Application Status of Intelligent Management Accounting System in the Era of Big Data and Countermeasures

Zongmin Li[1,2,a,*], Jacquline Tham[3,b]

[1]Graduate School of Management, Management and Science University, Shah Alam, 40100, Malaysia

[2]School of Economics and Management, Zhongyuan University of Technology, Zhengzhou, 450007, Henan, China

[3]Postgraduate Centre, Management and Science University, Shah Alam, 40100, Malaysia

[a]misbbs@163.com, [b]jacquline@msu.edu.my

*Corresponding author

Abstract: With the arrival of the era of big data, the application of intelligent management accounting system is becoming more and more widespread. This paper starts from the current situation of application of intelligent management accounting system and analyzes its application in enterprise management, financial management, cost management and other aspects. At the same time, this paper also discusses the challenges faced by intelligent management accounting system and puts forward corresponding countermeasures in order to provide reference for the further development of intelligent management accounting system.

1. Introduction

With the continuous development of information technology, big data has become an indispensable part of enterprise management. As a new type of management tool in the era of big data, intelligent management accounting system has been widely used in enterprise management, financial management, cost management and other fields. Through the processing and analysis of massive data, intelligent management accounting system helps enterprise managers to better understand the operation status of enterprises, make more scientific management decisions, and improve the management level and competitiveness of enterprises. However, the application of intelligent management accounting system also faces some challenges, such as data security, data quality, talent pool and other issues [1,2]. Therefore, this paper will discuss the current situation of application of intelligent management accounting system and how to deal with the challenges from two aspects of application status and countermeasures, so as to provide reference for the further development of intelligent management accounting system [3].

2. Application Status of Intelligent Management Accounting System

Intelligent management accounting system is a technical tool that has been widely used in the field of business management in recent years. It combines the theories and methods of artificial intelligence, big data and accounting, and is dedicated to providing efficient and accurate management accounting information and decision support. At present, the application of intelligent management accounting system has been promoted and applied in many enterprises, it has applications in business management, financial management, cost management and data analysis.

2.1. Business management

Enterprise management is a comprehensive activity, including strategic planning, organizational design, personnel management, marketing, financial management and many other aspects. As a new type of management tool, intelligent management accounting system can help managers understand

the operation status of the enterprise and make more scientific management decisions by analyzing and processing various operating data of the enterprise. In terms of enterprise management, the application of intelligent management accounting system is mainly reflected in the following aspects. Firstly, the intelligent management accounting system can help managers understand the sales situation of products, the effectiveness of sales channels and other information through the analysis of sales data [4]. Through the analysis of sales data, managers can understand which products have good sales performance and which products have poor sales performance. At the same time, they can also understand which sales channels are effective and which ones are not. Based on these analysis results, managers can adjust sales strategies, improve sales revenue and market share. Secondly, the intelligent management accounting system can help managers understand the needs and preferences of different customer groups and formulate more scientific marketing strategies through the analysis of customer data [5]. Through the analysis of customer data, managers can understand customers' purchase history, purchase preferences, consumption capacity and other information. Based on the needs and preferences of different customer groups, corresponding marketing strategies can be formulated to improve customer satisfaction and loyalty. In addition, the intelligent management accounting system can help managers understand the state of the supply chain and optimize and manage the supply chain through the analysis of supply chain data. Through the analysis of supply chain data, they can understand the supply efficiency, quality and price level of suppliers. Meanwhile, they can also understand the logistics efficiency and inventory status of the enterprise. Based on these analysis results, managers can optimize and manage the supply chain, improve its efficiency and quality [6]. Furthermore, the intelligent management accounting system can help managers understand the situation of employees and optimize and manage human resources through the analysis of human resources data. Through the analysis of human resources data, managers can understand the performance status, training needs, and mobility of employees. Based on these analysis results, they can optimize and manage human resources, improve employee performance and satisfaction [7].

