

Research on the Path of Financial Accounting Transformation to Management Accounting in the Big Data Era

Xue Yang *

School of Economics and Management, Southwest Petroleum University, Chengdu 610500, China

Abstract: This paper explores the significance, existing problems, and strategies for addressing the transformation of financial accounting to management accounting in the era of big data. It first elucidates the importance of the transformation, including enhancing decision support, conducting cost-benefit analysis, and improving performance. Subsequently, it analyzes the problems encountered during the transformation process, such as lack of skills and knowledge, low utilization of data resources, and difficulties in system integration. It then proposes countermeasures to address these issues, including technological capacity building, talent training and recruitment, system integration coordination, and enhancement of management accounting decision analysis capabilities. Finally, it points out that as technology and market environments evolve, this transformation will continue to deepen, necessitating continuous skill enhancement for professionals in the financial accounting field and proactive adaptation by enterprises to enhance competitiveness.

Keywords: Big Data Era, Financial Accounting, Management Accounting, Transformation.

1. Introduction

In the current era, big data has become a significant force driving business and technological innovation. The rise of big data has transformed the way businesses operate, particularly evident in the field of accounting. With the maturity and widespread application of big data technology, financial accounting is no longer confined to traditional data collection, reporting, and auditing. Instead, it increasingly involves actively participating in the process of corporate decision-making and strategic planning. This shift provides an opportunity for the digitization transformation of financial accounting towards management accounting. As the primary support system for internal decision-making within enterprises, the digitization transformation of management accounting is an inherent requirement to adapt to the trends of the times and enhance the efficiency of corporate decision-making. This digitization transformation not only affects the internal operational efficiency of enterprises but also involves their ability to respond flexibly to market competition and make strategic decisions with acuity. Therefore, researching the pathway of the digitization transformation of financial accounting towards management accounting in the era of big data is of significant importance.

Currently, many scholars have conducted research on the transformation from financial accounting to management accounting. For example, Zhang Simeng elaborated on how enterprise financial work evolves from financial accounting to management accounting in the context of big data, focusing on the impact of big data on enterprise financial management, the necessity of transformation from financial accounting to management accounting, and the pathway of transformation. Zhang Huidan and others analyzed the inevitability of the transformation from financial accounting to management accounting in the context of big data and proposed the pathway for this transformation. Fu Hongying emphasized the urgency of the transformation from financial accounting to management accounting in the era of big data, analyzed the

problems and reasons for the transformation of traditional financial management, and proposed strategies such as enhancing the business acumen of management and utilizing big data to achieve organizational goals, promote the synergy of business and financial data, facilitate the exploration of management accounting information, and increase the support of management accounting information for enterprise decision-making. Xiao Haiqun mainly analyzed the current development status of financial accounting and proposed a research plan for the pathway of transformation to management accounting. Based on these studies, this paper primarily analyzes the significance of the transformation from financial accounting to management accounting in the era of big data, identifies the problems in this transformation, and proposes solutions to address these problems.

2. Significance of the Transformation from Financial Accounting to Management Accounting in the Era of Big Data

2.1. Strengthening Decision Support

In the era of big data, the transformation from financial accounting to management accounting holds significant implications for enhancing decision support. This transformation enables the utilization of deep analytical capabilities of big data in the decision-making process, thereby providing more comprehensive and precise financial information. While traditional financial accounting typically focuses on recording and summarizing historical data, management accounting shifts its focus to predicting and analyzing future trends. This transformation implies that decision-makers can leverage complex data models and algorithms to conduct in-depth analysis of vast financial data, identifying potential risks and opportunities. For instance, through real-time analysis of market trends, consumer behavior, and competitor dynamics, managers can make more accurate and timely strategic decisions, enhancing decision

transparency and traceability.

2.2. Conduct Cost-Benefit Analysis Effectively

In the context of big data, the transformation of financial accounting to management accounting also holds significant importance in cost-benefit analysis. This transformation aids in more accurately identifying and allocating costs within a business, thereby facilitating more effective financial decision-making. While traditional financial accounting relies on historical data and experiential estimates for cost analysis, management accounting leverages big data technologies to conduct cost allocation and control with greater precision through real-time data, trend analysis, and predictive models. This approach provides a more intricate and nuanced method of cost analysis. For instance, by employing Activity-Based Costing (ABC), businesses can gain a more precise understanding and management of the true costs associated with their products or services. This not only helps in refining product pricing strategies but also unveils potential opportunities for cost savings and operational efficiency improvements.

