

Research on the Transformation of Management Accounting Education System Empowered by AI

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Abstract. Under the impact of iterations in artificial intelligence and big data technology, the traditional management accounting education system, centered on cost accounting, budgeting, and performance evaluation, fails to meet the new demands of enterprises for “data insight, algorithm mastery, and cross-domain collaboration” due to its static, isolated, theoretical, standardized, and process-oriented training orientation. This has resulted in a serious mismatch between learning and application. This paper mainly focuses on the theme of “AI empowering the transformation of the management accounting education system”. Through system architecture design, it explores three core issues: how the curriculum system can break through disciplinary barriers, how the school and enterprise can be upgraded synchronously, and how the traditional score-based evaluation mechanism can shift towards data-driven ability profiling. Add AI and data courses, intelligent iterative traditional courses, project-based flipped classrooms, teacher AI empowerment and school enterprise co-construction laboratories, and a data-driven multi-dimensional evaluation loop. Research has shown that this path can systematically enhance students’ abilities in AI and big data analysis, modeling, and coping with many contemporary uncertainties and risks, achieving a transition from “knowledge transmission” to “value creation” in management accounting education.

Keywords: Artificial intelligence, management accounting, educational reform, curriculum design

1. Introduction

The digital wave is profoundly reshaping the financial function. Automated tools such as intelligent bookkeeping and machine learning prediction are rapidly replacing repetitive accounting operations, and the demand for management accountants’ abilities in enterprises has risen from “proficient in digital processing” to “insight into data, mastery of algorithms, and collaborative business”. However, the current management accounting education still relies mainly on teacher lectures, static cases, and isolated courses, with outdated textbooks and a lack of training in cutting-edge technologies such as Python, Power BI, and AI modeling. This makes it difficult for graduates to quickly integrate into intelligent work scenarios, resulting in a structural contradiction of “learning application disconnect”. This study focuses on the theme of “AI empowering the transformation of

the management accounting education system” and attempts to answer three core questions: firstly, the curriculum system should break through disciplinary silos; secondly, the teaching staff and the enterprise ecosystem should be upgraded synchronously to support teaching in real AI scenarios; thirdly, the evaluation mechanism should shift from score-oriented to data-driven capability profiling. To this end, this essay adopts a combination of system architecture design to sort out the four major empowerment mechanisms of AI in the field of education, including personalized learning engines, intelligent content generation, virtual simulation mentors, and data-driven evaluation. Based on this, an integrated transformation path is proposed for curriculum reconstruction, teacher upgrading, industry-education integration, and evaluation system innovation. The significance of this study lies in providing universities with a practical blueprint for upgrading management accounting education in the AI era, bridging the gap between talent cultivation and industry demand, and enhancing the core competitiveness of China's management accounting talents in the global digital competition.

2. The current situation and challenges of the traditional management accounting education system: the urgency of transformation

2.1. Traditional management accounting education system

The core goal of the traditional management accounting education system is to cultivate professional talents who master core knowledge and skills such as cost accounting, budget management, performance evaluation and control [1]. The curriculum usually consists of core courses, such as Cost Accounting, Management Accounting, Financial Management, Budget Management, and Performance Evaluation, supplemented by basic theoretical courses such as Economics and Management. The entire system exhibits significant static, theoretical, and isolated characteristics. The textbook involved in the course is updated slowly, focusing mostly on mature but relatively fixed knowledge modules such as traditional cost methods, cost-volume-profit analysis, and standard cost systems. There is little touch on cutting-edge technologies such as big data analysis, predictive modeling, and AI algorithms, and they have not been combined and updated with the rapidly developing technologies today. The traditional teaching mode of the management accounting system is dominated by teacher lectures and textbook interpretation, with students in a passive low position, only receiving knowledge explained by teachers. The practical application of written knowledge is limited to case analysis based on simplified and static preset scenarios, lacking in-depth training in applying textbook theories to solve practical business accounting problems in complex and dynamic real business environments. At the same time, there is a serious lack of cross-disciplinary integration between the curriculum system and related disciplines, such as information technology, data science, strategic management, and behavioral science. Management accounting is often limited to a simple financial perspective and fails to effectively integrate into the overall value chain and digital ecosystem of the enterprise for teaching.