2.2. Financial management

Financial management is a crucial component of enterprise management that plays a decisive role in business decision-making and development strategies. As a new management tool, intelligent management accounting systems can help enterprises analyze and process financial data to better understand their financial situation and make more scientific financial decisions. In terms of financial management, intelligent management accounting systems are mainly applied in the following areas: Firstly, the intelligent management accounting system can provide a comprehensive analysis and processing of financial data, enabling managers to gain a complete understanding of the company's financial status. By analyzing financial data, managers can learn about financial indicators such as income, cost, and profit, but also about asset-liability status, cash flow, and other financial information [8]. Based on these analysis results, managers can make more informed financial decisions. Secondly, intelligent management accounting systems can help companies understand product cost composition, cost control effectiveness, and other information by analyzing cost data. By analyzing cost data, managers can learn which costs are high and which can be controlled. The elements of an intelligent management accounting system are shown in Figure 1. Based on these analysis results, managers can adjust their cost structure and increase the company's profitability. Furthermore, the intelligent management accounting system can help managers understand the company's financial development trends through trend analysis of financial data [9]. By analyzing financial data trends, managers can learn about the development trends of financial indicators such as income, cost, and profit, as well as the development trend of asset-liability status, cash flow, and other financial information. Based on these trend analysis results, managers can predict the company's future financial situation and make more scientific financial decisions. Moreover, intelligent management accounting systems can analyze financial risk by examining financial data, helping managers understand the company's financial risk status. By analyzing financial risk, such as fraudulent financial reporting and non-compliance operations,

managers can learn about the financial risk status of the company. Based on these analysis results, managers can take appropriate measures in a timely manner to avoid financial risks for the company [10].

Figure 1. Elements of an intelligent management accounting system

2.3. Cost management

Cost management is a crucial component of enterprise management that plays a decisive role in business decision-making and development strategies. As a new management tool, intelligent management accounting systems can help enterprises analyze and process cost data to better understand their cost situation and formulate more scientific cost control strategies. In terms of cost management, intelligent management accounting systems are mainly applied in the following areas: Firstly, intelligent management accounting systems can help managers understand human resource costs by analyzing data related to employee resource investment and benefit. By analyzing human resource costs, managers can learn about the number of employees, salary levels, training costs, and employee performance and turnover [11]. Based on these analysis results, managers can adjust the use and allocation of human resources to improve cost efficiency. Secondly, intelligent management accounting systems can help managers understand procurement costs by analyzing data related to procurement channels and cost composition. By analyzing procurement costs, managers can learn about the composition of procurement costs, such as raw material costs, transportation costs, and tariff costs. They can also learn about the effectiveness of different procurement channels to lower costs. Based on these analysis results, managers can develop more scientific procurement strategies to improve cost efficiency [12]. Furthermore, intelligent management accounting systems can help managers understand production costs by analyzing data related to production efficiency and cost composition. By analyzing production costs, managers can learn about the composition of production costs, such as labor costs, equipment costs, and energy costs. They can also learn about production efficiency and how to improve it to reduce costs. Based on these analysis results, managers can develop more scientific production strategies to improve cost efficiency. Moreover, intelligent management accounting systems can help managers understand logistics costs by analyzing data related to logistics efficiency and cost composition [13]. By analyzing logistics costs, managers can learn about the composition of logistics costs, such as transportation costs and warehousing costs [14]. They can also learn about logistics efficiency and how to improve it to reduce costs. Based on these analysis results, managers can develop more scientific logistics

