

Research on the Transformation Path and Countermeasures of Accounting in Small and Medium-sized Enterprises from Accounting-oriented to Management-oriented under the Background of Big Data

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Abstract. Driven by the digital wave, big data technology offers new possibilities for optimizing the allocation of enterprise resources and is accelerating the transformation of the operation mode of accounting functions in small and medium-sized enterprises (SMEs). As an important force in the development of the market economy, SMEs are facing an urgent need to transform their accounting work from traditional accounting to management-oriented. This paper mainly discusses the difficulties the accounting transformation of SMEs faces, for example, on the technical level, emerging technologies such as artificial intelligence and cloud computing have problems such as poor data quality, high costs, and insufficient technical adaptability; in terms of data management, the lack of unified standards, fragmented formats and systems make data integration difficult, hindering the scientific nature of analysis and decision-making... In response to these problems, this article proposes multi-dimensional solutions: first, increase digital investment, build intelligent platforms, and optimize technical performance; second, improve the data standardization system to ensure the accuracy and completeness of data; third, strengthen talent cultivation, break through traditional accounting thinking, and enhance the management and decision-making capabilities of financial personnel; finally, optimize the organizational structure, embed financial functions into business processes through business and finance integration, and improve the overall efficiency and competitiveness of the enterprise. Through these measures, SMEs can achieve the transformation of management accounting in the context of big data and lay the foundation for sustainable development.

Keywords: Big Data, Accounting Transformation, Management Accounting

1. Introduction

Driven by the current wave of digitalization, big data technology is profoundly reshaping the operational models of various industries. As an important component of economic development, small and medium-sized enterprises (SMEs) are facing an urgent need to transform their accounting functions from traditional accounting-oriented models to management-oriented ones. This

transformation is not only key for enterprises to adapt to market changes and enhance competitiveness but also an inevitable choice for achieving sustainable development. Although research on the accounting transformation of SMEs has been increasing, it still requires deeper exploration. This paper adopts multiple research methods, including case analysis, to examine the current situation and existing problems. Furthermore, it provides theoretical guidance and decision-making reference for the accounting transformation practices of SMEs, as well as contributing to further academic research in related fields.

2. Theoretical foundation of SME accounting transformation under the background of big data

2.1. Definition of relevant concepts

2.1.1. Definition of financial accounting

Financial accounting refers to an economic management activity that systematically records and supervises the completed financial transactions of an enterprise. Its primary objective is to provide external stakeholders, such as investors, creditors, and government authorities, with economic information regarding the enterprise's financial position and profitability.

2.1.2. Definition of management accounting

Management accounting is a system designed to serve business management and decision-making. Analyzing both financial and non-financial information supports budgeting, cost control, and performance evaluation activities. It features flexibility and dynamic adaptability, aiming to optimize resource allocation and enhance operational efficiency.

2.2. The relationship between big data and accounting transformation

Most SMEs still adhere that financial accounting remains the dominant function of the financial department. However, with the advent of the big data era marked by technologies such as cloud computing and artificial intelligence, enterprises can now rapidly collect, process, and analyze massive volumes of data. This has diminished the relative importance of manual accounting information processing, leading to a gradual reduction in demand for traditional accounting talents. Scholars have increasingly called for reforms to traditional financial accounting [1].

At the same time, enterprises, faced with vast amounts of processed information, must extract underlying meanings and trends to evaluate business performance and forecast future directions. Consequently, higher demands have emerged for analytical, managerial, and decision-making capabilities in accounting, leading to an increased demand for management accounting talents. In conclusion, in today's fiercely competitive market environment, enterprises must promote the transformation of financial accounting toward management accounting, thereby enhancing competitiveness and resource efficiency.

3. Current situation and problems in the transformation of SME accounting

At present, many enterprises, after introducing financial robots and data analysis software, only apply these tools to basic tasks such as data entry and report generation, without fully utilizing their potential in key management accounting areas like budget forecasting and cost analysis. The causes

of this phenomenon are multifaceted, including a superficial understanding of artificial intelligence technology, poor data quality, and inadequate technological integration, all of which hinder the effective execution of complex financial analyses and predictive tasks. The following section further sorts out the main dilemmas faced by SMEs in accounting transformation.

