

Exploring New Frontiers: The Integration of Big Data and Artificial Intelligence in Management Accounting

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Abstract:

With the swift advancements in big data and artificial intelligence, along with the progression of the Internet and other high-tech innovations, the accounting industry has been profoundly influenced, presenting new opportunities and challenges for the development of management accounting. In the era characterized by big data and artificial intelligence, this paper examines the potential development trends in systems, technology, and practitioners within management accounting. Based on a review of relevant literature and analysis, it is concluded that management accounting will increasingly integrate with financial accounting, thereby enhancing accounting information. Consequently, practitioners in management accounting will encounter significant opportunities.

Keywords:

Big Data, Management Accounting, Artificial Intelligence, Informatization.

1. Introduction

1.1 The definition and functions of management accounting

The eighth edition of *Management Accounting* defines management accounting as the value of management accounting is based on the use of value management management activities. It uses a series of special methods, through the recognition, measurement, valuation to provide the information to the budget, process control, assessment, and participates in enterprise management. The function of management accounting in enterprises is to participate in enterprise operation and management through planning, analysis, decision-making, control, supervision, reporting and other ways to improve enterprise benefits. However, in traditional corporate management, management accounting lags behind financial accounting in a series of development because of its emphasis on decision-making research and implementation. However, with the development of artificial intelligence and big data, the application breadth and depth of management accounting will reach a new height.

1.2 The changes brought by artificial intelligence and big data to management accounting

With the rapid development of big data and artificial intelligence, emerging technologies such as internet, big data analysis and artificial intelligence are influencing the accounting industry imperceptibly, and bringing new opportunities and challenges to the development of management accounting.

First, in terms of big data, the importance of management accounting and the informatization will be further strengthened. Thanks to the era of big data, there is a large decline in the cost of information collection, storage and information analysis, at the same time, the efficiency of data mining is significantly improved, which strengthen enterprises' ability to collect information on various aspects. The non-financial information data which processed by management accounting will be much more than financial accounting processing of financial information. The importance of management accounting is increasingly prominent.

Secondly, with the rapid development of artificial intelligence, artificial intelligence technology

began to be widely used in the accounting field. The high performance computing power and data storage capacity of artificial intelligence provide technical support for the intelligent management accounting and the integration of management accounting and financial accounting. It can be predicted that accountants engaged in a large number of repetitive, standardized, process-based accounting, bookkeeping and other work will be replaced by more accurate and rapid artificial intelligence, management accounting practitioners are facing certain challenges, but also ushered in opportunities.

2. Future development trend of Management Accounting

This paper analyzes the possible future development trend of management accounting in the era of big data and artificial intelligence from the perspectives of system, technology and practitioners

2.1 The integration of management accounting and financial accounting

Firstly, at the system level, due to the application of artificial intelligence and big data, management accounting and financial accounting will be integrated with each other. Financial accounting is aimed at the business activities that have occurred in the enterprise to make an accurate and true reflection of the information according to the accounting standards, so that the internal users and external stakeholders of the enterprise can understand the recent economic situation of the enterprise. However, management accounting provides management information and decision-making planning to enterprises through data processing and analysis. As above mentioned, in the traditional enterprise management, management accounting lags behind the development of financial accounting, but in fact, there are certain commonalities between financial accounting and management accounting, such as the same origin, the same goal, the same basic information of homologous, the same service object and so on. On the basis of that, Artificial intelligence provides the technical foundation for the fusion of enterprise management accounting and financial accounting. Artificial intelligence can first optimize the financial process of enterprises and improve the controllability of financial accounting operations. At the same time, it can also combine human resource allocation, procurement, manufacturing, development, sales and other links to refine the accounting, management and supervision modes of management accounting. With the increasing demand of enterprise development, close cooperation between all departments and all aspects is required. In addition, the commonness of financial accounting and management accounting and the technical support provided by artificial intelligence make the integration of financial accounting and management accounting an inevitable trend.

2.2 The informatization of Management Accounting

At the technical level, management accounting will be informationized Management accounting informatization includes four aspects: first, the formation of enterprise internal accounting information system, which records the enterprise's events and business result which has happened and is happening. Second, building enterprise external information system, collecting and analyzing useful external information. Third, organizing enterprise decision-making system, unifying the internal and external information, formulating the enterprise suitable strategic decision-making. Fourth, the formation of enterprise supervision system to ensure the correct implementation of decision-making. In 2014, the ministry of finance issued the guidance on comprehensively promoting the construction of management accounting system, which shows that the informatization of management accounting plays an important role in the development of management accounting. However, there are still many deficiencies in management accounting informatization in our country,.Many small and medium-sized enterprises are far from realizing the goal of management accounting informatization in terms of technology, software and hardware construction. It is believed that in the future when big data is more popular and more popular, management accounting informatization will be further realized.

2.3 Opportunities for Management Accounting practitioners

At the staff level, due to the advent of the era of big data as well as artificial intelligence, management

accounting professionals are bound to be affected. With the rapid development and wide application of the Internet and big data technology, the high performance computing capacity and data storage capacity of artificial intelligence will provide the basis for the improvement of accounting work efficiency and those who are engaged in repetitive, standardized, process-based accounting, bookkeeping and other work will be largely replaced by more accurate and efficient artificial intelligence. However, at the same time, management accounting practitioners will also embrace opportunities. From the perspective of management accounting, artificial intelligence can simplify the heavy work of accountants and facilitate the decision-making process of accountants on enterprise management, but it cannot fundamentally replace management accounting. As artificial intelligence is a computer system with some characteristics of human intelligent activities, it largely simulates the human brain in thinking and decision-making, simulate the human brain for thinking, decision making. However, in real life, there are a variety of unpredictable situations and the situation is changing rapidly, making it impossible for artificial intelligence to achieve real thinking and identify the most effective information in big data in the field of management accounting. These are the judgments that need to be made by management accounting practitioners. In the context of the gradual replacement of practitioners engaged in basic accounting work, the importance of management accounting will be further strengthened, and management accounting practitioners will also usher in more opportunities.

3. Conclusion

Technology has consistently acted as a double-edged sword. While we benefit from the convenience offered by artificial intelligence and big data, there are concerns regarding the potential diminishment of human intelligence as machines become more intelligent. In the realm of management accounting, artificial intelligence and big data present both opportunities and challenges. Ultimately, however, these technologies are merely tools, and their value lies in their proper utilization.

As the creator of AlphaGo remarked, "human-computer collaboration can produce a synergistic effect, amplifying human intelligence through artificial intelligence." Both AI and AlphaGo, much like the Hubble telescope, serve as instruments that can propel human civilization forward. They offer unprecedented capabilities for data analysis, forecasting, and decision-making, enabling management accountants to derive deeper insights and make more informed decisions.

In management accounting, AI and big data can automate routine tasks, enhance data accuracy, and provide real-time financial monitoring. This allows accountants to focus on strategic activities, such as financial planning and risk management, thereby elevating their role to that of strategic advisors. The integration of advanced technologies can lead to more accurate forecasting, better resource allocation, and improved overall financial performance.

Moreover, the convergence of management accounting with financial accounting driven by AI and big data can create a unified view of financial information, facilitating better collaboration and decision-making within organizations. This convergence enhances the strategic relevance of financial data, making it a powerful tool for driving business success.

In conclusion, while the rise of artificial intelligence and big data presents certain challenges, the proper utilization of these technologies can significantly benefit management accounting. By amplifying human intelligence and enabling more strategic roles, AI and big data can propel the field of management accounting into a promising future.

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