

Research on the quality characteristics of accounting information in the intelligent era

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Abstract. In the context of the intelligent era, the rapid development of technologies such as big data, cloud computing, and artificial intelligence has raised new challenges and requirements for the quality of accounting information. The demands of accounting information users have presented diversified characteristics, including an increased need for future information, relevance, timeliness, non-financial information, and unstructured data. These changes have exerted a profound influence on the quality characteristics of accounting information, such as the potential impact of irrelevant information, new challenges to completeness, the double-edged sword effect of timeliness, and greater difficulty in regulation and reliability issues. To adapt to these changes, the quality characteristics of accounting information need to fulfill new requirements such as faithful representation, completeness, traceability, and measurement accuracy. To guarantee the quality of accounting information, this paper puts forward safeguard measures like the application of intelligent technologies for collaborative data collection, enhancement of the professional skills of accounting personnel, establishment of an accounting information disclosure and analysis center, and strengthening of external supervision.

Keywords: intelligent era, accounting information quality, accuracy

1. Introduction

In the tide of the intelligent era, which is booming at an unprecedented speed, cutting-edge technologies such as big data, cloud computing, artificial intelligence, and blockchain are maturing and pervading various industries extensively. This transformation not only gives rise to numerous novel economic business forms but also profoundly alters the operational modes of traditional businesses. Concurrently, there is an explosive increase in economic business data, with data forms becoming increasingly diverse, complex, and significantly timelier. These changes undoubtedly pose new challenges and requirements for the quality of accounting information. The leap in information sources and the broadening of information acquisition channels have not only enriched the sources of information but also spawned a series of efficient data processing and analysis tools, raising the diversity and accessibility of information to an unprecedented level. Against this background, the demands of information users for accounting information have undergone profound alterations. They are no longer satisfied with traditional and single accounting information but are more eager to obtain timely, accurate, comprehensive, and in-depth accounting information to support their economic decisions in an increasingly complex and volatile market environment. The arrival of the intelligent era has led to a rising demand for the quality of accounting information from users. As a crucial basis for decision-making, the quality of accounting information not only directly affects whether users can make correct decisions but also influences the operational efficiency and order of the market as well as the long-term stable development of the entire economy and society. In the context of the intelligent era, the new changes and development trends presented in the quality of accounting information are worthy of in-depth reflection and exploration to meet the higher requirements imposed on the quality of accounting information in the new era.

2. Changes in the demand for accounting information in the intelligent era

The demands of accounting information users are not static but present diverse characteristics. Different users have distinct focuses. For example, investors attach greater importance to the current operating situation and future development potential of enterprises, while creditors pay more attention to the debt-paying capacity of enterprises. Changes in the economic environment also exert an

influence on information demands. In the intelligent era, the data sources of enterprise information have become increasingly pluralistic, providing accounting information users with richer bases for decision-making. Besides the daily operational data within the enterprise, external data such as network traffic data have also become significant information sources. Under the environment of the intelligent era, the information demands of accounting information users have undergone remarkable changes.

2.1. Increased demand for future information

Prudent consumers of accounting data consistently tend to maximize benefits and evade losses. They aspire to leverage the resources of the intelligent era to the fullest, extract key information for supporting decision-making, and mitigate risks. The traditional financial reporting system is typically founded on the accrual basis and the historical cost principle, often overlooking information that might be pivotal in future economic activities. Relying on traditional financial statements for future predictions has limited efficacy, thereby heightening the risks and uncertainties confronted by enterprises during their operations and by information users during decision-making. With the advent of the intelligent era, novel coping strategies have emerged [1]. The application of intelligent technologies enables efficient screening and analysis of internal and external enterprise data, capturing key information more accurately, presenting development trends clearly, and forecasting and evaluating the future performance and financial status of enterprises, providing a reliable data foundation for decision-making. In the intelligent era, the capability of obtaining future information has been enhanced, and the demand for future information from information users has correspondingly increased.

