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Decision Support Mechanisms of Artificial Intelligence in Management Accounting

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Abstract. With the development of digital and intelligent technologies, artificial intelligence has evolved from a mere support tool into a critical mechanism for making decisions in management accounting. With the Haier Smart Home Co., Ltd. and Ping An Insurance (Group) Company of China, Ltd. as the main case studies, this paper analyzes data preprocessing, intelligent analysis, and result feedback through a comparative approach. The study shows that artificial intelligence does not replace traditional management accounting. However, it gives two distinct paths: value creation and efficiency-risk control. With the participation of artificial intelligence, traditional accounting becomes more organizational and more objective. Haier's value-creation-oriented path figures out that the role of artificial intelligence is focusing more on process. Artificial intelligence provides real-time feedback for Haier's management accounting. This transforms the function of management accounting, bringing it from the background to the forefront. By contrast, Ping An pays more attention to the efficiency and risk-oriented path. It builds a shared financial services framework and incorporates machine learning to strengthen detection and alert the risk. In this model, artificial intelligence plays a crucial role. Enterprises can make expertise assist in establishing process controls and compliance constraints. This effectively transforms risk governance into financial process capabilities. Overall, with the development of artificial intelligence, this paper seeks to strengthen the understanding about support mechanisms in management accounting. It tries to provide theoretical insights for enterprises promoting intelligent financial transformation.

Keywords: Artificial intelligence, management accounting, decision support, case study.

1. Introduction

Related research shows that the role of artificial intelligence in management accounting has evolved from simple process automation to supporting management decision-making [1]. Early research mainly used neural networks and machine learning to enhance predictive models and reduce the reliance on linear assumptions and subjective judgments of traditional methods in a data-driven manner [2,3]. With the advancement of open-source data and technology, scholars have increasingly explored the application of these technologies in areas such as cost management, performance evaluation and risk control in management accounting. Against this background, the concept of "Management Accounting 4.0" was proposed. The proposal of this concept has reshaped how

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management accounting information systems can further develop in the context of intelligence and automation [4,5].

At the same time, some studies have shifted their focus. They have changed their perspective from technical functions to inner issues such as professional roles, organizational design and ethical governance. More studies have shown that the application of artificial intelligence in management accounting has raised a series of ethical issues. On the one hand, the booming development of digital technology is reshaping the role of accountants, shifting them from daily record keeping to analysis and decision support functions [6]. On the other hand, the application of artificial intelligence in management accounting has sparked extensive discussions among industry professionals. Ethical issues have emerged one after another, such as data privacy, transparency, and accountability [7]. In addition, experts believe that the interaction between digital infrastructures in the context of the new era has great development potential. Artificial intelligence develops management and governance models, for example, real-time accounting, continuous auditing and risk warning systems [8].

From a theoretical perspective, decision support in management accounting does not exist alone, but is built upon multiple mature theoretical frameworks. Information economics demonstrates that management accounting systems connect decision-making. Because of the incomplete information, this helps reduce decision uncertainty. Similarly, corporate incentive mechanisms have improved. The decision usefulness perspective emphasizes that the value of accounting information lies in its relevance and timeliness to specific management decisions and its accuracy is not important.

This study explores how artificial intelligence helps make decisions in management accounting. This research focuses on cost management, performance evaluation, and risk control. Based on this, it analyzes the application of artificial intelligence in key areas and explores how they improve the efficiency and accuracy of management accounting decisions. This research aims to provide managers with a smarter way to support decision-making and offers new perspectives with both theoretical and practical significance in management accounting research.

2. Case studies

2.1. Haier Smart Home Co., Ltd.

Haier Smart Home Co., Ltd. (Haier or Company) is a traditional unicorn supplier of home appliances. Its business cross countries and regions. So, globalization and diversified organizational structure is Haier's main features. However, with the digital transformation, its traditional management accounting system could no longer suit its strategic needs. Therefore, Haier reformed its organizational structure. It has developed a new intelligent management accounting system.

