

Innovation Practice of Enterprise Management Accounting under Digital Transformation: Multi-case Analysis and Strategy Research

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Abstract: In the era of digital economy, the widespread application of digital technologies such as cloud computing, big data, and artificial intelligence has driven enterprises into the in-depth stage of digital transformation. As a core tool for internal management, traditional management accounting has exposed limitations in data processing efficiency, diversity of analytical tools, and business synergy, which are increasingly unable to meet the dynamic management needs of enterprises in the digital age. This study adopts the research methodology of "theoretical synthesis, case analysis, rule extraction, and strategy formulation". On the basis of sorting out the theoretical foundations of digital transformation and management accounting, it conducts in-depth analysis of three representative enterprises—Haier Biomedical Co., Ltd., Yunnan Yuntianhua Co., Ltd., and a large state-owned enterprise—exploring their innovative practices in management accounting under digital transformation, summarizing the commonalities and differences among the cases, and extracting key success factors. Furthermore, the study clarifies the innovation strategies and paths of management accounting from the two dimensions of data-driven decision-making innovation and value chain optimization innovation, and puts forward targeted solutions for the challenges faced in data, technology, talent, organization, and culture. The research results not only enrich the theoretical framework of management accounting in the digital context but also provide practical reference for enterprises to promote management accounting innovation and achieve high-quality development.

Keywords: Digital Transformation; Management Accounting; Innovation Practice; Multi-case Analysis; Data-driven; Value Chain Optimization

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I INTRODUCTION

1.1 Background and Motivation of the Research

In the digital economy era, the rapid advancement of digital technologies such as cloud computing, big data, and artificial intelligence has propelled enterprises into the deep waters of digital transformation. This transformation is not merely a technological innovation but a comprehensive overhaul of corporate strategies, business models, and management approaches, becoming the core pathway for enterprises to gain competitive advantages in the market. As a core tool for internal management, management accounting integrates financial and non-financial information to provide critical support for strategic planning, cost control, and performance evaluation. However, the limitations of traditional management accounting in data processing efficiency, diversity of analytical tools, and business synergy have become increasingly evident, making it difficult to meet the dynamic management demands of the digital age. Therefore, exploring innovative practices in management accounting is not only an inherent requirement for its own development but also an inevitable choice for enterprises to achieve digital transformation and upgrading.

1.2 Research Value and Significance

At the practical level, this study provides actionable management accounting innovation solutions for enterprises, enabling them to optimize cost accounting, enhance decision-making quality, refine performance systems, and strengthen core competitiveness through digital technologies. Theoretically, the research focuses on the deep integration of digital

transformation and management accounting, enriching the theoretical framework of management accounting and exploring methodologies suited to the new era, thereby injecting fresh vitality into disciplinary development. At the industry level, by sharing innovative practical experiences, it guides peers in exploring personalized transformation paths and promotes high-quality development across the sector.

1.3 Research Design and Methodology

The study adopts a methodology of "theoretical synthesis, case analysis, rule extraction, and strategy formulation". It establishes theoretical foundations through literature review to systematically synthesize domestic and international research findings. By employing multi-case studies, it selects representative enterprises across various industries and scales, gathering first-hand practical data through field research and in-depth analysis. The comparative analysis approach then identifies commonalities and differences among cases to distill universal patterns.

1.4 Research Innovations

In terms of research perspective, this study transcends the fragmented limitations of traditional approaches by thoroughly examining the intrinsic linkage mechanism between digital transformation and management accounting innovation. Methodologically, it employs multi-case comparative analysis to enhance the generalizability and reliability of conclusions. The research content covers multiple dimensions including technical methodologies, functional positioning, organizational structure, and talent development, while balancing innovative practices with challenge responses to elevate the practical value of the study.

2 Theoretical Foundation: Digital Transformation and Management Accounting

2.1 Theories of Digital Transformation

Digital transformation refers to the systematic restructuring of business processes, organizational structures, and business models through digital technologies. Its technological foundations include cloud computing (providing flexible and efficient resource allocation), big data (extracting value from massive datasets), artificial intelligence (enabling intelligent decision-making and efficiency improvements), and the Internet of Things (achieving real-time interconnection between devices and data). This transformation not only gives rise to new business models like the sharing economy but also drives organizational restructuring from hierarchical to flat and networked structures, adapting to rapidly changing market environments.