2.2. Strengthening the demand for the relevance of accounting information

In the decision-making process, the role of accounting data is of paramount importance, and its influence emanates from the credibility and applicability of the data. In the past, accounting data mainly emphasized its credibility; however, with the evolution of the intelligent era, the accounting domain has undergone substantial transformations. The demands of users for accounting data have shifted from the traditional perspective of entrusted responsibility to a greater focus on the data's decision-making assistance function. They not only pursue the accuracy of the data but also attach more importance to its substantive assistance in decision-making. Traditional single financial statements are no longer capable of fulfilling users' diverse needs. Users have an urgent need to be able to select more flexible and efficient data processing methods based on their own requirements to collect, process, integrate, and conduct in-depth analyses of accounting data [2]. Thanks to the efficient data processing technologies and cloud computing platforms of the intelligent era, users can now assess project risks more clearly, calculate costs and benefits, and conduct comprehensive and multi-dimensional monitoring of projects, thereby enhancing the relevance of accounting data and providing a solid foundation for making precise and reasonable decisions.

2.3. Enhanced demand for the timeliness of accounting information

In the current era with the intelligent wave sweeping through, the significance of data and information is increasingly prominent. Whether it is core data such as commodity pricing or currency exchange rates, they are rapidly circulating among users. The economic competition among companies is gradually transforming into a contest over the speed of information updates. This transformation has raised the demand for the real-time nature of financial information to a new height. Take e-commerce giants like Alibaba and JD.com as examples; if they continue to adhere to the traditional semi-annual reporting system, the validity of the financial data they release to users will decrease. To meet this demand, numerous companies have constructed their own internal information networks to ensure the synchronized update and exchange of information in procurement, production, sales, and other links with financial accounting information, significantly enhancing the efficiency of information circulation and business operations [3]. Simultaneously, with the assistance of intelligence, the data exchange between enterprises and tax authorities, financial institutions have become swifter. The utilization of electronic archives simplifies financial processing procedures, shortens the time for generating financial data, and ensures the immediate public release of financial information, demonstrating the crucial role of intelligent technology in enhancing the timeliness of financial information.

2.4. The escalating demand for non-financial information

In the midst of the rapid technological progress and the tide of economic globalization in the intelligent era, Chinese enterprises are confronted with an urgent need for transformation and upgrading. The pursuit of new economic growth points and the attainment of high-quality development has emerged as an immediate imperative. Against this backdrop, the "extensive" business model is gradually yielding to "refined" management, giving rise to the novel concept of "business-finance integration". Non-financial information, such as an enterprise's business strategic goals, product life cycle, R&D and innovation capabilities, customer satisfaction, and management plans, is assuming increasing significance. Conventionally, enterprises primarily disclose financial information, with non-financial information serving as a supplement. Nevertheless, in the face of the complex and ever-changing market environment, particularly the emergence of new business models like e-commerce in the intelligent era, investors

find it challenging to make precise and reasonable decisions based solely on financial information. Take enterprises in the intelligent era as an example; their financial statements in the early stages of establishment might indicate poor profitability. However, when considering non-financial information such as the industry development cycle, enterprise growth potential, market scarcity, and website traffic, it is not arduous to discern the tremendous development potential lurking behind. The concept of business-finance integration has emerged, organically integrating business information and financial information, enabling financial reports to more authentically reflect the operational status of enterprises. Although business and finance differ in their focuses, with the former emphasizing outcomes and the latter emphasizing process supervision, the technological barriers between them have been dismantled with the aid of intelligent era technologies, smoothing the path for business-finance integration. Presently, numerous state-owned enterprises and listed companies are actively promoting financial integration to deepen business-finance integration and gain a more comprehensive grasp of the costs and risks in all aspects of enterprise production and operation. The guiding significance of non-financial information for the future development of enterprises is self-evident, and the demand for it is on the rise.

2.5. The surging demand for unstructured data

In the intelligent era, the inundation of new data media has engendered a sharp escalation in the volume of accounting information and a diversification of its sources. As the variegated needs of information users have become more pronounced, the modality of accounting information is undergoing substantial alterations. The traditional pure-text format is no longer predominant. It is prognosticated that in the future growth of data, multimedia unstructured data such as images, sounds, and videos will constitute as much as 80% to 90%, and the demand for such data is anticipated to ascend significantly. In accounting activities, every economic transaction generates an immense amount of accounting information, and novel accounting information is also derived during the collection, processing, and interpretation of information. Presently, although accounting endeavors mainly focus on handling structured data and value information, with the ascendance of new business models such as the Internet and e-commerce, the accounting industry has embarked on a new epoch centered on data. The significance of unstructured data in the domain of accounting analysis is on the rise, and the expectations of information users for information have transcended the traditional purview of structured accounting information [4]. The promulgation of technologies such as XBRL and the prevalence of ERP systems like SAP and Yonyou NC have augmented the degree of automation in enterprise information processing, propelled business model innovation and transformation of management approaches, and concurrently augmented the demand for unstructured data. In response to this novel development trend, it is imperative to optimize the quality standards of accounting information to accommodate the novel demands of information users and ensure the salubrious development and continuous advancement of enterprises and the accounting information market.

