real-time analysis-automatic trigger-closed-loop feedback". The contradiction between the two rhythms constitutes the essence of the adaptation dilemma at the operational level.

3. Dimensions of Innovation Pathways in Business Management for Enterprises in the Digital Economy Era

3.1 Data-Driven Decision-Making from the Perspective of Dynamic Capabilities

The traditional strategic management theory emphasizes industry positioning and resource foundation. Its core proposition is that enterprises seek advantageous positions or accumulate heterogeneous resources that are difficult to imitate in a relatively stable industrial structure. However, a fundamental fact of the digital economy is that industry boundaries are becoming increasingly blurred, and resource values are changing rapidly. The core capabilities of enterprises today may become burdens of path dependence tomorrow. Therefore, the theoretical foundation of strategic innovation needs to shift from the positioning view and the resource view to the dynamic capability view. The dynamic capability framework proposed by Teece, namely perceiving opportunities, capturing value, and reconfiguring assets, has gained new explanatory power in the digital environment. Perceiving is no longer a regular market research; instead, it is a continuous scan based on real-time user behavior data, social public opinion data, and transaction data. Capturing is no longer linear product development; instead, it is a closed loop of hypothesis verification with small steps and fast runs. Reconfiguring is no longer annual organizational adjustments; instead, it is the formation and dissolution of virtual teams as needed. The essence of data-driven decision-making is to bridge the time gap between strategic assumptions and market feedback through data flow.

In terms of management practice, the path of strategic innovation can be broken down into three actionable steps. First, a strategic dashboard should be established instead of a static strategic document. Traditional strategic planning ends with the production of a document, while strategic management in the digital age should start with a set of key assumptions and core indicators. Second, an assumption-driven strategic iteration mechanism should be implemented. The management team views the strategy as a set of verifiable assumptions, such as entering the underserved market will bring a 30% increase in new users. Then, a minimum viable product is designed for testing, and decisions are made based on data feedback, adding, adjusting or withdrawing accordingly [6]. This mechanism breaks the linear rhythm of traditional strategic planning, execution and evaluation, and replaces it with a short-cycle loop of assumptions, testing, learning and adjustment. Third, a data and decision closed-loop link should be constructed. The predicament of many enterprises lies in the fact that the data analysis report and the strategic decision-making meeting are two parallel tracks. The data team produces insights, but the management still makes decisions based on intuition. The solution to this problem is to directly embed key data indicators into the agenda structure of the strategic meeting. Any strategic motion must be accompanied by the corresponding data evidence level, and any decision must have a clear indicator expectation and retrospective mechanism.

3.2 Decentralization and Platform-Based Collaborative Management

If strategic innovation addresses the question of direction, organizational innovation tackles the issue of speed. The core challenge that the digital economy poses to corporate organizational structures lies in the excessive length of hierarchical decision-making chains, which cannot keep pace with the rapid iteration of strategies. Therefore, the fundamental direction of organizational innovation is to shorten decision-making spans, break down information silos, and activate frontline units—practically manifested as a structural evolution toward smaller frontends and stronger mid-platforms, along with decentralized power allocation.

The "small front end" refers to the front-line business units being given greater decision-making

authority. In traditional organizations, front-line salespeople need to report opportunities layer by layer, and after multiple levels of approval, they can adjust strategies. This process often takes place on a weekly or monthly basis. However, in the digital environment, the opportunity window may only last for a few days or even a few hours. The innovative approach is to delegate decision-making authority to the front-line teams that have the most contextual information, while providing support through data tools. For example, a chain retail enterprise allows store managers to adjust the product mix and promotion strategies within their authorized scope. The headquarters monitors the operating indicators of each store in real time through the data hub and intervenes in the process in progress rather than conducting pre-approval when anomalies are detected. This model maintains control while significantly improving response speed. The "large middle platform" is the key to supporting the flexibility of the front end. The essence of the middle platform is not a set of software systems, but an organizational capability, that is, concentrating and consolidating reusable and shareable resources and services within the enterprise for on-demand invocation by the front end. This includes data hubs, business hubs, and technology hubs. The value of the middle platform lies in avoiding duplicate construction of the same capabilities by each front-end unit and achieving a balance between flexibility and efficiency. A successful middle-platform organization must have a clear governance mechanism, including interface standards, call costs, response timeliness, and channels for evaluation and feedback from business departments.

The other side of decentralization is the reengineering of the coordination mechanism. Traditional organizations rely on administrative command chains to achieve coordination, while digital organizations rely more on data transparency and goal alignment. The key results of the organization are decomposed into the goals of each team, which are then decomposed into individuals, and the goals and progress data of all levels are visible in a unified dashboard in real time. This transparent design enables any position to see how their work affects the overall goals, thereby spontaneously adjusting behavior and reducing coordination costs and supervision costs in traditional management. In addition, the regular operation of virtual project teams is also an important path for organizational innovation. When tasks span multiple functional departments, the enterprise can quickly form cross-functional virtual teams, grant temporary decision-making authority, and automatically dissolve the teams after the task is completed. This approach avoids the dual reporting dilemma of the traditional matrix structure and is more suitable for the changing characteristics of tasks in the digital era.

