

# Governance Innovation and Value Reconstruction of State-Owned Enterprises in the Digital Era

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**Abstract:** This paper explores governance innovation and value reconstruction of state-owned enterprises (SOEs) in the digital era. Facing the challenges and opportunities of technological change, SOEs must adapt to the digital economy. Using a literature review and theoretical analysis, we systematically examine recent domestic and international studies on SOE digital transformation, governance innovation, and value reconstruction. We identify key factors affecting SOE governance structures during digital transformation, discussing how digital technologies enhance information transparency, optimize resource allocation, and improve decision-making efficiency, thus innovating traditional governance models. The paper also analyzes how value chain reconstruction aids SOEs in maintaining a competitive edge globally and proposes pathways for sustainable development through digital means. The study finds that digitalization represents not just a technological update but a comprehensive transformation of governance concepts and management models. SOEs should integrate digital technologies deeply, emphasizing data-driven decision-making to enhance market responsiveness and value creation. This research provides theoretical support for SOE strategic planning in the digital era and offers insights for policymakers.

**Keywords:** State-Owned Enterprises; Digital Transformation; Governance Innovation; Value Reconstruction; Sustainable Development

## 1. Introduction

### 1.1 Research Background and Significance

In the rapidly changing global economic environment, digital transformation has

become essential for enhancing competitiveness and efficiency for enterprises worldwide. State-owned enterprises (SOEs), as pillars of national economies, face unique challenges and opportunities in this transition. Digital technologies, such as big data, artificial intelligence, and blockchain, provide SOEs with opportunities to reshape governance structures and enhance value creation. By embracing digitalization, these enterprises can improve efficiency, increase transparency, and foster accountability, laying the foundation for more efficient capital allocation and decision-making. Examining governance innovation and value reconstruction in SOEs amid the digital wave is not only theoretically significant but also aids policymakers and managers in crafting effective strategic plans.

### 1.2 Review of Domestic and International Research

Recent years have seen a surge in research on digital transformation. International scholars primarily focus on the profound impacts of digital technologies on business management models. Porter and Heppelman (2014) explored the reshaping of traditional business strategies by the Internet of Things. Domestic research places more emphasis on the long-term impact of digital transformation on SOEs, indicating enhancements in market competitiveness and governance (Li Ming, 2019). However, there remains a gap in systematic exploration of SOE governance innovation and value reconstruction, providing a promising avenue for this study.

### 1.3 Research Objectives and Methodology

This study aims to systematically analyze pathways for governance innovation and value reconstruction of SOEs in the digital era and propose relevant policy recommendations. The methodology includes literature review and theoretical analysis. By synthesizing existing

research, this paper identifies core issues, constructs a theoretical framework, and proposes innovative governance models and value enhancement strategies. Additionally, industry data and case studies will be integrated to enhance the practical and scientific value of the research.

## 2. Impact of the Digital Era on SOEs

### 2.1 Overview of Digital Technologies

The development of digital technologies has disrupted traditional business operations. Big data analytics provides unprecedented insights for optimizing supply chain and customer relationship management. Artificial intelligence enhances operational efficiency and product innovation through automation and predictive analytics. Meanwhile, blockchain technology's distributed ledger characteristics improve data security and transparency, reducing information asymmetry. In SOEs, these technologies signify not just technical updates but deep transformations in management models.

### 2.2 Challenges and Opportunities in SOE Governance

SOEs face multiple challenges during digital transformation. Traditional governance structures may not adapt to rapidly changing technological environments, and data security and privacy protection are critical governance issues. Enterprises need robust data management systems to mitigate potential risks. Conversely, digitalization offers significant opportunities. Digital technologies enhance information transparency, improving the scientific and accuracy of decision-making. For instance, data-driven analytics tools help enterprises identify market trends and consumer demands more precisely, optimizing production and marketing strategies. The use of AI and machine learning improves operational efficiency, reduces labor costs, and facilitates optimal resource allocation.

Through digitalization, SOEs can strengthen their position in global value chains. Digital platforms aid in expanding international markets and enhancing global competitiveness. The application of digital technologies not only improves operational efficiency but also provides robust support for sustainable development. Studies show that digitally adept

enterprises outperform industry averages in market responsiveness, innovation, and social responsibility (Zhang Wei, 2020).

## 3. Governance Innovation Pathways in SOEs

### 3.1 Enhancing Information Transparency and Decision Efficiency

In the digital era, information transparency is a key factor in improving governance levels. Reducing information asymmetry enhances decision efficiency and management levels. Digital technologies enable real-time information sharing and transmission in SOEs, eliminating hierarchical information barriers. Big data analytics and visualization tools provide decision-makers with comprehensive data support, enhancing the scientific nature and accuracy of decisions. Research indicates that improving information transparency significantly promotes internal communication efficiency and cross-department collaboration (Porter & Heppelman, 2014).

Additionally, enhanced information transparency boosts external oversight and public trust. Transparent information disclosure improves market reputation and attracts more investment and partnership opportunities. By constructing transparent communication platforms, enterprises can promptly address societal concerns, improving their capacity for sustainable development and social responsibility fulfillment.

