

The Impact of Digital Economy Development on Enterprise Management Models

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Abstract: The digital economy has transformed how enterprises acquire information, allocate resources, and create value. It has also driven continuous adjustments in strategic decision-making, organizational structures, operational processes, and human resource management. This study argues that data-driven management, platform-based collaboration, and operational flexibility have become important directions in the transformation of enterprise management. To address problems such as the disconnect between technology and business operations, weak data governance, and shortages of interdisciplinary talent, enterprises should strengthen strategic coordination, organizational restructuring, data governance, and institutional safeguards. In this way, they can develop management models suited to their respective stages of development.

Keywords: digital economy; enterprise management; digital transformation; organizational change; data governance

Introduction

Technologies such as big data, cloud computing, artificial intelligence, and the Industrial Internet are being incorporated into production and business operations at an accelerating pace. Data have gradually become an important resource connecting research and development, procurement, production, marketing, and service activities. Traditional enterprise management is based on hierarchical divisions of labor, centralized control, and periodic planning. This model offers the advantages of organizational stability and clearly defined responsibilities. However, when faced with rapidly changing demand, cross-sector business integration, and real-time information flows, it may produce lengthy decision-making chains, inadequate departmental collaboration, and slow responses to market changes.

The results of China's Fifth National Economic Census show that, by the end of 2023, the number of legal entities operating in the core industries of the digital economy had reached 2.916 million. These entities employed 36.159 million people and generated annual operating revenue of RMB 48.45 trillion. In 2023, more than 90% of enterprises above the designated size had adopted one or more digital or information technologies ^[1]. The application of digital technologies in enterprises has thus shifted from the localized introduction of individual tools toward the restructuring of entire business and management systems. Studying the impact of the digital economy on enterprise management models has practical significance for improving resource-allocation efficiency, strengthening organizational resilience, and preventing digital risks.

1. Theoretical Relationship Between the Digital Economy and Changes in Enterprise Management Models

1.1 Principal Characteristics of the Digital Economy

The digital economy treats digitized knowledge and information as important factors of production and relies primarily on modern information networks as its infrastructure. Data can be replicated, shared, and continuously developed and can flow across departmental and organizational boundaries. By using digital platforms to aggregate information on production, transactions, and user behavior, enterprises can develop a more detailed understanding of the market and adjust product design, supply-chain configuration, and customer service accordingly.

The digital economy is also strongly characterized by connectivity. Platforms incorporate suppliers, manufacturers, distributors, and consumers into the same business network, gradually transforming inter-enterprise relationships from one-off transactions into sustained collaboration. Competition also expands beyond individual firms to encompass platform ecosystems and supply-chain systems. Management activities must therefore coordinate internal resources while simultaneously managing collaboration across external networks.

1.2 The Internal Logic of Changes in Enterprise Management Models

Under traditional management models, information is aggregated progressively through organizational hierarchies, while decision-making authority is concentrated at senior levels. Digital systems can present operational

data directly to relevant positions, reduce the number of stages through which information must pass, and enable business departments to respond more rapidly. Qi and Xiao argue that user-value orientation and substitution-based competition are major forces driving changes in enterprise management in the digital economy, influencing corporate objectives, governance structures, modes of production, and employment arrangements ^[2].

Digital transformation also changes enterprise boundaries. Data platforms reduce the costs of information searches, communication, and supervision, enabling enterprises to outsource some non-core operations to specialist organizations. Yuan et al. find that digital transformation can promote specialization, reduce external transaction costs, and influence enterprises' choice of vertical boundaries ^[3]. The focus of enterprise management consequently expands from internal control to platform rules, collaborative relationships, and the allocation of resources across business ecosystems.

2. Specific Effects of the Digital Economy on Enterprise Management Models

2.1 The Shift from Experience-Based to Data-Driven Strategic Decision-Making

Traditional strategic decision-making relies primarily on managerial experience, financial statements, and periodic market research, all of which involve a degree of information delay. Digital platforms can continuously collect data on sales, inventory, equipment operation, and customer feedback, providing a basis for forecasting demand, identifying risks, and evaluating business plans. Managers' responsibilities therefore shift from controlling access to information toward interpreting data, assessing situations, and coordinating stakeholder interests.

Data-driven management also changes the pace of decision-making. Annual plans are no longer the sole basis for operational adjustments, as enterprises can use real-time data to conduct rolling forecasts and dynamically allocate resources. Strategic management increasingly follows a cycle of small-scale testing, outcome evaluation, and continuous improvement, thereby shortening trial-and-error periods. Nevertheless, data can only reflect business conditions under particular circumstances. Algorithmic conclusions must still be evaluated in conjunction with industry dynamics,

organizational capabilities, and ethical requirements.