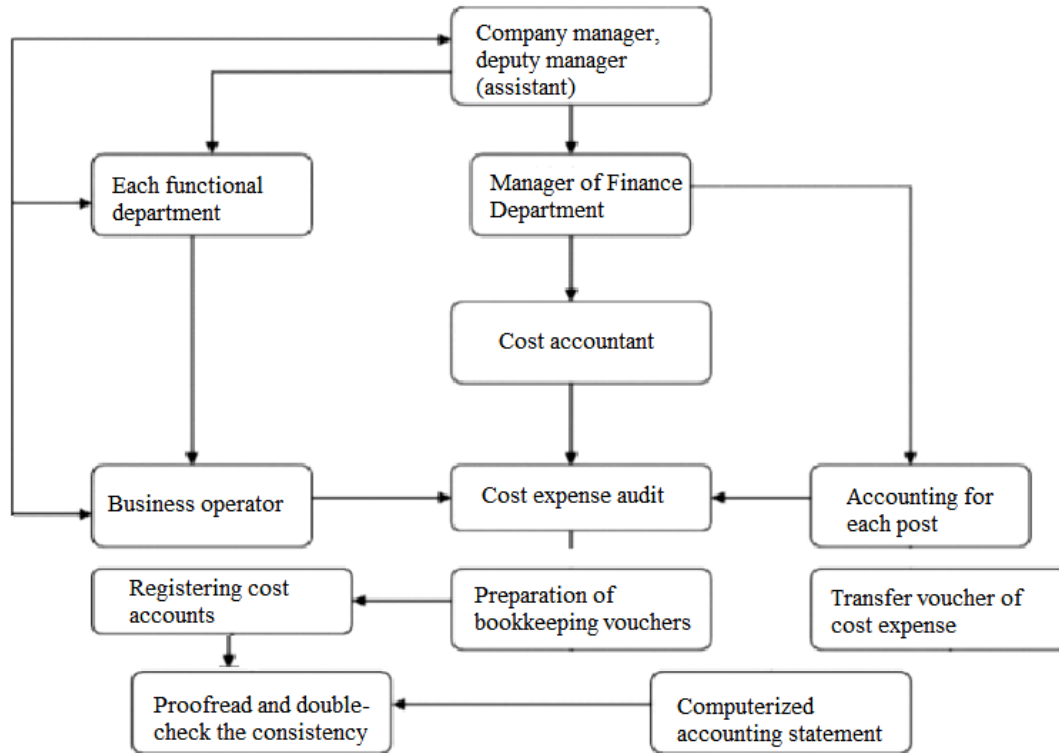strategies to improve cost efficiency. The cost accounting flow chart is shown in Figure 2.

Figure 2.Cost accounting flow chart

2.4. Data analysis

Intelligent management accounting system is a management tool that integrates artificial intelligence, data mining, big data and other technologies, which can help enterprises in financial management, cost management, budget management, performance management, and other aspects of management work. Among them, data analysis is an important application field of intelligent management accounting system. The system can analyze and mine the big data of enterprises, discover potential values and trends in the data, and provide decision support and management suggestions for enterprises [15]. The data analysis function of the intelligent management accounting system can help enterprises automate the processing and analysis of large amounts of data. The system can automatically collect data from various business systems of the enterprise and consolidate it into a central database. Then, the system uses data mining and machine learning technologies to analyze and mine this data, discover potential business value and trends. The data analysis function of the intelligent management accounting system can provide enterprises with various management suggestions and decision support. For example, the system can help enterprises predict sales trends, optimize product portfolios, and evaluate market competitiveness based on data analysis results [16]. At the same time, the system can also help enterprises identify problems and hidden dangers in their businesses, so as to take timely measures for adjustments and improvements.

The data analysis function of the intelligent management accounting system has the following advantages:

(1) Automated processing: The system can automatically collect data from various business systems and automate data processing and analysis, reducing errors and loopholes in manual operations.

(2) High precision: The system uses technologies such as data mining and machine learning to analyze and mine the data, which can discover potential values and trends in the data and improve the precision and accuracy of the analysis [17].

(3) Fast: The system can quickly process a large amount of data and give analysis results in a short time to help enterprises make decisions quickly.

(4) Support for decision making: The system can provide a variety of management suggestions and decision support for enterprises based on data analysis results, helping enterprises optimize business processes and improve management efficiency.