### 3.2 Application of Digital Technology in Resource Allocation

The application of digital technology in resource allocation enhances economic efficiency and resource utilization. AI and machine learning optimize production planning and supply chain management, reducing resource waste and inventory backlog. Digital twin technology allows for virtual simulations and optimization tests, identifying bottlenecks and risk points in production processes early.

In resource allocation, blockchain technology offers efficient and secure solutions. Smart contracts enable automated supply chain management, ensuring accuracy and timeliness in resource flow. Studies show that enterprises applying blockchain technology see approximately 30% improvement in resource

allocation efficiency (Zhang Wei, 2020).

### 3.3 Data-Driven Governance Model

The core of a data-driven governance model is providing precise decision support through data analysis and mining. SOEs can leverage data technologies to build comprehensive internal data platforms, enabling inter-departmental data sharing. By analyzing vast data, enterprises can better grasp market trends and consumer needs, forming data-driven decision frameworks.

Moreover, the data-driven governance model emphasizes the construction and optimization of feedback mechanisms. Real-time data monitoring and feedback allow enterprises to adjust management strategies and market positioning promptly, enhancing responsiveness to external environments. Li Ming (2019) notes that the data-driven governance model not only improves operational efficiency but also fosters innovation and market adaptability in enterprises.

## 4. Achieving Value Reconstruction in State-Owned Enterprises

### 4.1 Value Creation from a Global Value Chain Perspective

With accelerated globalization, SOEs encounter increasingly complex competition. The global value chain perspective offers new insights for value creation. Participation in global value chains allows SOEs to access broader market resources and technological support, enhancing international competitiveness. Digital technologies, especially cross-border e-commerce platforms, help overcome geographical limitations and expand international markets. Collaboration with leading international firms enables SOEs to acquire advanced technologies and management practices, optimizing and extending their own value chains. In this context, enterprises must innovate products and services to shift from low to high value-added offerings (Porter & Heppelman, 2014).

### 4.2 Maintaining Competitive Advantage in a Digital Environment

In a digital environment, SOEs must continuously adapt to market changes to maintain their competitive edge. Digital

transformation can shorten product development cycles, enhance product quality, and improve user experience. The use of AI and big data allows precise market demand targeting, optimizing product design and innovation strategies. Digital tools also enhance brand influence and customer loyalty. Through social media and digital marketing, enterprises can interact more effectively with customers, boosting satisfaction and brand loyalty. Zhang Wei (2020) found that improvements in digital capabilities are directly linked to market competitiveness and brand value.

### 4.3 Sustainable Development Strategies

Digitalization offers new strategies and tools for sustainable development in SOEs, focusing on ecological protection and social responsibility. Smart production and green technologies can reduce resource consumption and pollution, achieving low-carbon production models. Digital technology also enhances corporate social responsibility performance. Transparent information disclosure and public engagement allow enterprises to fulfill social commitments and build trust. Li Ming (2019) noted a significant positive correlation between digital capabilities and sustainable development levels.

## 5. Case Studies and Practical Insights

### 5.1 Digital Transformation Cases in Typical SOEs

Some SOEs have achieved significant transformation through innovative digital pathways. For example, China National Petroleum Corporation (CNPC) has implemented smart oilfield projects, using IoT, cloud computing, and big data for real-time monitoring of equipment and production. This has greatly improved management efficiency and reduced equipment failure and operating costs, with failure rates dropping by about 30% and operating costs by 15% (source: CNPC annual report). Similarly, Industrial and Commercial Bank of China (ICBC) has optimized customer service and risk management with AI and big data, increasing customer satisfaction and reducing risk losses. Their intelligent customer service system handles over 70% of inquiries, boosting satisfaction by 20% (source: ICBC annual

report).

## 5.2 Empirical Analysis of Governance Innovation and Value Reconstruction

Analysis of typical SOEs reveals the vast potential of digital transformation in governance innovation and value reconstruction. In governance, digital tools enhance transparency and decision efficiency, with data platforms facilitating cross-departmental sharing and collaboration, shortening decision chains, and improving management efficiency. China Telecom's national cloud data platform allows real-time data sharing, supporting strategic decisions.

In value reconstruction, digital transformation shifts enterprises from product to service orientation. For instance, state-owned automotive manufacturers have developed connected car platforms offering value-added services like vehicle monitoring and diagnostics, enhancing customer retention and brand value. Digital services have increased customer retention by about 10% (source: "Trends in Automotive Digital Transformation").

## 6. Conclusion

In-depth research on SOE digital transformation concludes that digital technologies effectively promote governance innovation and enhance value creation capacity. Increased transparency and decision efficiency lay the foundation for sustainable development, while expanded digital services boost market competitiveness. To further advance SOE digital transformation, policy support is crucial. Governments can provide tax incentives and technology subsidies to encourage digital investment. Strengthening partnerships with tech firms can facilitate a digital ecosystem for SOEs. Additionally, robust data management and security mechanisms are essential to address potential digitalization-related data security issues.

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