2.2 The Shift from Hierarchical Control to Platform-Based Collaboration

Information technologies weaken the exclusive role of organizational hierarchies in transmitting information. Research and development, production, marketing, and after-sales service departments can share data around particular projects, while cross-functional teams become important organizational forms for handling complex tasks. When the number of managerial layers is appropriately reduced, frontline teams can be granted a degree of decision-making authority, enabling the organization to respond more rapidly to market changes.

Digital platforms also expand the scope of collaboration. Suppliers can arrange production according to shared order information, enterprises can adjust procurement using inventory and logistics data, and customer feedback can be incorporated into product development. Enterprise organizations consequently become increasingly platform-based and networked. Xiao observes that digital transformation involves systematic changes in the nature of resources, information structures, enterprise boundaries, and modes of value realization. Adaptive changes in management are therefore essential to overcoming established path dependence ^[4].

2.3 The Shift from Standardized Scale-Based Operations to Flexible Responsiveness

Operations management in the industrial economy emphasizes economies of scale and process stability. In the digital economy, consumer demand is more diverse and product life cycles are shorter, requiring enterprises to balance cost, quality, and personalization. Digital production systems can connect data on orders, production scheduling, equipment, and logistics, thereby supporting small-batch, high-variety production.

Customer management is also shifting from mass marketing toward more precisely targeted services. By lawfully collecting and analyzing consumer information, enterprises can identify differences in customer needs and provide better-matched products and services. New data generated during service delivery can then be fed back into research, development, and operations, creating a closed loop of continuous improvement.

Table 1. Digital Applications and Foundational Investment among Chinese Enterprises Above the Designated Size in 2023

Indicator	2023 data	Management implications
Enterprises using information-based management systems	97.2%	Integration of financial, production, and supply-chain management systems accelerated Computing resources and business systems gradually shifted toward flexible allocation Connectivity among equipment, production lines, and supply chains increased Real-time monitoring of production processes improved Intelligent decision-making remained at an expanding stage The development of digital infrastructure continued to accelerate Specialist talent had become an important source of support for management transformation
Enterprises using cloud computing	37.6%	
Enterprises using the Industrial Internet	27.3%	
Enterprises using the Internet of Things	26.5%	
Enterprises using artificial intelligence	16.4%	
Year-on-year increase in information technology investment	15.2%	
Number of information technology personnel	6.576 million	

Table 1 shows that information-based management systems have been adopted extensively by enterprises above the designated size, while substantial differences remain in the adoption of cloud computing, the Industrial Internet,

the Internet of Things, and artificial intelligence. These differences indicate that the digitalization of enterprise management is extending from the informatization of basic processes toward intelligent analysis and interorganizational collaboration. They also demonstrate that industries differ in their technological conditions and stages of transformation.

3. Constraints on the Digital Transformation of Enterprise Management Models

3.1 The Disconnect Between Technological Applications and Management Reform

Some enterprises equate digitalization with purchasing software, building platforms, or adding automated equipment, while leaving existing departmental boundaries, approval procedures, and performance systems largely unchanged. New systems consequently replicate outdated processes and may even increase the burdens associated with data entry and switching among multiple systems. Technology departments focus on system functionality, whereas business departments focus on short-term tasks. The absence of shared objectives can lead to information silos and duplicated investment.

Digital projects may also be based on excessively broad objectives. Enterprises may implement multiple platforms simultaneously without clearly defined business scenarios or benefit criteria, making it difficult to evaluate actual value after project completion. Some small and medium-sized enterprises copy the solutions of large corporations even though the required investment exceeds their management capabilities, resulting in low system-utilization rates.

3.2 Weak Foundations in Data, Talent, and Security

Enterprise data are often dispersed across different systems, with inconsistent coding, formats, and statistical standards. When data ownership and responsibility for data quality are unclear, analytical results cannot reliably support business decisions. Data sharing between enterprises also involves trade secrets, personal information, and control over platforms. When the boundaries of responsibility are unclear, the parties involved may become less willing to share data.

A shortage of interdisciplinary talent constitutes another constraint. Digital technology specialists may not understand production and business operations, while traditional managers may lack data-analysis skills.

Wu et al.'s study of listed companies finds that digital transformation can improve enterprises' information environments and increase stock liquidity^[5]. Such effects depend on reliable data disclosure and sound governance foundations. Without institutional controls, algorithmic bias, data breaches, and excessive monitoring may also create risks for business operations and labor relations.