3. The Influence of changes in accounting information demand on quality characteristics

3.1. The potential effects of irrelevant information

In the intelligent era, the quantity of accounting information has witnessed an explosive increase, offering a more abundant data resource. Nevertheless, among these vast amounts of data, there is a considerable amount of irrelevant information and minutiae, escalating the difficulty and cost of accounting information processing. These redundant data not only reduce the overall usefulness of the data but may also mislead information users, influencing their judgment and decision-making efficiency. In extreme circumstances, irrelevant information might even induce decision-makers to make erroneous decisions, inflicting incalculable losses on enterprises or individuals.

3.2. New challenges to the "completeness" issue

The advancement of the intelligent era has facilitated a more comprehensive reflection of structured and unstructured data in accounting information, to a certain extent enhancing the completeness of accounting information quality. However, the sheer volume of information in the intelligent era also makes the collection and screening of useful information extremely arduous. Confronted with intricate and diverse data information, information users, constrained by collection methods and access routes, frequently find it challenging to analyze each piece of information individually and can only select the information they deem useful based on limited technologies and experiences. This selective approach to information acquisition may instead affect the completeness of the information and even incorporate inferior-quality information into consideration, thereby misleading decision-making. Some enterprises, in an attempt to attract investment, disclose false information in the intelligent era, such as fictitious shell companies and false related-party transactions, which seriously undermines the completeness of accounting information.

3.3. The double-edged sword effect of "timeliness"

In the intelligent era, the timeliness of accounting information has been markedly enhanced, allowing information users to acquire the financial status of enterprises more promptly. Nevertheless, "timeliness" is a double-edged sword. Some websites, media outlets, and securities brokerages might disseminate unverified and false information rapidly to attract traffic and the attention of shareholders, thereby deceiving the market and investors. On the platform of rapid information dissemination in the intelligent era, if the reliability of information is not guaranteed, the negative impacts will be more extensive and profound. While pursuing the timeliness of information, it is imperative to ensure its authenticity and accuracy.

3.4. Increased regulatory difficulty and the "reliability" issue

The openness and immediacy of the intelligent era have led to an increasing number of information users choosing to obtain accounting information from the internet, but this has also presented unprecedented challenges to the regulation of accounting information. Some companies might release severely distorted accounting information that has not been accurately measured and spread it rapidly online. If the relevant departments fail to detect and handle such information in a timely manner, more investors will suffer losses and be adversely affected. In the intelligent era, maintaining the reliability of accounting information poses higher demands on regulation.

4. New demands for the quality characteristics of accounting information in the intelligent era

In the context of the significant development of the intelligent era, to adapt to the alterations in the accounting industry environment and facilitate the advancement of the accounting system, enabling it to serve the market economy more efficiently, novel demands have been proposed for the quality characteristics of accounting information. The following constitutes a detailed exposition of these new requirements.

4.1. "True representation" superseding "reliability"

In the "Statement of Financial Accounting Concepts No. 2 - Qualitative Characteristics of Accounting Information" promulgated by the Financial Accounting Standards Board (FASB) of the United States, the notion of "true representation" pertains to the degree of alignment or correspondence between the content being reflected and the actual circumstances it measures or delineates. This encompasses not merely economic assets and liabilities but also transactions and events that can exert an impact on these assets and liabilities. With the advent of the intelligent era, accounting data has manifested new traits such as an immense volume, diverse types, and a broad scope of influence. In contrast to "reliability", the term "true representation" more conspicuously highlights its comprehensiveness and integrity. The "Sarbanes-Oxley Act" passed by the United States explicitly stipulates that the establishment of accounting standards should not be solely rule-based but should lean more towards goal-orientation. Within the concept of "true representation", greater emphasis is placed on the steps of information screening and processing, as well as the subjective role of individuals, while "reliability" is more focused on the outcome aspect of information quality. Goal-oriented accounting standards are more in harmony with the fundamental objectives of accounting. In the intelligent era, the substitution of "reliability" with "true representation" is not merely a nominal change; it represents an enhancement of the core content of accounting information, better accommodating the specific needs of information users and reflecting the deepening and enhancement of the accounting industry's comprehension of information quality requirements.