2.3. Effective Management and Performance Enhancement

In the era of big data, the transformation of financial accounting to management accounting implies that enterprises can more effectively utilize big data and analytics tools to monitor, evaluate, and enhance performance. Big data technology enables management accounting to achieve real-time monitoring and analysis of performance. This real-time capability not only enhances the accuracy of data but also allows enterprises to respond quickly to market changes and internal operational adjustments. Compared to traditional financial accounting, management accounting makes performance management more flexible and adaptive, enabling timely reflection of changes in the enterprise's operations and market environment. Additionally, in the context of big data, management accounting emphasizes data-driven goal setting and tracking, meaning that enterprises can set more precise and practical performance goals based on historical data and market trends, and use big data tools to continuously track the achievement of these performance goals. This approach not only enhances the scientific nature of performance goal setting but also increases the likelihood of achieving these goals. Furthermore, the transformation of financial accounting in the era of big data provides more dimensions and deeper analysis for performance evaluation, including the comprehensive assessment of financial and non-financial indicators such as customer satisfaction, market share, internal process efficiency, etc. This comprehensive evaluation method helps to fully understand the multifaceted factors influencing performance, thus better guiding enterprise decision-making.

3. Challenges in the Transition from Financial Accounting to Management Accounting in the Big Data Era

3.1. Lack of Skills and Knowledge

In the era of big data, a core challenge in the transition from financial accounting to management accounting is the lack of skills and knowledge among financial professionals. Firstly,

financial professionals commonly lack skills in data analysis. In traditional accounting fields, the focus is often placed on financial reporting and compliance rather than data analysis. Consequently, many financial professionals lack proficiency in areas such as data mining, machine learning, and statistical analysis. Secondly, in the transition process, it is necessary to tightly integrate financial data with business strategies and conduct in-depth analysis and interpretation to support higher-level strategic decision-making. However, the training focus for financial professionals has not been placed on these aspects, making it difficult for them to transition quickly into management accounting roles. Finally, the rapid development of big data tools and platforms requires financial professionals to continuously learn and adapt, but existing training systems and resources cannot meet this demand.

3.2. The Utilization Rate of Data Resources Is Not High

First, there exists an "information silo" phenomenon within enterprise-related data, where data is often scattered across different systems and departments, making effective integration and sharing impossible. This results in low utilization of financial accounting data resources, hindering the digital transformation of management accounting. Second, data analysis lacks visualization automation. The characteristics of the big data era include vast and diverse datasets, rendering traditional manual analysis methods inadequate. During the transition from financial accounting to management accounting, bottlenecks in data analysis and processing persist due to the lack of automated analysis tools and visualization methods, leading to low analysis efficiency. Third, there is insufficient support for data-driven decision-making. The digital transformation of financial accounting requires transforming data into actionable information to support intelligent decision-making and business operations. However, many enterprises face difficulties in data conversion and integration between financial accounting and management accounting, resulting in insufficient digitization of data and inadequate support for intelligent decision-making. Fourth, the depth of business-finance integration is insufficient. Due to a lack of in-depth understanding of the business, the correlation and consistency between financial data and management data are insufficient. This results in a lack of tight integration between financial accounting and management accounting during digital operations, making it challenging to achieve comprehensive digital operational advancement.

3.3. Difficulty in System Integration

The difficulty in system integration is another major challenge faced by the transition from financial accounting to management accounting. In this transformation process, it is necessary to effectively integrate traditional financial accounting systems with management accounting systems to facilitate the flow and application of data. However, achieving this goal still faces several obstacles. Firstly, financial accounting and management accounting have inherently different focuses and operational modes. Financial accounting emphasizes accurate recording and reporting of financial matters, with system design primarily aimed at ensuring data compliance and historical accuracy. On the other hand, management accounting focuses on providing support for future business decisions, requiring more flexible and forward-looking data analysis. The differences in focus

result in disparities in systems and data processing methods, making integration more complex and challenging. Secondly, differences in data structures and formats are also significant manifestations of the difficulty in system integration. Data in financial accounting systems is often highly standardized and structured, whereas data required for management accounting includes unstructured market information, customer feedback, etc. The diversity and complexity of data make it difficult to achieve effective integration and utilization when integrating systems. Lastly, from a technical perspective, financial accounting systems are often built on traditional Internet Technology (IT) architectures, while management accounting requires more advanced and flexible data processing technologies such as big data analytics and cloud computing. The technological differences increase the difficulty of integration, requiring a significant investment of time and resources to upgrade and adjust existing systems.