2.2 Management Accounting Theory

Management accounting employs specialized methodologies to collect and analyze diverse information, supporting corporate decision-making and resource allocation. Its core functions encompass forecasting, decision-making, budgeting, cost control, and performance evaluation. Common tools and methods include cost behavior analysis, cost-volume-profit analysis, activity-based costing, and the balanced scorecard, each playing a critical role in cost accounting, profit planning, and performance assessment respectively.

2.3 The Intrinsic Connection Between the Two

Digital transformation presents multiple opportunities for management accounting: expanding data sources to achieve comprehensive integration of financial and non-financial data; enhancing data processing efficiency through big data and AI technologies to extract deeper insights; and driving innovation in tools and methods such as dynamic budgeting and precise cost accounting. However, it also faces challenges including heightened data security risks, increased pressure from technological updates, and growing difficulties in cross-departmental collaboration. Management accounting provides crucial support for digital transformation, playing a key role in strategic planning, project evaluation, resource allocation, and performance monitoring to ensure the smooth progress of the transition.

3 Case Study: Innovative Practices of Management Accounting in the Context of Digital Transformation

3.1 Case 1: Haier Biomedical Co., Ltd.

(1) Transformation Background: Driven by the biomedical industry's demand for personalization and accelerated technological innovation, Haier Biomedical urgently needs to break through traditional management bottlenecks through digital transformation.

(2) Innovative Practices: We have established an intelligent cost management system that leverages IoT for real-time production data collection, enabling precise cost accounting and dynamic monitoring through big data analytics. The innovative Win-Win Value-added Table incorporates user resources and ecosystem value into the reporting framework, transcending traditional financial reporting limitations. Additionally, we implement a two-dimensional matrix performance management system that evaluates employees across both financial and non-financial dimensions, strengthening the alignment between strategic objectives and individual performance.

(3) Implementation Results: Cost efficiency has been achieved, products and services have aligned with market demands, revenue and net profit have shown sustained growth, and market share has expanded steadily.

3.2 Case 2: Yunnan Yuntianhua Co., Ltd.

(1) The Driving Force Behind This Transformation: Faced with intensified industry competition, policy-driven green chemical development, and evolving customer demands, digital transformation has become an inevitable choice.

(2) Innovative Practices: Establishing a financial shared service center to standardize and automate financial processes; applying activity-based costing to optimize cost accounting, and leveraging big data analytics to enhance supply chain procurement; implementing end-to-end value chain management to integrate internal and external resources, thereby strengthening supply chain coordination and risk early warning.

(3) Implementation Outcomes: Successfully transitioned to green chemistry and smart manufacturing, achieving cost reductions across the entire industrial chain, with significant improvements in profitability and asset management efficiency, while continuously strengthening its industry position.

3.3 Case 3: A Large State-Owned Enterprise (C1) Driving Financial Digital Transformation Through Consolidated Financial Statements

(1) The Core Challenge of Transformation: The lack of unified accounting systems across subsidiaries results in fragmented data and inconsistent standards, leading to inefficient preparation of consolidated financial statements with high error rates, which makes it difficult to fulfill the group's need for transparent management.

(2) Innovative Practice: Partnering with Yuanian Technology to build a C1 consolidated reporting system, establishing unified data standards and platforms; creating a group-wide voucher pool to enable seamless data integration and comprehensive oversight; automating report generation, consolidation, and offsetting processes, with multi-dimensional report outputs.

(3) Implementation Outcomes: The standardization of data has been significantly enhanced, with marked improvements in the efficiency and accuracy of report preparation. This has enabled integrated management of business and finance, transforming financial functions from accounting to strategic advisory roles.

3.4 Case Comparison and Enlightenment

In terms of commonalities, all three enterprises prioritize digital technology applications, driving management accounting innovation with data as the core driver while focusing on optimizing tools and methods to enhance efficiency. Regarding differences, Haier Biomedical emphasizes comprehensive innovation in internal management, Yuntianhua Chemical prioritizes supply chain collaboration and cost control, while large state-owned enterprises focus on data integration and automated reporting as breakthrough points. The key insights are: enterprises should select transformation paths based on industry characteristics and their own needs, strengthen data governance and cross-departmental collaboration, and prioritize talent development and technological adaptation.

4 Innovation Strategy and Path: The Direction of Management Accounting Reform under Digital

Transformation

4.1 Data-Driven Decision-Making Innovation

Establish a unified data management system by formulating data standards and specifications, integrating scattered data resources to ensure accuracy and integrity. Apply big data analytics and machine learning to uncover hidden patterns and provide precise decision support. Develop an intelligent decision support system that combines decision models with visualization capabilities, enabling real-time data analysis and multi-scenario evaluation.

