Research on the Impact of Digital Transformation on the Quality of Corporate Accounting Information

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Abstract: *With the deep integration and strategic application of digital technologies, corporate digital transformation is profoundly reshaping value creation models and internal operational processes. This transformation exerts a systematic impact on the quality of accounting information, which is crucial for decision-making support. Based on empowerment theory and information asymmetry theory, this study analyzes the three-layer structure of digital transformation — technological application, process reengineering, and model innovation. It systematically elaborates on the mechanisms through which digital transformation enhances reliability via data governance, improves relevance through increased information processing efficiency, and exerts a twofold impact on comprehensibility via changes in information disclosure models, while also revealing the moderating role of organizational structure. The study further identifies key challenges, including technological risks, institutional lag, and talent gaps. Accordingly, it constructs an accounting information quality assurance system integrating technology governance, normative adaptation, and organizational empowerment, providing theoretical support and practical guidance for enterprises to navigate digital transformation and optimize the informational value for decision-making.*

Keywords: *digital transformation; quality of accounting information; impact mechanism; data governance; information disclosure*

Introduction

At this critical juncture where the global economy is marching toward the digital era, corporate digital transformation has evolved from an option to an imperative pathway for building sustainable competitive advantage. The profound organizational changes it triggers present unprecedented challenges and opportunities for traditional accounting information production and reporting models. Accounting information, serving as both a reflection of corporate economic activities and a basis for decision-making, directly impacts resource allocation efficiency and the healthy development of capital markets. Therefore, systematically investigating its patterns of change within a digital context carries significant theoretical necessity and practical urgency. While existing research has recognized the role of technological applications in enhancing accounting efficiency, it lacks a systematic theoretical deconstruction of the transformation's essence, impact pathways, and inherent challenges. This study aims to bridge this gap by constructing an integrated analytical framework of "theoretical basis-impact mechanism-challenges and countermeasures" to comprehensively elucidate how digital transformation reshapes the characteristic manifestations of accounting information quality. This endeavor seeks to deepen the theoretical understanding of the economic consequences of digital transformation and provide practical guidance for enterprises to optimize information governance and mitigate transformation risks in complex, dynamic environments.

1. The Connotation Definition of Digital Transformation and the Theoretical Basis of Accounting Information Quality

1.1 The Core Essence and Hierarchical Structure of Digital Transformation

Digital transformation represents a strategic change process in which enterprises utilize digital technologies such as cloud computing, big data, artificial intelligence, and the Internet of Things to fundamentally reshape their value creation models, business processes, products and services, and organizational structures. This transformation goes beyond mere technological application; its core

essence lies in building data-driven intelligent decision-making systems and business restructuring capabilities, thereby fostering new core competitive advantages in dynamic competitive environments.

From a systematic hierarchical perspective, digital transformation exhibits a clear three-layer architecture: the technology application layer forms the foundational support, reflected in the specific deployment and deep penetration of digital technologies in various business segments; the process reengineering layer serves as the key hub, manifested as cross-departmental process integration and operational efficiency improvement based on data flow automation and optimization; the model innovation layer is the ultimate goal of the transformation, demonstrated as new business models, service forms, and value networks generated by relying on digital resources and capabilities. This multi-level, systematic organizational change fundamentally reconstructs the production environment, processing logic, and disclosure mechanisms of accounting information[1].

1.2 The Fundamental Characteristics and Evaluation Criteria of Accounting Information Quality

Accounting information quality constitutes the core attribute ensuring the decision-usefulness of financial reports, and its fundamental characteristics form the key criteria for evaluating information value. Reliability, as the fundamental attribute of accounting information, requires that information faithfully represents the economic substance, is complete without omission, neutral without bias, and verifiable, thereby forming the foundation of information credibility. Relevance emphasizes that information should possess predictive value and confirmatory value, enabling it to directly influence users' economic decision-making processes. Comprehensibility ensures that information is clear and straightforward, allowing users at various levels to accurately grasp its economic meaning. Comparability guarantees the value of comparative analysis of information across time-series and cross-sectional dimensions. Furthermore, principles such as materiality and substance over form further regulate information quality from the perspectives of recognition and measurement. These characteristics are interconnected and mutually constraining, collectively constructing a comprehensive evaluation framework for accounting information quality. This framework provides systematic analytical dimensions and scientific evaluation criteria for analyzing the impact effects of digital transformation on accounting information quality.