3.1. Technological dilemma

The development of management accounting is closely tied to modern technology, with artificial intelligence (AI), cloud computing, and blockchain playing indispensable roles. However, these technologies are still evolving and have not yet reached full maturity. In particular, AI relies heavily on large volumes of high-quality data for model training. Yet, the financial data of many enterprises is generally insufficient in quantity and low in quality. This not only affects the accuracy of algorithms but may also lead to model bias, thereby undermining the reliability of decision-making [2]. Meanwhile, challenges remain in system security. For SMEs in particular, the high technical costs and maintenance complexity pose significant barriers to widespread adoption.

3.2. Data dilemma

Although enterprises' dependence on massive volumes of data has deepened, the current state of data management remains far from satisfactory. On one hand, inconsistent data entry standards between business and financial departments have resulted in disorganized formats, missing information, and duplicate entries. This severely hinders the extraction and application of data value. On the other hand, the diversity of data formats across systems (e.g., differing date formats and text encodings), poses major obstacles to interdepartmental and intersystem data exchange and collaboration. This significantly undermines the accuracy and integrity of data, thereby weakening the scientific validity and reliability of data-driven decision-making. Plus, data confidentiality and security issues are increasingly serious [3]. Once sensitive financial information is leaked or maliciously tampered with, enterprises may suffer immeasurable losses, including the exposure of trade secrets, reputational damage, and potential legal risks.

3.3. Standardization dilemma

Accounting decisions rely on standardized financial data, yet regional and industry differences make cross-company analyses challenging. Although general accounting frameworks such as IFRS and US GAAP exist, regional and industry variations still limit their universal applicability.

3.4. Talent dilemma

SMEs face numerous challenges in human resource management. Due to constraints in scale and profitability, attracting high-level talent is difficult. Moreover, to control costs, many private enterprises streamline their workforce and provide limited training opportunities, leading to a shortage of qualified personnel—particularly in financial positions. As a result, accountants often struggle to leverage data effectively to enhance accounting efficiency, let alone apply advanced big data analytics. This directly impedes the digital transformation of enterprises.

3.5. Cognitive dilemma

Many SMEs have yet to fully recognize the potential value of big data in optimizing cost structures. They lack both the awareness and the capability to utilize data for cost optimization, continuing to rely on outdated and rigid cost-control models and methods. This inertia prevents enterprises from effectively integrating resources across departments, fostering a culture of organization-wide participation and collaboration in cost control. Consequently, cost management efficiency and effectiveness are significantly undermined [4]. Moreover, shifting from an accounting-oriented mindset to one focused on strategic empowerment remains a major challenge. Some executives and financial personnel still cling to traditional thinking, confining financial management to compliance-oriented functions such as external auditing and tax reporting, while neglecting the crucial role of management accounting in optimizing decisions and improving business performance. This outdated mindset hinders the realization of management accounting's value, thereby constraining overall competitiveness.

3.6. Organizational structure dilemma

Traditional enterprise organizational structures are centered on functional departments, with weak connections between business and financial divisions. Information is mainly transmitted through hierarchical reporting and interdepartmental communication, resulting in trivial procedures and low efficiency. Under such a structure, financial departments find it difficult to provide timely financial support and risk warnings to business units. Meanwhile, when formulating decisions, business departments often fail to effectively incorporate financial perspectives and analytical insights, leading to a disconnection between business objectives and financial goals [5].

4. Exploring the transformation path of SME accounting under the background of big data

4.1. Strengthening digital investment and building intelligent platforms

First, enterprises should strengthen cooperation with information technology service providers and introduce advanced accounting software and systems to address technical challenges. Moreover, they must comprehensively review existing information systems, assess the digitalization level of each business module, and identify those that require upgrading or reconstruction. For core systems such as financial accounting, budget management, and cost control, enterprises can incorporate advanced technologies such as big data analytics, AI, and the Internet of Things (IoT) to improve automation and intelligence in data processing.

4.2. Improving the enterprise data standardization system

To achieve standardized financial data, enterprises should develop unified formats for financial reports, data fields, and terminology. To enhance data quality and ensure accuracy and integrity, enterprises can employ data middle-platform technologies to integrate data from fragmented systems, complemented by automated tools and human intervention for data cleansing, validation, and monitoring. Moreover, enterprises should optimize the interactive design of intelligent financial systems and implement tiered digital training programs to improve employees' technical skills and digital awareness. This will help elevate the level of intelligent finance and support more precise decision-making. Finally, enterprises must strengthen digital information management and supervision by establishing robust data security and protection mechanisms, including encryption

technologies and access controls. Enterprises should also strive to cultivate a strong data culture by organizing training and awareness campaigns to enhance employees' understanding of the importance of data.