3.4. The Level of Digital Management Is Not Deep Enough

Firstly, traditional financial accounting mainly relies on historical data for budgeting, lacking accurate predictions of future development trends. However, digital transformation requires finance departments to establish budget management models based on big data analysis. Through mining and analyzing large amounts of data, accurate predictions of future business conditions can be made, providing decision-makers with more targeted budget plans. Secondly, traditional financial accounting relies heavily on manual accounting and statistics for cost management, leading to data errors and lagging information. Digital transformation demands finance departments to utilize big data technology to establish intelligent cost management and control systems, enabling real-time data collection, automated accounting, and intelligent analysis, thereby improving the accuracy and efficiency of cost management. Furthermore, digital transformation requires finance departments to establish comprehensive management accounting reporting systems based on big data analysis, including indicators and analyses from multiple dimensions such as finance, operations, and marketing, providing comprehensive decision-making bases for enterprise management. Traditional financial accounting reports mainly focus on financial conditions and financial performance, lacking comprehensive consideration of non-financial factors, greatly limiting the digital transformation of management accounting. Lastly, digital transformation requires finance departments to establish performance appraisal management systems based on big data analysis, integrating financial indicators with non-financial indicators, comprehensively evaluating the performance of various aspects of the enterprise, providing managers with more accurate and comprehensive performance evaluation results, and promoting continuous improvement and development of the enterprise.

3.5. Resistance to Change Management

Change management resistance is a notable issue in the transition from financial accounting to management accounting. First, many employees are accustomed to traditional ways of working and are uncomfortable with new ways of working and processes. This discomfort stems from fear of the unknown, pressure to learn new skills, or concerns about the security of their current positions. Second, some managers are skeptical about the transition from financial

accounting to management accounting or are hesitant to move forward due to concerns about the costs and risks involved in the transition process. This hesitation not only affects the speed at which the change can be advanced, but can also lead to a lack of clear direction for the transition. Finally, in some organizations, the traditional financial accounting culture emphasizes stability and accuracy over innovation and flexibility. In this cultural context, driving transformation is even more difficult, as it requires fundamental changes in the organization's thinking and behaviour.

4. Path Countermeasures for the Transformation of Financial Accounting to Management Accounting in the Context of Big Data Era

To address the challenges posed by AI technology in the accounting industry, it's essential to adjust industry structures, prioritize information security, and enhance risk awareness. Additionally, there is a need for legislative efforts to regulate the development and application of AI in accounting.

4.1. Technical Capacity-Building

In the era of big data, the transition from financial to management accounting has created clear requirements for technical capacity-building. To meet this challenge, enterprises need to take a number of specific actions.

First, enterprises need to invest in modernized financial information systems that are capable of handling big data and providing real-time analytics, including the use of cloud computing services to increase data processing capacity and storage capacity, as well as the use of high-speed networks to ensure the efficiency of data transmission.

Second, companies should deploy advanced data analytics tools and platforms, such as data lakes and data warehouses, which can support complex data analytics and are capable of storing and processing large amounts of data from a variety of sources. In addition, the introduction of artificial intelligence can automate data analysis and identify trends from data.

Third, organizations need to establish a data management team that is responsible for defining data standards and policies, as well as managing the integration, cleansing, and analysis of data. Members of this team should include data scientists, data engineers, and business analysts, who are collectively responsible for ensuring the quality of data and the accuracy of analysis.

Fourth, to safeguard data security and privacy, organizations need to implement strong data security policies and privacy protection measures. This includes data encryption, access control, and routine security audits to prevent data leakage and unauthorized access.

4.2. Talent Training and Introduction

In order to meet the challenges of transitioning from financial accounting to management accounting in the era of big data, enterprises must focus on talent training and talent acquisition.

First, for existing employees, companies need to design a comprehensive training program, which should include, but not be limited to, training in the areas of big data analysis, advanced data management, and data-driven decision making. Such training can be in the form of internal workshops or

external courses in collaboration with specialized educational institutions. The key is to ensure that the training content can match the specific needs of the enterprise and can adapt to changes in technological development.

Second, companies need to conduct leadership training to help management recognize the important role of big data and analytics tools and learn how to effectively use these tools in management decisions. Such training will help managers understand the technical details of data analytics and lead a data-driven cultural shift.

Third, to attract new talent, companies should build partnerships with universities and professional training organizations to attract graduates who are already trained in big data and analytics. In addition, organizations can attract this talent by offering competitive compensation, career development opportunities, and a work environment that is innovative and supportive of data-driven decision making.

Fourth, in order to keep the talent pipeline alive, companies also need to regularly assess the skills of their employees and update their training programs accordingly. Identify skill gaps through performance management systems and provide personalized training and development programs to ensure that employees' skills are always in line with the company's requirements.

4.3. Promoting Synergistic Integration of Systems

Promoting synergistic systems integration is an important part of the transition from financial to management accounting.