This new system redefines the evaluation logic of management accounting. It breaks down the whole evaluation system within many tiny operators. The micro-operational entities replace its traditional company that directly serves customers. This makes operations and performance evaluation units relatively independent. This is the core of the new system. In this way, the management accounting of this company is decentralized to the front-line operational level.

The overall principle of the assessment of Haier is Win-Win Value Added (WWVA) [9]. According to this principle of the new value, it has converted the conventional financial indicator into an analytical indicator. All individual enterprises compile a report on WWVA separately. There are five components in this report. These are definitions of value, performance metric, ecosystem focus, win-win structure and user centricity separately. It is primarily aimed at fostering the development of every unit that is autonomous and responsive to its needs. This will serve to

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encourage the users to keep up with the interaction and the business recurrence and not necessarily depend on the vertical appliance sales. It is as opposed to conventional profit and loss statements in that WWVA portrays value created and distributed by various participants. The change has transformed management accounting into a report rather than a mechanism that would give directions on value creation.

Haier digital platform possesses distinct characteristics. It is related to the business operations and finance of the home group, as this platform can combine the management of business and financial information. That is, management accounting is not restricted as it did in the past, but it includes business process information, such as order response time, user interaction, and collaboration in the ecosystem. This gives information to its distributed operators on time. These operators are able to take their own decisions and carry out performance appraisals.

Between 2022 and 2024, Haier reported growth in operating revenue and net profit as mentioned in the annual report. Its net profit augmented to 12.92 in 2024 compared to the growth rate of 4.29 of operating revenue. Simultaneously, operating cash flow was also greater than net profit. This indicator will show how well the company has been doing regarding budget implementation, cost management and resource distribution.

In the meantime, the solution to the management cost and operational efficiency of the company lies in digital tools. The company has also increased its capabilities in terms of forecasting, efficiency and optimization of cost through the application of digital models. Such innovations give management accounting a greater data input. It further facilitates greater support for planning and performance management in an analytical way.

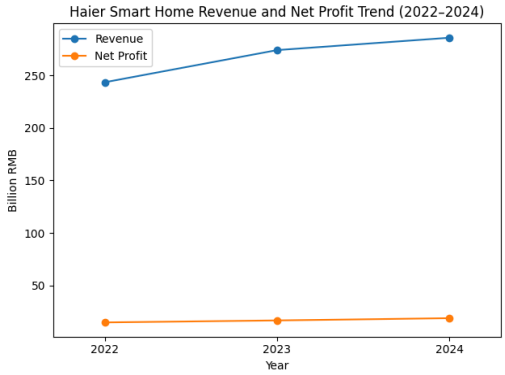

Figure 1. Haier smart home revenue and net profit trend (2022-2024)

As shown in figure 1, the trends demonstrate clearly growth in both revenue and net profit. This growth reflects the effectiveness of intelligent management accounting system about cost control and improving operational efficiency. By using new evaluation system, Haier can better balance its business operations and improve profitability. The system's feedback and performance may help enhance the company's decision-making. This enables it to find financial metrics and maximize value, which meet the definitions of WWVA.

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Table 1. R&D investment and personnel structure (2024)

Indicator	Data
Total R&D Investment	11.29 (Billion CNY)
R&D Investment as a Percentage of Revenue	3.95%
Number of R&D Personnel	22.925 (Person)
Percentage of R&D Personnel	19%

According to the annual reports, table 1 shows that investment and personnel structure data of this company in 2024. Haier's investment reached 11.29 billion, with an intensity of 3.95% of operating revenue. The number of personnel was 22,925, accounting for 19% of the total workforce.

These indicators are greatly significant. They strongly support the group's financial investment and organizational structure. They constitute a concrete and verifiable foundation for the company's capabilities. This data demonstrates the company's strategic direction clearly in advancing intelligent financial reform.

First, intelligent financial management is not a new financial system. Standardized data and processes are their fundamental prerequisites. It incorporates algorithms and rule engines to achieve continuous optimization of decision support. All of this depends on stable and sufficient investment. Therefore, the high proportion of resources indicates that Haier is moving to build continuous capability to create long-term budget for intelligent financial initiatives.