4.2. Completeness

The immutability and consistency of accounting data ensure that the original state of the information remains unaltered during transmission and guarantee the coherence of the data from input to output. This completeness demands that accounting data should encompass all requisite details that facilitate users in comprehending the essence of economic activities, inclusive of in-depth explications and interpretations of specific economic events. In accordance with the principle of decision relevance, such comprehensive accounting data should be pivotal and precisely measurable. During the generation of accounting data, on account of the constraints of accounting norms and the inconsistent perception of information significance by accountants, some key information reflecting the economic essence might be lost during the screening stage. Consequently, the information retained within the accounting system pertains only to certain aspects of economic phenomena, manifesting its incompleteness. Conventionally, the completeness of information often hinges upon the judgment of accountants. Nevertheless, in the intelligent era, the sources of accounting data are more expansive, encompassing not only conventional structured data but also a multitude of unstructured data. Owing to the limitations of current financial reports, they frequently focus solely on financial information and disregard non-financial aspects, thereby resulting in the incompleteness of accounting information. Non-financial data is equally vital for the operation of enterprises. The advent of intelligent technologies and artificial intelligence furnishes technical assistance for users to acquire non-financial data. By leveraging database technology to explore the connections among data and

applying artificial intelligence technology to excavate relevant non-financial data, this assists accounting information users in making more precise decisions to better achieve enterprise objectives. Additionally, the application of various technologies also simplifies the conversion process between financial and business data.

4.3. Traceability

In the era of intelligence, the traceability of data and information assumes paramount significance, signifying that every piece of historical business and financial data must be precisely recorded and can be accessed and verified instantaneously. Against this backdrop, the emergence of blockchain technology has proffered a robust underpinning for the traceability of accounting information. With its distinctive chain structure and the immutability of distributed ledgers, blockchain technology ensures the authenticity of data and enables precise documentation of data at each temporal point. The deployment of blockchain technology in the accounting domain has significantly elevated the level of accounting automation and ensured the accuracy of time series records of all enterprise business operations. This guarantees the integrity and security throughout the entire process, from information generation to ultimate utilization. Users can conduct comprehensive tracking of information such as invoices, warehouse documents, and sales records via blockchain technology. The enhancement of traceability not only abbreviates the settlement cycle but also ensures the real-time nature and accuracy of business and financial information, facilitating the profound integration of enterprise business and finance. Furthermore, it augments the relevance of accounting information and furnishes more reliable references for decision-making. In the intelligent era, the demand for the traceability of accounting information is on the rise, and the blockchain financial model exhibits more pronounced advantages when compared to the traditional model. Looking forward, the integration of "blockchain + accounting" will usher in profound transformations in the accounting field.

4.4. Accuracy of measurement

In the past, to guarantee the credibility of accounting information, constrained by numerous factors such as the technological conditions of that time, the accounting measurement process gradually deviated from its original intention. Consequently, the value of the information itself was significantly depreciated. For companies with a large proportion of intangible assets, since the valuation of these assets is rather difficult, the intangible assets measured often fail to accurately reflect their true value in financial statements. In the intelligent era, with the in-depth application of advanced technologies in the accounting domain, the uncertainties existing in accounting measurement are progressively diminishing. Intelligent technologies have fundamentally reformed the traditional approaches to accounting measurement. Whether it pertains to data collection or analysis and processing, it has now become more distinct and precise. The intelligent era enables the real-time acquisition of the latest market data, which is conducive to the fair evaluation of those assets that are difficult to value. Through the power of the Internet, the distortion of accounting information by human factors has been substantially reduced, and the common errors in manual accounting historically have been mitigated.

5. Safeguarding measures

The precision of accounting data directly determines the success or failure of economic decisions made by decision-makers. Based on the aforementioned analysis, considering the novel demands of information users in the intelligent era, the fresh challenges confronted by the quality of accounting data, and the corresponding new standards, this study proffers a series of safeguarding strategies aimed at optimizing the quality of accounting data.

