

Research on the Construction and Optimization of Accounting Information Systems in the Digital Economy Era

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Abstract: With the progress of the times and the rapid development of information technology, accounting information systems (AIS), as an important component of accounting, have undergone tremendous changes. These changes are transforming the traditional accounting work model, improving the processing efficiency of information data in accounting work, and endowing it with more possibilities and challenges. The development path of accounting information systems in the digital age also involves the challenges and applications it faces. Therefore, this paper studies the digital transformation of accounting information systems in the digital economy era, analyzes the challenges faced, and finally conducts research and analysis on measures and strategies, with a view to providing reference for the future development of accounting information systems.

1. Introduction

With the gradual development and widespread application of information technology, the digital economy era will be the main trend in future accounting work, and the digital economy will become a global and dominant economy. The digital economy is an emerging economic model that takes digital technology as its core, the internet as its platform, and financial statements as its foundation. Data is the source of its development, and information technology is its ultimate goal[1]. In the digital economy era, information and data have become the core of enterprise competition. Digital technology is widely used in various industries, which has a profound impact on enterprise operation, management, and economic development. With the gradual improvement of enterprise informationization, accounting work also keeps pace with the times, gradually developing from the traditional manual method to the digital method. The two complement each other, and through data collection in the traditional model, a systematic data information database is established from the perspective and dimension of accounting expertise and is widely used in daily work. This will become the direction of future enterprise development[2]. Accounting information systems integrate accounting, information technology, and management science. Its construction and application will bring new development opportunities and challenges to the accounting industry.

2. Measures for Accounting Informatization in the Context of the Digital Economy

The digital economy is a business model based on digital technology that integrates, organizes, and shares data. With the development of emerging technologies such as big data, cloud computing, blockchain, and IoT, the application scope of the digital economy is also expanding. This economic form can analyze, process, and integrate data, thereby more effectively promoting high-quality economic development. The Internet serves as the cornerstone of the digital economy, and modern information networks serve as its carrier. With the rise of the digital economy, significant changes have occurred in global economic growth patterns, and a large number of enterprises have entered a new stage of the digital economy[3].

2.1 Strengthening Enterprise Accounting Informatization Construction

(1) Establishing a correct understanding of accounting informatization. Management should deeply understand the importance of establishing accounting automation in enterprise development and promote it as a strategic task. In addition, special attention should be paid to talent cultivation. Especially in the process of accounting digitization, accounting personnel should strive to learn skills related to accounting electronization, so as to lay a solid foundation for the implementation of accounting digital transformation. (2) Constructing a scientific enterprise accounting informatization system. During the construction phase of the financial information system, a detailed blueprint needs to be developed for supporting strategies, aiming to achieve multiple financial management goals such as data interoperability, real-time analysis, and budgeting. In addition, the enforcement of internal control processes needs to be strengthened to ensure that they can be implemented more rigorously, thereby constructing a reasonable, detailed, and highly effective enterprise financial and accounting information system, which in turn effectively increases the enterprise's economic benefits and cost management capabilities.

2.2 Promote the Transformation and Upgrading of Enterprise Management Accounting

Conventional financial management methods primarily rely on collecting and interpreting relevant financial information to evaluate an enterprise's operational status. Management accounting is an evolution of traditional financial accounting, integrating and analyzing financial and non-financial data to provide decision-making support for senior managers. Within an enterprise, management accounting plays a crucial role, with its primary task being to assist the enterprise's management activities through various means, encompassing budgeting, decision-making, supervision, and evaluation. In the context of the digital economy, an enterprise's accounting department must actively adapt to the demands of the times, paying attention to the impact and challenges that contemporary digitization brings to conventional accounting methods, to be able to adapt its financial management strategies and ideas in a timely manner. Enterprises must deeply cultivate their management accounting systems, exploring their potential and role as much as possible, to rapidly form a data-driven enterprise model, providing solid information support for financial management.

2.3 Establish and Improve a Risk Management System

(1) Strengthen the understanding of risk management for accounting information systems. Currently, many domestic enterprises, in the process of implementing accounting information systemization, still face a series of challenges, including insufficient attention to the security management of accounting information systems and a lack of sound protection technology for

financial information systems. Therefore, enterprises urgently need to enhance their focus on risk control for accounting information systems, closely monitor potential hazards such as network security and data protection, and formulate effective prevention strategies to ensure the stable operation and reliability of accounting information systems. (2) Strengthen the risk prevention of accounting data. A significant challenge that enterprises face in implementing financial accounting information systems is that the quality of information does not meet expectations. This is mainly reflected in several aspects: insufficient authenticity of accounting records, a low level of standardization in data storage, and low efficiency in processing accounting information. Therefore, in the process of implementing financial information systems, it is necessary to strictly control data quality, reduce the probability of data errors, strengthen the confidentiality management of financial data, ensure that all types of information and data in the internal financial system are protected from external interference and damage, improve data processing performance and quality monitoring, aiming to optimize information processing performance and quality, strengthen network protection and security supervision capabilities, enhance the prevention of technical risks, and adopt advanced technologies and strategies to improve the operating efficiency and quality of the system.