4.3. Improving regulations and legal practices

While establishing standardized financial reporting principles, it is also essential to respond flexibly to the challenges posed by emerging business models and new financial instruments, such as virtual currency transactions and smart contracts. These all require corresponding adjustments in the structure and analytical logic of financial statement preparation. Accounting and finance need to ensure inclusiveness in the design of standards and achieve accuracy and real-time performance in data processing through technological upgrading.

4.4. Strengthening talent development

Enterprises must enhance internal training to cultivate interdisciplinary financial management talents [6]. For example, a small-to-medium-sized manufacturing enterprise [7] successfully implements an advanced ERP system, achieving comprehensive integration across key business processes such as finance, procurement, production, and sales. During the implementation of the system, the enterprise organized a series of training courses, enabling employees to gradually master the new system. This transformation significantly enhanced the efficiency of financial management and optimized overall business workflows.

In addition, enterprises need to actively recruit digital talents [8], such as talents in computer science and data analysis, who can extract key information from massive financial data and provide accurate financial analysis and forecasting for the enterprise.

Enterprises should build an incentive system for digital-intelligence accounting talent and establish a comprehensive performance evaluation to periodically assess the key indicators, including employees' proficiency in using digital-intelligence tools, the improvement in work efficiency, and the accuracy of data analysis. This encourages accounting personnel to continuously adjust their personal development direction and thus promote the efficient implementation of the enterprise's digital-intelligence financial transformation comprehensively [9].

4.5. Restructuring management thinking

Breaking the traditional mindset requires enterprises to reexamine the financial function from a strategic level. Enterprises should, through multiple measures such as systematic training, comprehensively renew the thinking patterns of financial staff, thereby accelerating the transformation of accounting functions, enabling them to fully exert their managerial effectiveness, and supporting the optimization of enterprise decision-making and long-term development.

4.6. Optimizing organizational structure

Enterprises promoting the transformation of management accounting should take the integration of business and finance as the core, redesign their organizational structures, and optimize business processes. In terms of organizational structure, it is necessary to establish cross-departmental business-finance integration teams composed of financial and business backbones, which report directly to the management to ensure strategic support. At the same time, departmental responsibilities and authorities should be adjusted to break traditional functional divisions and build

a process-oriented organizational structure that allows financial personnel to deeply participate in business processes.

Moreover, enterprises can promote process integration. The financial department should be involved in key nodes of core business operations, using the advantages of information systems to carry out precise supervision and control. For example, one of the major challenges in the operation of small and medium-sized textile enterprises is inventory backlog. During the off-season, raw materials and finished products are easily overstocked for long periods, leading to capital occupation and increased storage costs. The integration of finance into business processes helps the business department analyze market fluctuations before procurement and production and provides advice on maintaining low inventory levels of raw materials and finished products [10].

5. Conclusion

This paper systematically analyzes the theoretical foundation, practical dilemmas, and feasible paths for the transformation of accounting functions in SMEs under the background of big data. The study finds that the development of big data technology has brought unprecedented opportunities for the accounting transformation of SMEs, while also posing new challenges. The traditional accounting-oriented financial function can no longer meet the needs of efficient enterprise management, and transformation toward a management-oriented model has become an inevitable choice for enterprise development. However, the transformation process is constrained by multiple factors, including technology, data, and organizational structure. Technologies such as artificial intelligence and cloud computing are not yet fully mature; data management and analytical capabilities are insufficient; and traditional organizational structures and business processes cannot effectively support the integration of business and finance. In response to these issues, this paper proposes several measures, including strengthening investment in digital technologies, improving data quality and standardization, cultivating interdisciplinary accounting talents, reconstructing management thinking, and optimizing organizational structures. These approaches can not only effectively address the current transformation difficulties faced by SMEs but also provide theoretical and practical references for achieving sustainable development in the era of big data. Future research can further focus on the following directions. First, exploring the application potential of technologies such as artificial intelligence and blockchain in specific financial scenarios. For example, the use of smart contracts in financial management and innovative models of blockchain in cross-border payments. Second, studying how SMEs can achieve data sharing and collaboration with external institutions within digital ecosystems to generate a broader synergistic effect. And third, analyzing the differences in accounting transformation paths across industries to provide more targeted practical guidance for enterprises. With the continuous advancement of big data technology, the transformation of accounting functions will enter a deeper stage, and the interaction between academic research and enterprise practice will become closer and more dynamic.

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