5.1. Employ intelligent technology for collaborative collection of structured and unstructured data information

Conventional financial statements present formatted data, namely, financial data expressed in monetary units, yet they are inadequate in presenting unformatted information. Entering the intelligent era, relying on advanced information technology, we are capable of concurrently collecting and analyzing structured and unstructured data, significantly enriching the depth and breadth of accounting information. Against the backdrop of the integration of business and finance, the data collection and processing phase necessitates the integration of information that can comprehensively reflect economic activities into the accounting process. This encompasses not only traditional formatted financial information but also unformatted data such as electronic invoices, multimedia materials, contract documents, enterprise social networks, and credit evaluations. These elements of information play an indispensable auxiliary role in revealing the core elements of economic activities.

5.2. Elevate the professional skills of accounting personnel to satisfy the personalized requirements of information users

In the present era, accounting personnel must contend with the deluge of complex data and the continuous emergence of data processing technologies, and the traditional accounting operational mode has become insufficient to meet the increasingly

diversified and customized demands of information users. To keep pace with the times, accounting practitioners must actively learn cutting-edge accounting informatization applications and master various data processing methods to enhance their comprehensive capabilities. Under the premise of mastering the necessary skills, accounting personnel need to promptly and accurately determine the scope of key information based on the specific needs of information users, actively eliminate unnecessary data, and meticulously select valuable structured and unstructured data, thereby enhancing the pertinence and practicality of accounting information and providing more accurate decision-making bases for decision-makers. Currently, the supply model of accounting information is shifting from supply-side orientation to demand-side orientation. Accounting personnel should utilize intelligent tools, closely follow the changes in the demands of information users, continuously optimize the methods of information collection and analysis, deeply explore the economic business information contained in financial reports, attach importance to the application of unstructured data, and comprehensively fulfill the information needs of information users.

5.3. Establish an accounting information disclosure and analysis center

The quantity and types of accounting information have significantly escalated, and the difficulty of collecting, processing, and analyzing information has concomitantly increased. To ensure the accuracy of accounting data, companies are obliged to establish a professional accounting data review and analysis department dedicated to the screening, collection, integration, analysis, compilation, and release of accounting data. This initiative facilitates the implementation of more rigorous review and monitoring of the data disclosed externally, effectively reducing the risk of low-quality data infiltration and reporting errors. This department not only needs to handle the company's internal data but also collect and analyze the accounting data of competitors and within the industry, providing comprehensive and in-depth data support for data users. By establishing an independent institution focused on data processing, not only can the efficiency of data processing be enhanced, but also the accuracy of accounting data can be guaranteed, enabling the company to possess more initiative in the data-driven era.

5.4. Strengthen external supervision and enhance the legal and regulatory framework

In the intelligent era, the unpredictable nature renders ensuring the accuracy of accounting information increasingly arduous. This imposes more stringent standards on the supervision of network information. In addition to the company's internal information monitoring and review, strengthening the construction of external supervision mechanisms is particularly pivotal. In the current network environment, the absence of third-party regulatory agencies is conspicuously evident, and the legal framework and reward and punishment mechanism for online information fraud are still in an immature stage. To enhance the reliability of accounting information, government departments need to expedite the improvement of accounting regulations in the context of the intelligent era, establish a sound reward and punishment and responsibility attribution system, and involve the public in supervision. The entire process of information generation, release, and dissemination must be subject to legal constraints, with clear demarcation of responsibilities at each stage, so as to trace back to the responsible person in the event of false information incidents. Only by intensifying external supervision, ensuring the enforcement of regulations, the moderation of rewards and punishments, and the clarity of responsibilities, can the quality of accounting information in the intelligent era be elevated.

6. Conclusion

In the intelligent era, the quality characteristics of accounting information have manifested new alterations and development tendencies. The profound application of information technology has conspicuously enhanced the speed and accuracy of accounting information processing, further catering to the diverse requirements of information users. Nevertheless, the evolution of the environment has concurrently initiated a series of novel issues regarding the quality of accounting information. In response to this circumstance, relevant government agencies are obligated to refine the legal norms related to accounting information, establish concrete standards for accounting information quality, expedite the process of accounting informatization, and construct an excellent network information release and dissemination platform. Corporations should establish core departments for information release and analysis, promote the comprehensive integration of financial management, and achieve the organic integration of business and finance. Accounting practitioners need to perpetually pursue further education, augment their comprehensive qualities, and master information processing techniques to keep abreast of the pace of the intelligent era and ensure the continuous optimization of accounting information quality.

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