3. Challenges of Accounting Information Systems

3.1 Inability to Guarantee Data Legitimacy and Compliance

Data legitimacy and compliance permeate the entire lifecycle of enterprise management, encompassing data collection, storage, processing, transmission, and usage. Integrating data necessitates that an enterprise's data management and operational processes adhere to relevant laws and regulations, industry standards, and internal control requirements. Different countries or regions have varying accounting standards and regulations, which are continuously updated and improved. This requires accounting personnel to possess a certain level of knowledge reserve, comprehensively understand the systems of different countries and fields, and ensure that enterprises operate within the scope of standards and regulations[4]. Enterprises need to design effective compliance management mechanisms to ensure that accounting information systems are not only efficient in operation but also comply with legal requirements and all rules.

3.2 Incomplete Accounting Information Technology Support

The advancement and development of technology not only drive the development of AIS but also bring a series of challenges: how to ensure that AIS keeps up with technological adaptation and updates to maintain the competitive advantage and enhance the development capability of enterprises. However, the technological environment is rapidly changing and constantly developing. This requires enterprises to keep up with the pace of technology and be able to predict future technology trends, thereby more fully utilizing new technologies to optimize accounting information systems. The rapid development of technology also increases the difficulty for enterprises in adapting to technology. How to enable accounting professionals and IT personnel in enterprises to update their skills and knowledge, and enable enterprises to skillfully use new technologies, requires enterprises to continuously invest in personnel training and professional development training so that team members can maximize the effectiveness of the latest technologies[5].

3.3 Insufficient Network Security Measures for Accounting Information Data

With the continuous advancement of network attack technologies, accounting information

systems are gradually facing more network security threats. Network intrusions can cause accounting information systems to crash, data loss, or data alteration, posing significant risks to a company's production, operation, and financial security. To address potential network attack risks, accounting information systems should strengthen network security measures to build multiple layers of defense. This includes using firewalls, intrusion detection, and other technologies to capture and isolate network attack behaviors in real-time, and performing system and program vulnerability patching and security upgrades to maintain the safe and reliable operation of accounting information systems[6].

3.4 Accounting Information Systems Face a Shortage of Qualified Professionals

Accounting information systems primarily incorporate new information technologies and accounting software applications, thus requiring relevant professionals for management and operation. In short, accounting requires high-quality and high-standard accounting professionals. Accountants are required to possess comprehensive knowledge of economics and the ability to apply it. At the same time, they should be able to skillfully use modern information technology and accounting software. However, human resources with the above qualities and abilities are relatively scarce in actual development, leading to a shortage of qualified professionals.

4. Optimization Strategies

4.1 Strengthening Security and Compliance

With the widespread application of big data technology, the accounting industry faces more data security risks. Accountants should strengthen the protection of data and take effective security measures to ensure the confidentiality, integrity, and availability of data. The security and compliance of accounting information systems are essential requirements for enterprises. To protect the security and confidentiality of data, companies need to take relevant measures such as data encryption and access control, for example, using cryptography technology to encrypt and store and transmit data, and using access control policies to limit access to sensitive data. At the same time, reviewing the company's compliance status and performing risk assessments are important and scientific methods for formulating comprehensive compliance for the construction of accounting information systems. Regularly reviewing the compliance of the company's accounting information system is a basic system for implementing the effectiveness of accounting information application; adhering to accounting information system risk assessment, sorting out, identifying, and evaluating the hazards that threaten the company's accounting information system, and establishing preventive measures. Following accounting standards and accounting systems is the basis for ensuring the authenticity, accuracy, and reliability of accounting information, and ensures the compliance and comparability of accounting information.

4.2 Enhancing Intelligentization Levels

First, establish an accounting information sharing platform. The establishment of an accounting information sharing platform signifies leveraging the power of information technology to build a platform capable of centralizing, sharing, and analyzing accounting information. This not only improves the efficiency of accounting information utilization but also enhances the transparency and openness of internal company management. For example, cloud computing technology can be used to centrally store various accounting information of the company in the cloud, thereby realizing information sharing and real-time query. Simultaneously, big data analytics technology

can be utilized to deeply mine and analyze accounting information, helping the company make more accurate and scientific decisions. Second, establish complete information technology support, specifically including, but not limited to, technical support in various aspects such as data storage, data transmission, data processing, and data analysis, to ensure the operation and management of the accounting information sharing platform. Furthermore, artificial intelligence and big data technologies are needed to process and analyze accounting information quickly and accurately[7]. Lastly, establish a dedicated information technology team responsible for maintaining and managing the normal operation of the accounting information sharing platform, and handling various technical issues that may arise. Future accounting information systems can utilize artificial intelligence and machine learning technologies to achieve automated accounting workflows, intelligent accounting analysis, and other functions, forming an integrated system of intelligent automated accounting, reconciliation, data mining analysis, and auditing, thereby effectively solving a series of problems such as time-consuming and laborious manual processing of accounting books, and the high likelihood of human errors.