3. Challenges and Countermeasures of Intelligent Management Accounting System

An intelligent management accounting system is a technology tool that combines artificial intelligence and accounting to provide efficient and accurate financial information and decision support. Such systems use big data analytics and predictive analytics to automate the processing and integration of financial data, and provide real-time financial analysis, reporting and business planning for companies through model training and forecasting. However, intelligent management accounting systems also face some challenges in their application. Some specific analyses are made below:

3.1. Data security

With the development of information technology, the amount of data in enterprises is increasing, and data security issues are also receiving more and more attention. As a new type of management tool, intelligent management accounting system needs to deal with a large amount of sensitive data, and ensuring the security of data has become a very important task. In order to ensure data security, enterprises need to strengthen data protection measures, such as encryption and backup, to avoid data leakage and damage. Firstly, enterprises need to establish a sound data security management system. The data security management system is an important guarantee measure for enterprises to ensure data security. Enterprises should establish a sound data security management system, clarify the security standards and requirements for data, develop corresponding data security management processes and measures, and ensure the security of data [18]. At the same time, it is also necessary to strengthen employees' awareness of data security through training, and reduce data security risks. Secondly, enterprises need to strengthen data encryption and backup management. Data encryption and backup are important means to ensure data security. Enterprises should strengthen data encryption and backup management to ensure the security and reliability of data. In terms of data encryption, companies should choose encryption algorithms and methods that are suitable for their needs to ensure data confidentiality and integrity. In terms of data backup, a sound backup mechanism and plan should be established to ensure data recoverability and reliability. In addition, enterprises need to strengthen the security management of systems and networks. The security management of systems and networks is an important link to ensure data security. Enterprises should strengthen the security management of systems and networks to ensure the security and stability of systems and networks. In terms of system and network security management, monitoring and early warning of systems and networks should be strengthened to timely detect and solve security problems [19]. At the same time, access permissions and security policies of systems and networks should be managed to limit illegal access and attacks.

3.2. Data quality

With the development of information technology, the amount of data in enterprises is increasing, and data quality issues are also receiving more and more attention. As a new type of management tool, intelligent management accounting system needs to deal with a large amount of data, but it is difficult to guarantee data quality. Poor data quality can lead to inaccurate data processing results, thereby affecting the scientific and accuracy of management decision-making. Therefore, enterprises need to strengthen data quality management to avoid data errors and distortions [20]. Firstly, enterprises need to strengthen data collection and input management. Data quality issues often originate from the data collection and input links. Therefore, enterprises need to establish a sound data collection and input management system to ensure the accuracy and integrity of data. In the process of data collection and input, verification and validation of data sources should be strengthened to avoid errors and distortions [21]. At the same time, the management of data formats and standards should also be strengthened to ensure data consistency and standardization. Secondly,

enterprises need to strengthen data cleaning and processing management. Data quality issues often appear in the process of data cleaning and processing. Therefore, enterprises need to establish a sound data cleaning and processing management system to ensure data accuracy and consistency. In the process of data cleaning and processing, data deduplication, denoising, completion, and conversion should be strengthened to avoid data errors and distortions. At the same time, the record and traceability of the data processing process should also be strengthened for subsequent data analysis and application. In addition, enterprises need to strengthen data quality assessment and monitoring management. Data quality issues often need to be discovered and solved through data quality assessment and monitoring. Therefore, enterprises need to establish a sound data quality assessment and monitoring management system to ensure data accuracy and reliability. In the process of data quality assessment and monitoring, the development and implementation of data quality indicators and standards should be strengthened to detect and solve data quality issues in a timely manner [22].