3.3 End-to-End Intelligent and Fine-Grained Management

Operations management represents the final implementation layer of strategic and organizational innovation. In the digital era, operational innovation centers on shifting from experience-driven to data- and algorithm-driven decision-making, from post-hoc reporting to real-time intervention, and from localized optimization to end-to-end collaborative coordination.

In supply chain management, traditional models rely on forecast-driven production, whereas digital-era innovations focus on demand-pull supply. Enterprises can leverage historical sales data, inventory levels, promotional plans, and external variables such as weather, holidays, and competitor dynamics to build demand forecasting models. Based on these models, restocking instructions can be automatically triggered by systems, and inventory alerts can be directly delivered to relevant roles, enabling a transition from reactive response to proactive adjustment. Digital supply chains typically achieve over 30% shorter inventory turnover days compared to traditional models, with simultaneous reductions in stockout and overstock rates. This improvement stems from the deep integration of management processes and algorithmic models—essentially, the algorithmization of decision rules.

In marketing management, innovation manifests as a leap from group profiling to individualized engagement. Traditional marketing segments markets based on demographic characteristics and delivers homogeneous advertising and promotional messages. In contrast, digital marketing leverages users' historical browsing, clicking, purchasing, and review behaviors to construct multidimensional user tagging systems, enabling personalized content recommendations and customized discount strategies for each individual. However, from a business administration perspective, technological feasibility does not equate to managerial effectiveness. The true challenge in marketing operations lies in avoiding excessive pursuit of short-term conversions at the expense of long-term brand value, balancing personalization with user privacy protection, and designing performance evaluation frameworks that incorporate both immediate conversion metrics and lifetime customer value estimation.

In human resource management, the core of operational innovation is moving from subjective judgment to data-assisted decision-making. Traditional recruitment relies heavily on interviewers' subjective impressions, while conventional performance evaluations depend on annual ratings by supervisors. Digital tools, however, can transform job competency models into observable behavioral indicators, enabling multidimensional assessments through evaluation instruments, workflow data, and project outcome records. It is crucial to emphasize clear boundaries for data-assisted decision-making: data can reveal correlations but cannot replace managers' value judgments. Ultimately, the goal of performance management is motivation and development, not surveillance and control. Therefore, the design principles for HR operational innovation should emphasize transparency, participation, and empowerment-employees have the right to know what data is collected, how it is used, and to participate in shaping evaluation criteria.

4. Ensuring Innovation Implementation from the Perspective of Business Administration

4.1 Managerial Digital Literacy and Organizational Learning Mechanisms

The first layer of ensuring innovation implementation lies in building a managerial capability system and organizational learning mechanisms aligned with the digital era. The core components of managerial digital literacy must be clearly defined. Many enterprises still perceive digital literacy merely at the operational level-such as proficiency in office software, understanding data reports, or familiarity with basic functions of enterprise resource planning systems. While these skills are important, they are far from sufficient. True managerial digital literacy should consist of three progressive levels [7].

The first level is data awareness-the ability of managers to identify which business processes generate what types of data, assess data quality, and detect blind spots in data collection and flow. This capability addresses the question of "what data we have". The second level is data interpretation-the ability to recognize patterns, trends, and anomalies within data, distinguish between correlation and causation, and interpret the business implications of analytical findings. This capability answers the question of "what the data means". The third level is data-driven decision-making-the ability to translate data insights into actionable management strategies, make sound judgments even with incomplete data, and design validation mechanisms such as A/B testing to reduce decision risks. This capability resolves the question of "what to do with the data." These three levels build upon one another and are all essential.

Reengineering organizational learning mechanisms forms another critical pillar for capability development. If individual digital literacy improvements are not embedded into an organization's daily learning and workflow processes, they often dissipate with employee turnover. An innovative organizational learning mechanism should embody three characteristics: contextualization, socialization, and institutionalization. Contextualization means that learning content should be

closely tied to real-world management scenarios rather than delivered as abstract theoretical instruction. Socialization involves leveraging internal collaboration platforms to establish knowledge retention and sharing mechanisms, encouraging managers to document their successes and failures in data-driven decision-making as brief case studies for reference by other teams. Institutionalization requires linking learning outcomes to job qualifications and promotion criteria. This is not merely a performance evaluation tool but also a behavioral guide, signaling to all managers that digital management capabilities are not optional extras, but core components of job competence.

4.2 Reshaping the Boundaries of Data Governance and Management

Capacity building addresses the issue of whether people can do something, while systems and ethics guarantee ensure whether an organization is willing to do something and whether it is done correctly. In the era of digital economy, if there is a lack of corresponding institutional arrangements and ethical constraints in enterprise management innovation, it is likely to fall into two extremes. One is management disorder caused by data abuse, and the other is the stifling of innovation due to excessive control. Therefore, the second layer of guarantee for innovation implementation is to establish a data governance system and ethical boundaries that match digital management.