1.3 The Foundational Role of Empowerment Theory and Information Asymmetry Theory

Empowerment theory and information asymmetry theory jointly construct the theoretical foundation for understanding the intrinsic relationship between digital transformation and accounting information quality. Empowerment theory, from the perspective of organizational capability, explains how digital technologies comprehensively enhance organizational effectiveness by expanding information processing boundaries and optimizing resource allocation mechanisms. In the context of the accounting field, digital transformation empowers accounting information systems to break through traditional capability limitations through mechanisms such as process automation, intelligent analysis, and real-time feedback, thereby achieving more efficient information processing and deeper data insights[2].

Information asymmetry theory, from the perspective of market efficiency, reveals the problems of adverse selection and moral hazard caused by differences in information acquisition. Digital transformation effectively narrows the information gap between internal management and external stakeholders within an enterprise by enhancing information transparency, expanding the scope of information disclosure, and accelerating the information transmission process, providing a new technological path to alleviate information asymmetry. These two theoretical perspectives complement each other and collectively define the theoretical lens and research paradigm for analyzing the accounting information quality effects of digital transformation in this study.

1.4 The Theoretical Linkage Framework between Digital Transformation and Accounting Information Quality

Based on the preceding conceptual definitions and theoretical analysis, this study constructs a theoretical linkage framework that systematically connects digital transformation with accounting information quality. This framework clearly reveals the transmission mechanism through which digital transformation exerts a systematic influence on the key characteristics of accounting information quality via three core dimensions: technology, process, and model. At the technological dimension, the automation and intelligence of data collection ensure completeness and accuracy from the information

source; advanced data analytics technologies significantly enhance the relevance and predictive power of information through deep mining of data value.

At the process dimension, the deep integration of business and finance coupled with process reengineering ensures the continuity and authenticity of the conversion from business information to financial information, further solidifying the foundation for reliability. At the model dimension, innovations such as real-time reporting mechanisms and personalized disclosure models directly improve the timeliness and decision relevance of information. It is noteworthy that this transmission process is significantly moderated by internal factors such as data governance maturity, organizational learning capability, and strategic alignment. This theoretical framework systematically delineates the multiple pathways and boundary conditions through which digital transformation affects accounting information quality, laying a solid theoretical foundation for subsequent in-depth mechanism analysis and empirical testing.

2. Research on the Impact Mechanism of Digital Transformation on Accounting Information Quality

2.1 The Enhancement Path of Data Governance Optimization on Accounting Information Reliability

The data governance system constitutes the institutional and technical cornerstone for ensuring the reliability of accounting information in the context of digital transformation. Its systematic enhancement path is specifically manifested through three key dimensions: data standardization, process automation, and control embedding[3]. Data standardization fundamentally eliminates data definition conflicts and caliber differences across various business systems by establishing a unified metadata management framework and master data specifications, thereby laying a solid foundation for building high-quality data assets.

Process automation, leveraging Robotic Process Automation and intelligent workflow engines, transforms highly repetitive and rule-based accounting tasks into standardized, uninterrupted digital processes. This significantly reduces operational deviations and moral hazards that are difficult to avoid in traditional manual processing modes.

Control embedding represents a profound shift in internal control philosophy. It involves pre-configuring authorization logic, segregation of duties principles, and risk warning rules directly into the core business processes of Enterprise Resource Planning systems. This achieves a management paradigm shift from post-event sampling supervision to in-process comprehensive monitoring, ensuring the compliance, authenticity, and completeness of each transaction are verified at the moment the business occurs. These three paths are interdependent and co-evolve, collectively constructing a reliability assurance system that covers the entire lifecycle of data collection, processing, and output.

2.2 The Enhancing Effect of Information Processing Efficiency on the Relevance of Accounting Information

Digital transformation revolutionarily enhances information processing efficiency, generating a multi-dimensional strengthening effect on the relevance of accounting information. At the time-series level, real-time processing capabilities based on cloud computing architecture and in-memory computing technology shorten the production cycle of financial information from the traditional monthly or quarterly basis to near-instantaneous. It achieves a fundamental shift of financial reporting from static snapshots to dynamic imagery, significantly enhancing the feedback value and timeliness of information.

At the content depth level, the application of big data analytics technologies breaks through the boundary limitations of traditional accounting information. Through the in-depth mining and intelligent analysis of massive unstructured data—such as social media sentiment, real-time supply chain status, and equipment sensor data—it generates forward-looking strategic insights, like market demand trend predictions and operational efficiency optimization space identification. This paradigm shift from reflecting historical transactions to predicting future value transforms accounting information from a passive recorder into an active value discoverer, providing decision-makers with more prospective information support in highly uncertain business environments.