3.3. Talent pool

Intelligent management accounting system is a new type of management tool that requires talented personnel to handle data processing and analysis. Enterprises need to strengthen talent cultivation and introduction, improve employees' skills and data analysis abilities, in order to better apply the intelligent management accounting system. Talent reserve is one of the important measures for sustainable development of enterprises, which will be elaborated on through talent cultivation and introduction. Enterprises need to strengthen training and learning for employees, and improve their skills and data analysis abilities. For existing employees, enterprises can enhance their skills and data analysis abilities through internal and external training. Meanwhile, enterprises can also develop personalized training plans and goals based on employees' actual situations to help them better master the use methods and skills of the intelligent management accounting system. In addition, enterprises can also use talent rotation and exchanges to improve employees' comprehensive qualities and team collaboration abilities [23]. Through talent rotation and exchanges, employees can have a better understanding of different departments and businesses of the enterprise, broaden their horizons, and improve their comprehensive qualities and team collaboration abilities. Enterprises need to strengthen the introduction of talents and attract highly qualified personnel to join the team of the intelligent management accounting system. In terms of talent introduction, enterprises can use various channels to introduce talents, such as recruitment websites, campus recruitment, and social recruitment. Meanwhile, enterprises can also expand talent introduction channels through social relations and talent intermediary agencies to attract more high-quality talents. In the process of talent introduction, enterprises need to pay attention to the scientificity and impartiality of talent selection, ensuring that the selected talents meet the needs and job requirements of the enterprise. Meanwhile, enterprises should also focus on the integration and cultivation of new employees, provide them with a good working environment and training opportunities, and help them adapt to work and teams as soon as possible [24].

3.4. Improve system stability

If the system stability of the intelligent management accounting system has problems, enterprises can take the following measures: (1) Find the root cause of the problem. First, enterprises need to find the specific reasons for the poor stability of the intelligent management accounting system system, such as whether it is a server failure, network connection problems, etc. Only when the root cause of the problem is clear, can targeted measures be taken to deal with it. (2) Use professional software testing tools. Enterprises can find and solve potential system stability problems by using professional software testing tools to conduct comprehensive testing of the intelligent management accounting system. At the same time, it is recommended that enterprises regularly maintain and repair the system. (3) Upgrade hardware facilities. If the hardware facilities used in the intelligent management accounting system are too old, it may affect the stability of the system. Enterprises may consider upgrading the hardware facilities to improve the operation efficiency and stability of the system. (4) Regularly backup data. In order to prevent data loss, enterprises should regularly

backup important data in the intelligent management accounting system so that the data can be recovered in time when the system has problems. (5) strengthen user training and technical support. Enterprises need to strengthen the user training of intelligent management accounting system to improve the proficiency of employees in using the system and avoid system problems caused by improper use. At the same time, provide professional technical support for users to solve the problems they encounter in a timely manner. This helps to guarantee the normal operation and stability of the intelligent management accounting system.

3.5. The challenge of changing application scenarios

The application scenarios of intelligent management accounting system are influenced by changes in the market environment, requiring enterprises to adjust and adapt in a timely manner. To address this challenge, enterprises can strengthen research and forecasting of the market environment, adjust and optimize the application scenarios of the system in a timely manner, and improve the system's adaptability and flexibility. Firstly, when faced with challenges brought about by changes in the market environment, enterprises need to strengthen research and forecasting of the market environment. Changes in the market environment may come from various factors such as policies, economy, and technology, so enterprises need to pay attention to market trends and changes, analyze the development trends and changes of the market environment, and make adjustments and optimizations in a timely manner. Secondly, enterprises need to adjust and optimize the application scenarios of the intelligent management accounting system in a timely manner to adapt to changes in the market environment. The application scenarios of the intelligent management accounting system cover various aspects of enterprise management, including financial management, cost management, budget management, performance management, etc. When the market environment changes, enterprises need to adjust the application scenarios and functions of the system according to market demand and trends to meet the management needs of the enterprise. In addition, enterprises need to improve the adaptability and flexibility of the intelligent management accounting system. The intelligent management accounting system needs to have a certain degree of adaptability and flexibility to cope with changes in the market environment. Enterprises can continuously upgrade and optimize the technology and functions of the system, improve its adaptability and flexibility, and meet the diversified and complex management needs of the enterprise. Finally, enterprises need to strengthen the application and promotion of the system. The application of the intelligent management accounting system requires the support and promotion of the enterprise management team, as well as recognition and use by employees. Enterprises can improve the usage rate and satisfaction of employees by strengthening training and education on the system, to achieve effective application and promotion of the system.