The core issue of data governance can be summarized as the reasonable allocation of three powers: the power of data collection, use, and income. Under the traditional management framework, data is regarded as an enterprise asset and is uniformly managed by the IT department, while the business department applies for use as needed. This model is feasible in an era with small data volume and a relatively simple application scenario. However, in the digital management context, a large amount of data is generated from front-line business activities. If all data requests have to go through a lengthy approval process, the timeliness advantage of data-driven decision-making will disappear. On the other hand, if data access permissions are completely unrestricted, it may lead to data leakage, misuse, and even abuse. The effective solution to this dilemma is to establish a hierarchical and classified data authorization mechanism. Specifically, data can be classified into public, internal, confidential, and top-secret levels, and different levels correspond to different access conditions and approval processes. At the same time, the principle of minimum necessity should be introduced, that is, managers can only access the minimum data set necessary for their work, rather than opening all data indiscriminately.

The deeper problem is the ethical reshaping of management boundaries. As management decisions increasingly rely on algorithms and data models, new ethical challenges emerge. The most typical one is algorithmic discrimination in performance management. Suppose an enterprise uses historical data to train a performance prediction model, and the performance indicators of certain teams in the historical data are already affected by unfair resource allocation or opportunity distribution. The model may solidify or even amplify this injustice. The same situation may occur in multiple management links such as recruitment screening and promotion evaluation. To solve this predicament, an algorithm auditing mechanism should be introduced in the management system. The auditing results should be transparently disclosed to the affected employees and an appeal and correction channel should be established.

A deeper challenge involves the ethical reshaping of management boundaries. As management decisions increasingly rely on algorithms and data models, new ethical issues arise, most notably algorithmic discrimination in performance management. For example, suppose a company trains a performance prediction model using historical data, but certain teams' past performance metrics were already influenced by unfair resource or opportunity allocation. The model may then perpetuate or even amplify such inequities. Similar issues can occur in recruitment screening,

promotion evaluations, and other management processes. To address this, algorithmic audit mechanisms must be integrated into management systems. Audit results should be transparently disclosed to affected employees, and clear channels for appeals and corrections should be established.

Data privacy and the protection of user rights both constitute the bottom line of the management boundary. In scenarios such as marketing management and user operation, enterprises' actions of collecting and using user data must be carried out under the premise of legality and compliance. However, from the professional perspective of business administration, compliance is only the minimum requirement. The true ethical responsibility lies in establishing a closed-loop management mechanism for user authorization, data usage, and effect feedback. Specifically, enterprises should, when obtaining user authorization, clearly and simply explain in what specific management purposes the data will be used. During the data usage process, they should provide users with a convenient channel to withdraw authorization at any time, and regularly inform users of the value generated by the data usage, such as saving a specific amount of money based on your browsing history. This transparent management is not only an ethical constraint but also a management investment for building user trust and reducing compliance risks in the long run.

5. Conclusion

This paper constructs a systematic framework for innovation in enterprise business management in the digital economy era, encompassing challenge identification, pathway design, and implementation assurance. The study finds that traditional management paradigms are fundamentally misaligned with digital contexts, necessitating systematic advancement across three dimensions: strategic agility, organizational networking, and intelligent operations. Building innovation capacity and establishing a data governance system are critical to ensuring successful implementation. At its core, management innovation involves transitioning from digitalized management to management digitization-reconstructing the foundational logic of management through digital thinking. A limitation of this study lies in its reliance primarily on theoretical reasoning and analysis of typical practices, lacking large-scale empirical validation. Future research could further explore how emerging technologies such as generative artificial intelligence reshape managerial roles, as well as contingency-based adaptation pathways across different industry contexts.

References

- [1] Jiang Rui. *Optimization Strategies for Enterprise Business Administration in the Digital Economy Era* [J]. *Shanghai Commerce*, 2026, (5): 85-87.
- [2] Zhu Zhuqing. *Current Situation and Optimization Strategies of Enterprise Business Administration in the Digital Economy Era* [J]. *Market Weekly*, 2026, 39(13): 38-41.
- [3] Deng Jinrong. *Trend and Path of Enterprise Business Administration Transformation in the Digital Economy Era* [J]. *Modern Business Research*, 2026, (4): 121-123.
- [4] Pei Jingzhong. *Transformation and Innovation of Enterprise Business Management Model under the Digital Economy Background* [J]. *Business News*, 2026, (1): 123-125.
- [5] Kis, Halyna. *Enterprise business administration features in the conditions of digital economy incipience*[C]//*Economic Forum*. 2022, 3(12): 54-61.
- [6] Hou M , Rowley C , Warner M .*Digital economy, enterprise digital transformation, and digital business model: evidence from China*[J]. *Asia Pacific Business Review*, 2023.
- [7] Peng Siying, Xuchu Jiang and Ying Li. *The impact of the digital economy on Chinese enterprise innovation based on intermediation models with financing constraints*[J]. *Heliyon*, 2023, 9(3).