First, in order to address the differences between financial accounting and management accounting in terms of focus and mode of operation, enterprises should adopt a convergence approach to reconstruct their financial information systems. This integration approach involves not only integration at the technical level, but also integration of financial accounting and management accounting at the conceptual and methodological levels. For example, building a unified data platform that meets both the accuracy and compliance needs of financial accounting and the flexibility and forward-looking needs of management accounting. In this way, the financial information system will be able to process and analyze various types of data more efficiently, providing comprehensive support for corporate decision-making.

Second, for the problem of data structure and format differences, enterprises need to have strong data processing and conversion capabilities. This means that enterprises need to invest more in advanced data integration tools and technologies, such as data lakes or data warehouse technologies, in order to be able to process and store data from different channels, whether structured or unstructured. In addition, enterprises should establish uniform data standards and formats to ensure that data can be seamlessly integrated across different systems. To this end, enterprises can set up specialized data management teams responsible for developing and maintaining data standards, as well as overseeing the data integration process to ensure data accuracy and consistency. Through these measures, enterprises can significantly reduce errors in the data integration process and improve data quality and reliability.

Finally, considering the differences in the technical aspects, enterprises need to carry out a series of system upgrades and modifications, including transforming traditional IT architectures into more flexible and scalable ones, such as

cloud computing platforms. At the same time, companies should step up investments in emerging big data analytics tools and platforms to improve data processing and analytics capabilities. These technology upgrades not only require sufficient financial investment, but also require enterprises to establish corresponding technical support and maintenance systems.

4.4. Enhancement of Management Accounting Decision Analysis Function

First, the use of big data technology and information systems to establish a lean cost management model to achieve comprehensive, real-time and accurate collection, analysis and management of cost data, such as monitoring all costs of the enterprise and predicting and optimizing cost changes and allocations, so as to enhance the function of management accounting in cost control and decision support. Secondly, combining big data technology and scenario-based modeling to establish scenario-based modeling to realize comprehensive management and analysis of various budget data of enterprises, such as managing budget data from budget preparation, execution control, adjustment analysis, and appraisal and evaluation according to different business scenarios and situations, so as to more accurately predict and control the financial status and operational performance of enterprises. Third, using big data technology and artificial intelligence algorithms to build intelligent management accounting reports to realize active early warning and dynamic management of enterprise financial data, such as monitoring and analyzing the financial status and operational performance of enterprises, and providing early warning and decision-making support to help enterprises adjust their business strategies and action plans in a timely manner. Fourth, combining big data technology and scenario-based applications to build an intelligent performance appraisal system to realize intelligent appraisal and analysis of enterprise performance data, e.g., comprehensive, accurate and real-time assessment of enterprise performance based on different business scenarios and performance indicators, so as to help enterprises optimize the allocation of resources and improve performance levels.

5. Conclusion

Under the wave of big data, the transition from financial accounting to management accounting is not only a trend, but also a necessary way to enhance the competitiveness of enterprises. To realize this transformation, enterprises need to carry out comprehensive and in-depth innovation at the levels of technology, talents, processes and systems. Through the careful deployment of integrated strategies, enterprises can effectively respond to this challenge, opening a new era of management accounting and maximizing the value of data.

In the future, this transformation will continue to deepen as technology continues to evolve and market conditions change. Professionals in the field of financial accounting need to adapt to the new changes and improve their professional skills and knowledge to better serve the development of enterprises. At the same time, enterprises should also actively respond to this trend, through reform and innovation to continuously improve their competitiveness.

References

- [1] Ding R. Strategic analysis of digital transformation of financial accounting to management accounting in the era of big data [J]. Modern Business, 2024 (01):169-172.
- [2] Wang Huiying. Research on the Path of Digital Transformation of Financial Accounting to Management Accounting in the Era of Big Data [J]. Finance and Accounting Learning, 2023 (30): 94-96.
- [3] Fu Hongying. Analysis of the transformation path from financial accounting to management accounting in the era of big data [J]. National Circulation Economy, 2019(28):164-165.
- [4] Yao Chenting. Transformation strategy of financial accounting to management accounting under the background of big data [J]. Modern Enterprise, 2023(9):181-183.
- [5] Liu Jingwen. Discussion on the Transformation Path of Enterprise Financial Accounting to Management Accounting in the Era of Big Data [J]. Investment and Entrepreneurship, 2023,34(17):78-80.
- [6] Zhang Dan. Discussion on the Transformation of Financial Accounting to Management Accounting in the Era of Big Data [J]. Industry and Technology Forum, 2023, 22(13):219-220