3.6. The challenge of technology renewal

With the continuous development and updating of technology, intelligent management accounting systems also need to be continuously updated and upgraded to adapt to new technologies and environments. This poses a challenge for enterprises to keep up and respond to technological updates in a timely manner. Firstly, enterprises need to develop a technology update plan. The technology update plan is one of the important means for enterprises to cope with technological update challenges. Enterprises need to formulate a technology update plan based on the system's operational status and future technological trends, clarify the goals and steps of technology update, so as to carry out system update and upgrading according to plan. Secondly, enterprises need to update and upgrade the system in a timely manner. Intelligent management accounting systems need to be constantly updated and upgraded to maintain system stability and efficiency. Enterprises can introduce the latest technologies and functions, update the core modules and algorithms of the system, and improve the system's performance and reliability. Additionally, enterprises can work with software developers to regularly upgrade and maintain the system to ensure its security and stability. Furthermore, enterprises also need to consider the compatibility of the system. With the continuous updates in technology, new technologies and software emerge endlessly. When updating and upgrading the system, enterprises need to consider the compatibility

of the system, ensure that new technologies and software are compatible with the existing system, avoid problems such as system crashes and data loss caused by system incompatibility. Finally, enterprises need to strengthen training and education on the system [25]. The update and upgrade of the intelligent management accounting system requires support and recognition from employees. Enterprises can improve employee usage and satisfaction by strengthening training and education on the system, achieving effective use and application of the system.

4. Conclusion

The application of intelligent management accounting system has become an indispensable part of enterprise management. Although the intelligent management accounting system faces some challenges, as long as enterprises can strengthen data protection, data quality management and talent training, they can better cope with these challenges and further improve the application effect and level of the intelligent management accounting system. Therefore, enterprises should focus on the application of intelligent management accounting system and continuously strengthen the research and development of it to provide scientific management decisions and support for the development of enterprises.

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References

[1] Posadzińska Iwona, Grzeszczak Małgorzata. Management Accounting System in the Management of an Intelligent Energy Sector Enterprise[J]. Energies,2022,15(20):1-17.

[2] Javed Sarfaraz,Malik Mustafa. The propensity of risk-taking and financial efficiency: Exploring the role of management accounting system: Evidence from the manufacturing sector[J]. COGENT BUSINESS & MANAGEMENT,2021,8(1): 1954490.

[3] Christina Veronica,Haizam Mohd Saudi Mohd. Silviana,Nurani Nina,Sinaga Obsatar. Business Ethics Perception as Moderating Variable on the Influence of Management Accounting System to Managerial Performance (Study at PT Bank Mandiri (Persero), Tbk.)[J]. International Journal of Engineering & Technology, 2019, 7(4.34):277-280.

[4] Korzovatykh z. m.,Rezonkina i. s.. Peculiarities Of Confection Industry Organizations, Influencing The Construction Of Management Accounting System[J]. Vestnik Universiteta, 2019,0 (5):145-150.

[5] Garbowski M.,Tiutiunnyk S.,Tiutiunnyk Y.,Kondukotsova N.,Karpenko O.. Digitalization Of Transfer Pricing As An Element Of The Management Accounting System In The Company[J]. Academy of Accounting and Financial Studies Journal,2021, 25(1):1-8.

[6] Hwang,Sang-Min,Yeom,et al.The Effect of Management Accounting System on Business Performance of Venture Companies:Focusing on Business Strategies as Mediating Variables[J]. Korean Journal of Accounting Research, 2016, 21(2):81-112.

[7] Reza Ghasemi,Noor Azmi Mohamad,Meisam Karami,Norkhairul Hafiz Bajuri,Ezzatollah Asgharizade. The mediating effect of management accounting system on the relationship between competition and managerial performance[J]. International Journal of Accounting and Information Management,2016,(3):24.

[8] Mira Dimitri, Dunja kalamera-Alilovi, Meta Duhovnik. Public cost and management accounting system implementation and performance: an integrative approach[J]. Int. J. of Public Policy,2016,12(3/4/5/6):190.