Secondly, high proportion of personnel indicates that the company is centralizing its technology and digital capabilities. This is essential for intelligent financial reform. The reason is that implementing such projects typically requires complex system integration and ongoing maintenance. This operating model demands close collaboration between a large and multi-skilled technical team and business units.

As shown in table 1, while the high investment and high proportion of personnel do not directly reflect investment in intelligent financial management, they witness the company's commitment to digital and intelligent transformation. Based on that, Haier possesses the necessary conditions to upgrade its management model from traditional to data driven.

Overall, automation enabled with artificial intelligence is not Haier's primary goal. It is the intelligent management accounting system. This serves organizational transformation and user value creation. Its intelligent features are reflected in the reshaping of structure and the function of management accounting system. Through data feedback and value assessment mechanisms, the system directly affects business operations and incentive mechanisms. This mechanism takes the transformation of management accounting from back-end to a front-end [10].

2.2. Ping An Insurance (Group) Company of China, Ltd.

Intelligent finance has become an important development direction in the financial sector, which is understood as the application of artificial intelligence, machine learning and big data analytics in financial activities to enhance decision quality and operational efficiency [11]. Ping An Insurance (Group) Company of China, Ltd. (Ping An or Company) is a comprehensive financial services group whose businesses span insurance, banking, investment and technology. With their high-volume, high-frequency transactions, a finance and audit model that relies mainly on manual processing has encountered clear bottlenecks in efficiency, cost control and risk management. Under this

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circumstance, Ping An makes an intelligent finance transformation, which is built around the establishment of a financial shared service center.

Ping An's efforts with intelligent finance show an evolution from automation to intelligence. Firstly, its financial shared service platform processes high-frequency business operations such as expense reimbursement, accounting, and fund management. This achieves process centralization and scale economies. Based on that, the company has constructed a large-scale rules engine. There are huge number of financial rules and system verification logic were fed in this engine. That's to make the system enable automated auditing and rapid processing in standard scenarios. By being trained with these historical financial documents, the model can identify abnormal transactions and potential risks immediately. Compared with traditional systems, data-driven models are more adaptable in complex scenarios.

In terms of application and feedback, Ping An's intelligent system is more familiar with process control and risk governance. The results of intelligent audits are directly added into key business steps such as expense reimbursement and payment approval. They are used for control and compliance checks in process rather than operational decisions. By this way, the system raises process efficiency. It also ties to the company's governance structure and strengthens risk management.

Overall, the goal of Ping An's intelligent transformation is to enhance efficiency and tighten risk control. The system promotes standardization and automation but does not directly intervene in daily business decision-making. Instead, it provides institutional support to ensure the stable operation of large-scale business system.

2.3. Comparison and implications

According to two cases, scholars can find that transformation in management accounting of Haier and Ping An Group are different. Haier changes its accounting system in basic operations, focusing more on value creation and organizational transformation. It focuses on the direct support role of management accounting in operations. In contrast, Ping An uses its intelligent system for its processes and governance mechanisms. Efficiency improvement and risk control are their priorities.

This comparison shows that artificial intelligence will not change management accounting as the same way. When combined with existing structures and logic, artificial intelligence can shape diverse decision support pathways. So, the role of it should not be treated as a technological upgrade but a governance tool in systems and management logic.

3. Problems and challenges

Technology is not the only factor that affects its actual effectiveness. Many challenges still affect its effectiveness, such as employee training, infrastructure investment, and data governance [12]. These impacts are constrained by the existing management accounting system and organizational structure. At the same time, the governance logic is the constraint too. From this perspective, the problems in this field have obvious structural characteristics.

3.1. Technology and data

Initially, size of data can render the system smarter. Nonetheless, additional information is complex. Hence, management accounting needs not just financial accounting information but big volumes of business processes and non-financial information to have the normal scenarios. The various sources

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render it hard to develop standards wholesomely. Pre-processing data is relevant in the field of management accounting. quality of data influences the effective analysis and decision support.