4. Pathways for Optimizing Enterprise Management Models in the Digital Economy

4.1 Establishing a Transformation Strategy That Integrates Business and Digital Technologies

Enterprises should define digitalization objectives around genuine business problems and prioritize scenarios with relatively clear value, such as demand forecasting, inventory optimization, quality control, and customer service. Transformation plans should specify responsible business leaders, data sources, implementation schedules, and evaluation standards. The launch of a system should not be treated as the endpoint of a digital project.

Large enterprises can develop unified data platforms and gradually integrate their research and development, production, sales, and financial systems. Small and medium-sized enterprises can adopt mature cloud services and industry platforms to control initial investment. The sequence of transformation should be aligned with financial conditions, available talent, and business complexity. Enterprises should first generate results in selected areas and then expand the scope of application.

4.2 Adjusting Organizational Structures and Mechanisms of Authority and Responsibility

Digital management requires the reduction of unnecessary approval procedures and the delegation of some operating authority to teams close to customers and frontline business activities. Enterprises can establish cross-functional units organized around products, projects, or customers and use shared indicators to coordinate research and development, production, and marketing.

A flatter organizational structure does not imply the elimination of managerial responsibility. Enterprises should define authority over data access, business decisions, and risk responses and clarify the responsibilities of platform managers, business departments, and technology departments. Major matters should remain subject to necessary human review, while routine operations can

be handled rapidly using established rules and data. This approach can balance efficiency with control.

4.3 Improving Data Governance and Talent Development Systems

Enterprises should establish unified data standards and specify requirements for data collection, cleansing, storage, use, and destruction. Core data should be managed according to their level and category, records should be retained for important operations, and access rights and security should be reviewed regularly. Data involving personal information and trade secrets should be governed by the principle of necessity to prevent excessive collection and improper use.

Talent development can combine internal training with external recruitment. Managers need to master fundamental methods of data analysis and digital project management, while technology specialists must understand business processes. Enterprises can also use job rotation, joint projects, and case-based training to cultivate interdisciplinary teams possessing technological understanding, business judgment, and communication skills.

5. Support Mechanisms for the Digital Transformation of Enterprise Management

5.1 Establishing Differentiated Evaluation and Dynamic Improvement Mechanisms

The effectiveness of digital transformation cannot be measured solely by the number of software systems, investment in equipment, or volume of data. Enterprises can conduct comprehensive evaluations based on operational efficiency, customer value, innovation capacity, risk exposure, and employee adaptability. Manufacturing enterprises may focus on delivery cycles, equipment utilization, and quality stability, while service enterprises may emphasize customer retention, response speed, and service costs.

Evaluation findings must be linked to improvement measures. When a project does not generate evident benefits in the short term, enterprises should determine whether the problem lies in the business scenario, data quality, or organizational collaboration and then decide whether to adjust, suspend, or expand the project. Continuous evaluation can control ineffective investment and maintain alignment between digital development and business strategy.

5.2 Balancing Management Innovation, Data Security, and Employee Rights

Digital tools increase the visibility of work processes but may also expand the scope of monitoring, introduce rigid algorithmic evaluations, and increase pressure on employees. When implementing intelligent assessment and automated decision-making systems, enterprises should disclose the applicable evaluation rules, establish appeal channels, and retain necessary human-review procedures.

Data security should be incorporated into corporate governance. Boards of directors and senior management should assume overall responsibility, while business, technology, legal, and audit departments jointly participate in risk management. Enterprises should also prepare emergency response plans for data breaches, system disruptions, and algorithmic anomalies and conduct regular exercises to ensure the continuous operation of critical business activities.

Conclusion

The digital economy is driving enterprise management away from experience-based decision-making, hierarchical control, and standardized operations and toward data-driven management, platform-based collaboration, and flexible responsiveness. The transformation of management models encompasses strategic objectives, organizational structures, business processes, workforce capabilities, and governance rules. Merely increasing technological investment cannot generate stable business value.

Enterprises should select transformation pathways according to their industry characteristics and stages of

development. Genuine business needs should determine the selection of application scenarios; organizational restructuring and adjustments to authority and responsibility should support cross-departmental collaboration; and data governance and talent development should provide a solid management foundation. Information security, algorithmic accountability, and employee rights must also be incorporated into institutional design. Only when technology, organization, and governance remain coordinated can digital investment be converted into operational efficiency, innovation capacity, and long-term competitive advantage.

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