[9] Alsudani Mustafa Qahtan,Jaber Mustafa Musa,Ali Mohammed Hasan,Abd Sura Khalil, Alkhayyat Ahmed,Kareem Z. H.,Mohhan Ahmed Rashid. Smart logistics with IoT-based enterprise management system using global manufacturing[J]. Journal of Combinatorial Optimization, 2023(2):45.

[10] Lu Yu,Fang Gang,Huang Daoping,Cai Baoping,Chen Hongtian,Liu Yiqi. Shaping energy cost management in process industries through clustering and soft sensors[J]. Frontiers in Energy Research,2023:11-12.

[11] Yi Chen,Chun Wang,Zihan Zhao,Zhe Sun,Huande Jin,Meihan Zhou,Xinyu Yang,Jingyu Wang. Economic Analysis of Enterprise Management and Enterprise Benefit[J]. Financial Engineering and Risk Management,2022(7):25.

[12] Zhang Weiwei. An Artificial Intelligence-Based Approach to Social Data-Aware Optimization for Enterprise Management[J]. Wireless Communications and Mobile Computing,2022:19-22.

[13] Wang Shanshan. Enterprise Management Optimization by Using Artificial Intelligence and Edge Computing[J]. International Journal of Distributed Systems and Technologies (IJDST), 2022(3):13.

[14] Pham Quang Huy,Vu Kien Phuc. Intention for Adopting Management Accounting System: An Empirical Research of Exploration to Public Non-business Generating Agencies[J]. International Journal of Recent Technology and Engineering (IJRTE), 2019,8(3s2):343-351.

[15] Ageeva O , Devyanina A .Genesis Of Budgeting And Study Of Its Dialectical Interaction With Other Management Accounting System Elements[J].Vestnik Universiteta, 2018(2):5-12.

[16] Hui X .Challenges and Countermeasures of Management Accounting in the Era of Big Data[J].World Scientific Research Journal, 2019, 5(10):115-121.

[17] Bai Jie. Risks and prevention countermeasures of accounting informatization in the era of big data [J]. Study of Accounting, 2023 (04): 4-6.

[18] Huang Cheng. The Risks and Countermeasures of accounting informatization in the era of big data [J]. Tax payment, 2019,13 (20):144.

[19] Wu Yanjie. Opportunities, Challenges and Countermeasures of Management Accounting in the era of Big Data [J]. Fortune Today, 2020 (17): 23-24.

[20] Zhang Yun Yun. Challenges and Countermeasures faced by Enterprise Management Accounting in the Era of Big Data [J]. Modern Economic Information, 2018 (05): 244.

[21] Faizan Ahmed Khan,Farooq Ahmad,Arfat Ahmad Khan,Chitapong Wechtaisong,2. Process Discovery and Refinement of an Enterprise Management System[J]. COMPUTER SYSTEMS SCIENCE AND ENGINEERING,2023(3):44.

[22] Khoruzhy Liudmila I.,Katkov Yuriy N.,Katkova Ekaterina A.,Khoruzhy Valeriy I.,Dzhikiya Meri K.. Opportunities for the Application of a Model of Cost Management and Reduction of Risks in Financial and Economic Activity Based on the OLAP Technology: The Case of the Agro-Industrial Sector of Russia[J]. Risks,2022(1):11.

[23] Zhou Wenya. Enterprise Management Resource Protection System Based on Digital Information Technology[J]. Wireless Communications and Mobile Computing,2022:19-22.

[24] Bodendorf Frank,Merkl Philipp,Franke Jörg. Artificial neural networks for intelligent cost estimation – a contribution to strategic cost management in the manufacturing supply chain[J]. International Journal of Production Research,2022(60):6637-6658.

[25] Asmi A , Azis A , Memon A H ,et al.Cost Management of Large Construction Projects in South Malaysia[C]//2012 IEEE Symposium on Business, Engineering and Industrial Applications. IEEE, 2012,625-629.