2.3 The Dual Impact of Information Disclosure Model Transformation on the Comprehensibility of Accounting Information

The transformation of information disclosure models driven by digital transformation exerts a complex and profound dual impact on the comprehensibility of accounting information. On the enabling front, the widespread adoption of structured data technologies such as eXtensible Business Reporting Language (XBRL) transforms financial reports from closed document formats into open, standardized data sets. This transformation not only supports machine readability and automated extraction of information but also empowers users with the autonomous exploration capability to conduct multi-dimensional data correlation, cross-period trend analysis, and peer benchmarking studies according to their personalized needs, fundamentally altering the method and depth of information consumption. However, this technology-driven enhancement of transparency also encounters new comprehension barriers[4].

The technical specialization level of disclosed information continues to increase. The presentation of data involving specialized fields such as the measurement of complex financial instruments and sustainability indicators creates cognitive thresholds for information users lacking the relevant knowledge background. Simultaneously, the parallel release of excessive information may lead to key signals being drowned out by noise, posing the risk of decision-making attention fragmentation. This inherent tension requires that enterprises, while pursuing the breadth and depth of information disclosure, must prioritize the hierarchical organization and intelligent presentation of information. They need to balance the relationship between specialization and comprehensibility by constructing a user-oriented disclosure architecture.

2.4 The Moderating Role of Organizational Structure Reshaping in the Influence Process

Organizational structure reshaping plays a key institutional moderating role in the process through which digital transformation affects accounting information quality. Traditional hierarchical and functionally-oriented organizational forms, due to departmental barriers and information silo effects, severely constrain the cross-domain flow of data elements and synergistic value creation, thereby diminishing the expected returns on technology investments. Digital transformation requires enterprises to construct a networked, agile organizational system characterized by a data-driven core. The establishment of Financial Shared Service Centers (FSSCs) not only achieves the scaling and specialization of basic accounting operations but, more importantly, builds an enterprise-level data governance hub through process reengineering and data integration, providing structural assurance for data consistency across the entire organization.

Concurrently, the setup of embedded finance teams and data analysis expert units facilitates the deep integration of finance functions into business frontlines, ensuring that accounting information can promptly and accurately capture the dynamic changes in business substance. This adaptive transformation at the organizational level, by reshaping workflows, authority-responsibility relationships, and decision-making mechanisms, provides the necessary socio-technical support for converting technological capabilities into information quality advantages. It ultimately determines the actual effectiveness and sustainability of digital transformation in enhancing accounting information quality.

3. Challenges and Countermeasures for Accounting Information Quality under Digital Transformation

3.1 Technical Risks Faced During the Digital Transformation Process

While empowering accounting information systems, digital transformation also introduces a series of technical risks, posing multidimensional threats to the stability, security, and reliability of information quality. Data security and privacy protection represent the primary challenge. Centralized data storage architectures and cross-organizational data flow patterns significantly expand the attack surface, drastically increasing vulnerabilities to unauthorized access, data tampering, and information leakage, thereby directly jeopardizing the confidentiality and integrity of accounting information. System integration and interoperability risks also warrant significant attention. The heterogeneous technology environment characterized by the coexistence of legacy and new systems may lead to inconsistent data interfaces and semantic interpretation deviations, subsequently perpetuating

information silo phenomena and hindering the seamless transmission and accurate transformation of data across business processes[5].

At a deeper level, excessive reliance on algorithmic models gives rise to a new dimension of risk. Potential inherent biases in algorithm design, the incompleteness of training data, and the "black box" problem in decision-making within complex business scenarios may systematically distort accounting estimates and professional judgments, impairing the true and fair representation of information. These technical risks are intertwined, constituting a complex risk ecosystem that requires continuous monitoring and dynamic management.

3.2 Regulatory Dilemmas Arising from Institutional Lag and Insufficient Adaptability of Standards

The existing accounting regulatory system exhibits significant institutional lag and insufficient adaptability when confronted with new business models and data forms catalyzed by digital transformation. Accounting recognition and measurement standards are primarily designed around traditional transaction patterns and tangible assets. They lack clear and consistent accounting treatment guidance for emerging matters such as the value recognition of data assets themselves, revenue allocation in platform economies, and automated transactions triggered by smart contracts.