In the meantime, the big-data models are based on past statistics. Models can be outright impacted by system and behavioral patterns. Past experiences are created under a certain context and in accordance with business and rules. The conditions could be included in the training of the model. This decreases the capability of the model to deal with new situations. This is the issue where the decisions that are made are usually multi-faceted in nature and may include such areas as strategic direction, design of incentive and the allocation of resources. The quality of management accounting decisions in this case lies in its sensitivity to the organizational and environmental changes.

3.2. Organization and talent

Accounting role is being transformed at the organizational and talent levels through intelligent systems. Management accounting is being changed by digital technology. The work of accountants is also moving towards analysis and consulting instead of traditional work. On the one hand, smart systems are absorbing the majority of the conventional accounting and auditing functions. This will drive the finance staff towards the center position that offers analytical support and the designing of systems. Conversely, accountants are not left out in making decisions in businesses step by step.

In the meantime, even the possible contradiction between the professional accountants and cooperation with the business units can be transformed due to the transformation. But this change, unless it is done with proper arrangements, may improve the imbalance of information. Intelligent systems also may unclear the boundary of responsibility in an organization.

3.3. Safety and ethic

The distribution of responsibility is a problem which cannot be disregarded from a security and ethical point of view. Some of the major factors of concern include fairness, explainability, and accountability. To solve the issues, present in smart accounting systems, one needs a proper ethical governance framework. The optimization path involves choosing the approach the company should follow to safeguard the environment, aiming to prevent future losses.

4. Optimization path and strategy

The strategy manual should be decided in different fields. That's to say, it depends on the path taken by the company to protect the environment to avoid future losses. To resolve such issues, there is need to shift the governance views. This will spur the development of artificial intelligence and management accounting parallel to it.

4.1. Technology

The systems design must be done in a more holistic fashion at the technical level by balancing interpretability and governability. To start with, the model assumptions as well as decision paths must be clearly stated. Second, intervention mechanisms must be held at some emergency point. These characteristics give the system better capability to be capability to make intricate decisions. Lastly, interference between subsystems can be minimized by architectural system. These help organizations to have better control of system complexity.

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4.2. Data

Data governance is a part of management accounting systems at the data level. The various data must be well spelt out. It should ensure that data quality is taken care of prior to the start of business operations. Such a method enhances the ease of using data to minimize the chances of misusing data and ethical concerns. It further assists in the determination that data is behind the management accounting decisions. This is because businesses do not want information to be thrust into the system because they like it.

4.3. Organization and talent

At this level, retraining the clerks of the company is excellent practice. On the one hand, this will allow the employees to have a good sense of professional judgment. Conversely, employees should learn the rationale of the new systems and their fundamental way of operating. This skill is gaining relevance in future careers. One of the determinants of the effectiveness of artificial intelligence in management accounting practice is technology acceptance [13]. Simultaneously, rules and procedures ought to be refined by organizations. In various situations, there are various responsibilities that should be specified.

To back this up the governor can create three-dimensional structure for their accounting personnel. To start with, ley staff take related courses, including Python and machine learning. Such courses will increase the data analysis and application of algorithms among the employees. Second, job rotation can be done in different departments. Different department employees will be acquainted with the core processes of undertaking business. Third, the course of algorithm ethics and data privacy protection should be introduced by the related departments to enhance ethical awareness of employees and make them more responsible.

5. Conclusion

This paper takes Haier Smart Home Co., Ltd. and Ping An Insurance (Group) Co., Ltd. as examples to analyse the role and mechanism of artificial intelligence working in management accounting. The results show that it does not replace management accounting as the same method The reshaping of governance systems is not a easy copy because of different organizational environments. Different new-tech applications show the differences in the generation, analysis, and feedback of information. Therefore, Haier uses intelligent management accounting systems in core operations and incentive mechanisms, which strengthen the direct contribution of management accounting to business decision-making. By contrast, Ping An's model emphasizes the deployment of intelligent systems with organizational processes and governance structures. It enhances large-scale processing and risk management capabilities. These differences suggest that the different path of artificial intelligence in management accounting is created by the degree of cooperation. It not only includes technological design but also comes from institutional arrangements, and organizational logic.

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