4.3 Increase Network Defense

(1) Strengthen Network Access Control

Enterprises should strengthen network access control to ensure that legitimate personnel can access the accounting information system. They should adopt strong password management technology, require users to set complex passwords and change them regularly. Multi-factor authentication methods, such as fingerprint recognition and iris recognition technology, can also be used to enhance the security of identity authentication. And the network access records should be regularly audit to prohibit long-term unused accounts from logging in and restrict logins from specific IP addresses.

(2) Implement Firewall and Intrusion Detection System

Enterprises should install firewalls and intrusion detection systems to prevent illegal access. On the one hand, firewalls are used to monitor and filter the data transmitted over the network to ensure that legitimate network data can enter the accounting information system. On the other hand, an intrusion detection system is utilized to detect and identify potential intrusion events, and timely measures are taken to keep the intruders out of the network. Moreover, enterprises should regularly update and upgrade their firewalls and intrusion detection systems to keep their technologies for countering network attacks up-to-date.

(3) Encrypt Sensitive Data

Sensitive information is the key target of hackers. Therefore, encrypt sensitive information in the accounting information system using encryption technology, so that the sensitive information obtained by hackers cannot be read. Furthermore, the security of the encryption algorithm and the protection of the key ensure that the information encryption has sufficient security and stability. Moreover, with the encryption of sensitive information as a prerequisite, access control strategies can be adopted to prevent unauthorized personnel from accessing sensitive information.

(4) Conduct Regular Security Vulnerability Scanning and Security Audits

Enterprises should regularly conduct system security vulnerability scans and security audits to assess the security of accounting information systems. When security vulnerabilities and weak links are found in the accounting information system during security vulnerability scanning, they should be repaired in a timely manner. At the same time, the implementation of safety control measures and potential safety hazards in the system should be inspected, and improvement plans for safety measures should be proposed in a timely manner. Regular security vulnerability scanning and security audits can enhance the security of accounting information systems as much as possible.

4.4 Innovation in Talent Development

Accountancy professionals in the digital age will undoubtedly face many new challenges, but this also presents new opportunities for us to cultivate accounting talent. First, accountants in the digital age must possess a strong technical background and data analysis skills. They also need a composite knowledge structure encompassing economic management, finance, accounting, and information technology. They should not only be proficient in accounting expertise but also be familiar with computer technology and network technology, capable of integrating accounting processes with business processes and risk control processes into a unified process implemented by computers. In addition, they should have analytical and judgmental skills, capable of analyzing system data to judge future trends of the enterprise and provide a sufficient basis for reasonable corporate decision-making. Second, we should strengthen the cultivation of comprehensive talent. In addition to traditional accounting knowledge cultivation and training methods, we must also strengthen training in data and information technology. This aims to improve the digital technology capabilities of accounting talent training and education personnel, and continuously improve the quality and technical level of accounting talent, so that it meets the needs of enterprise economic development. Finally, innovation in enterprise talent development aims to establish a professional team with composite knowledge structure capabilities, continuous learning capabilities, and good communication and coordination skills. This will effectively improve the overall quality and ability of accounting information talent to meet the development needs of the information age.

5. Conclusion

In summary, in the era of the data economy, the innovative development of enterprise accounting information systems faces both opportunities and challenges. Strengthening the security and compliance construction of accounting information systems, building intelligent management of accounting information systems, and increasing network security measures can greatly improve the level of financial informatization construction of enterprises and ensure the scientific and efficient decision-making of enterprise management activities. Data security and system integration issues still require continuous attention and focused improvement. As the development of big data becomes more mature and widespread in the future, the development prospects of accounting informatization will become wider. In addition to being more intelligent and autonomous, future accounting information systems will solve these problems through machine learning and artificial intelligence methods. With the emergence of blockchain, information systems will make greater progress in data security and transparency, making enterprise financial data more credible and further enhancing the reliability of informatization. In the future, enterprises will further integrate accounting information systems into various types of management, which will become an important support for the sustainable development of enterprises. Enterprises must constantly adapt to the trend of technological development, meet challenges, and complete long-term strategies.

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