This regulatory vacuum leads enterprises to adopt diverse accounting policies in practice, severely impairing the comparability and consistency of accounting information across different firms. The financial reporting framework remains based on the fundamental paradigm of periodic, general-purpose reports. Its fixed reporting cycles and standardized content structure struggle to adequately accommodate the demand for real-time, customized digital information disclosure that integrates non-financial data. The audit standards system similarly faces adaptability challenges. Confronted with highly automated and algorithmic accounting processing flows, the effectiveness of traditional sampling inspection methods and control testing procedures diminishes significantly. Meanwhile, the verification of system logic integrity, data traceability accuracy, and algorithm rationality constitutes new blind spots in audit practice, urgently requiring innovation and breakthroughs at the methodological level.

3.3 Internal Constraints from the Interdisciplinary Talent Gap and Organizational Inertia

The effectiveness of technology and institutions ultimately depends on the capability fit of the organization and its members. The shortage of interdisciplinary talent and deep-seated organizational inertia constitute critical internal constraints in the transformation process. There is a severe shortage in the supply of cross-disciplinary talent who possess solid accounting expertise, proficiency in data analysis and IT application, and a deep understanding of business logic. This structural gap limits enterprises' ability to deeply mine data value and optimize the capability boundaries of their accounting information systems[6].

Concurrently, organizational inertia manifests as mindset fixedness at the cognitive level and path dependence at the behavioral level. Some financial personnel may cling to traditional accounting processing workflows and working modes, exhibiting cognitive resistance or skill-update anxiety towards a data-driven decision-making culture. Furthermore, traditional barriers between functional departments continue to hinder the deep integration and collaborative sharing of business and financial data. This often confines digital transformation to the superficial application of technological tools, failing to trigger core reforms in management accounting and reporting systems. Consequently, these factors constrain the fundamental enhancement of accounting information quality and the release of value creation capabilities.

3.4 Constructing an Accounting Information Quality Assurance System to Enhance the Effectiveness of Digital Transformation

To systematically address the aforementioned challenges, it is necessary to construct a multi-level, dynamically coordinated accounting information quality assurance system. At the technological governance level, enterprises should establish a governance framework covering the entire data lifecycle, adopt advanced data security technologies such as differential privacy and homomorphic encryption, and implement mechanisms for regular auditing and ethical review of key algorithms. These measures ensure the robustness, transparency, and trustworthiness of technology applications.

At the normative adaptation level, it is necessary to promote the adaptive evolution of accounting

standards and disclosure frameworks. This involves actively exploring measurement and reporting standards for emerging issues like data asset capitalization and platform transaction recognition, and developing integrated reporting models that merge financial and non-financial information. Concurrently, audit methodologies must transform towards continuous auditing and data-driven auditing, incorporating systems control testing and algorithm verification into core audit procedures.

At the organizational empowerment level, enterprises should implement strategic plans for reshaping the talent architecture. Through interdisciplinary training, job rotation, and talent acquisition, they can systematically cultivate interdisciplinary financial talent equipped with digital literacy and business acumen. Simultaneously, they should advance the optimization of the organizational structure towards network-based and agile models, break down departmental barriers, and foster a data-centric organizational culture that encourages experimentation and collaboration. This provides a solid human capital and organizational foundation for the deep penetration of digital transformation and the continuous improvement of accounting information quality. The effective operation of this system relies on the synergistic evolution and dynamic adjustment of the technological, institutional, and organizational dimensions.

Conclusion

This study, through systematic theoretical analysis, demonstrates that digital transformation exerts a profound and complex impact on the quality of corporate accounting information via multiple pathways, including data governance, process automation, and model innovation. While it enhances the reliability, relevance, and timeliness of information, it also introduces new challenges to comprehensibility. The adaptive reshaping of organizational structure serves as a key moderating factor in ensuring that technological empowerment translates into information quality advantages. However, this transformation process is also accompanied by significant challenges, including technical risks, lagging standards and regulations, and a shortage of interdisciplinary talent. Therefore, enterprises need to collaboratively construct a dynamic accounting information quality assurance system from the three dimensions of technology, institution, and organization.

Looking ahead, the interactive evolution of digital transformation and accounting information quality will remain an important research topic. Future research can focus on directions such as the impact mechanism of intelligent algorithms on the fairness of accounting estimates, the evolution path of accounting standards adapting to emerging business models, and innovations in audit theory and methodology within data-driven environments for continuous and in-depth exploration.

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