4.2 Optimization and Innovation of the Value Chain

Enhance supply chain collaboration by leveraging IoT and blockchain technologies to achieve supply chain visualization and information sharing, while optimizing inventory and procurement processes. Streamline internal workflows through automation to reduce redundant tasks, break down departmental silos, and ensure seamless process integration. Strengthen end-to-end value chain cost control and risk early warning systems to boost the industry's overall competitiveness.

5 Obstacles to Progress: Challenges Faced by Management Accounting Innovation in the Context of Digital Transformation

5.1 Data-Related Challenges

Data quality is uneven, with issues such as insufficient accuracy and incomplete data, which affect the effectiveness of analysis and decision-making. Data security and privacy risks are prominent, as hacker attacks and internal violations may lead to data leaks, causing economic losses and reputational risks.

5.2 Technical and Talent Challenges

Digital technology is updated and iterated rapidly, requiring enterprises to continuously invest resources to upgrade technical facilities, which incurs high costs. There is a shortage of compound talents who master both management accounting expertise and digital technology, making it difficult to support the deep integration of digital technology and management accounting.

5.3 Organizational and Cultural Challenges

The traditional hierarchical organizational structure leads to slow information transmission and poor inter-departmental coordination; the conservative corporate culture inhibits innovation vitality, and the lack of a data-driven culture affects employees' ability to apply data in work.

6 Breaking the Block: Strategies to Meet Challenges

6.1 Data Management Strategy

Establish unified data standards and specifications, set up a data entry review and cleaning mechanism, and build a data quality monitoring index system to ensure the accuracy and completeness of data. Strengthen technical protection by adopting encryption technology and access control mechanisms to prevent data leaks, formulate emergency response plans for data security incidents, and enhance employee data security training to improve data security awareness.

6.2 Technology and Talent Support Strategies

Keep a close eye on the development trends of digital technologies such as big data, artificial intelligence, and blockchain, increase investment in technology research and development and facility upgrades, and cooperate with professional technology suppliers to customize digital solutions that meet the actual needs of enterprises. Enhance the digital skills of existing management accounting personnel through internal training, online courses, and on-the-job practice; actively recruit external compound talents with both accounting and digital backgrounds; and establish talent training bases in collaboration with universities to cultivate reserve talents for management accounting innovation under digital transformation.

6.3 Organizational and Cultural Change Strategies

Optimize the organizational structure, promote the transformation from a hierarchical structure to a flat and networked structure, and establish cross-departmental management accounting teams to break down departmental barriers and improve collaboration efficiency. Shape an innovation-oriented corporate culture, set up incentive mechanisms for innovation (such as innovation awards and promotion channels), encourage employees to participate in management accounting innovation practices; cultivate a data-driven culture, popularize data application knowledge through internal lectures and case sharing, and enhance employees' data literacy and collaborative awareness.

7 RESEARCH CONCLUSIONS AND FUTURE PROSPECTS

7.1 Research Conclusions

Digital transformation has driven profound innovations in management accounting in terms of data utilization, methodological tools, and functional positioning. Exemplary enterprises have achieved cost reduction, efficiency improvement, and value creation through differentiated innovation strategies based on their own industry characteristics and development needs. However, management accounting innovation still faces multi-faceted challenges, including uneven data quality, data security risks, high costs of technological updates, shortage of compound talents, rigid organizational structures, and conservative corporate cultures. To overcome these obstacles, enterprises must comprehensively implement strategies such as improving data management systems, strengthening technical and talent support, and optimizing organizational structures and corporate cultures.

7.2 Future Outlook

Future research can further explore the deep integration path of emerging technologies such as blockchain and artificial intelligence with management accounting, and analyze the application effects and risk prevention measures of new technologies in cost control, performance evaluation, and risk management. Conduct cross-industry and cross-scale comparative studies, compare the differences in management accounting innovation models among enterprises in different industries (such as manufacturing, service industry, and high-tech industry) and different scales (small and medium-sized enterprises, large enterprises), and summarize industry-specific adaptability and scale-differentiated innovation experiences. Pay attention to the evolution trend of management accounting functions, explore the new roles and value of management accounting in strategic risk management, ecological value creation, and sustainable development, and provide more targeted theoretical guidance and practical suggestions for enterprises to promote digital transformation and management accounting innovation.

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