2.2. The impact and challenges of the new era: the transformation pressure of internal and external difficulties

The traditional management accounting system is facing severe challenges from both internal and external environments under the changing times, and the gap between its effectiveness in cultivating accounting talents and the new demands for accounting talents in the new era is increasingly deepening. In today's era, with the rapid development of technologies, such as artificial intelligence

and big data, many automated technology systems have emerged in the financial field to replace repetitive and basic grassroots work [2]. For example, automation replaces basic accounting, and intelligent accounting systems are rapidly replacing traditional basic operational work such as voucher entry and basic cost collection. The large-scale application of these technologies will result in a sharp decrease in demand for graduates who only know how to perform standardized processes in financial accounting work. Similarly, with the widespread application of artificial intelligence and algorithms, new requirements have been put forward for the talents needed by enterprises. According to the White Paper on the Development of Intelligent Finance in 2025 by the Ministry of Industry and Information Technology, 73% of enterprises have incorporated AI technology into management accounting application scenarios. More and more enterprises require management accountants to be able to master big data platforms, use machine learning for accurate forecasting, intelligent budgeting, dynamic risk warning, and use visualization tools to present insights [3]. However, these abilities to operate big data, manipulate artificial intelligence, and apply intelligent systems are almost not covered in the traditional management accounting curriculum system. The traditional management accounting training system can only cultivate students who can repeat, mechanize, and standardize processes, and there is still a gap in their abilities compared to the talent requirements of enterprises. Moreover, in the era of digital economy, management accountants are required to provide more real-time, forward-looking, and customized information support to cope with the more complex scenarios brought by the characteristics of globalization and uncertainty. The traditional training system is mainly based on a static and universal knowledge system structure, and the teaching cases used are all more than ten years old, which are not combined with the emerging technologies of today's era, nor can they exercise students' ability to face and solve a series of new problems and challenges arising from the constantly changing and unknown era [4]. At the same time, management accountants also need to deeply integrate into the business front-end, closely collaborate with engineers, marketers, and data scientists, and clearly communicate complex analysis results. This puts deeper requirements on the professional ability of management accountants. Management accountants cannot only be proficient in the financial field, but also need to have an understanding and involvement in all aspects of knowledge. This professional competence requires the addition of more practical courses in the training system. However, under the existing curriculum system, students lack hands-on opportunities, and there are almost no opportunities to go to enterprises to contact businesses before graduation. Graduates have significant shortcomings in the application of data analysis tools, business problem modeling, cross-disciplinary communication, and coping with uncertainty, making it difficult for them to quickly adapt to modern intelligent work scenarios, resulting in a serious mismatch between "learning" and "application" [5]. The traditional management accounting system can no longer keep up with the current technological requirements, and the talents trained under this system cannot meet the work needs of enterprises. Based on this, the management accounting education system urgently needs to undergo transformation and upgrading.

3. AI empowerment: the core driving force and accelerator for the transformation of management accounting education

AI is not only an external pressure source that drives the transformation of education, but its enormous potential is also a key enabler for promoting the reconstruction of the traditional management accounting education system. The convenient characteristics of artificial intelligence itself will bring more opportunities for the transformation and upgrading of management accounting [6]. Firstly, personalized learning engines supported by big data can dynamically adjust learning

paths, difficulties, and forms by analyzing students' learning behaviors, mastery, cognitive styles, and preferences in real-time. For example, learning materials can be presented in the form of videos, interactive exercises, etc., based on students' personal styles and learning habits. To achieve "teaching according to individual needs", solve the problem of individual differences in large class teaching, and improve efficiency and experience. Secondly, artificial intelligence algorithms can support intelligent content generation and updating, such as using technologies such as LLM to dynamically generate teaching materials, case studies, and exercises based on real-time financial news, corporate financial reports, etc., ensuring timeliness, or using NLP to intelligently analyze complex concepts and automatically track and integrate cutting-edge knowledge, assisting teachers in updating their knowledge base and breaking knowledge gaps. Thirdly, virtual simulation technology and intelligent mentors can create a highly simulated business sandbox environment, allowing students to play roles in dynamic scenarios, and then use AI tools to make budget, cost, pricing, and other decisions and receive immediate feedback. At the same time, the intelligent tutoring assistant can answer questions at any time and provide personalized exercise suggestions, freeing up teachers' energy and bridging the gap between theory and practice. Finally, data-driven teaching evaluation deeply analyzes various learning data such as student behavior, projects, etc.; goes beyond the ability evaluation based solely on test scores; accurately constructs a student ability map; diagnoses teaching weaknesses; and predicts learning risks for early intervention, achieving a precise feedback loop and teaching optimization.

4. Transformation path: the direction for upgrading the traditional management accounting education system empowered by AI

4.1. With curriculum and teaching mode reconstruction as the core, drive the transformation of students' ability system to the AI era

Based on the revolutionary opportunities brought by artificial intelligence, the deep transformation of the management accounting education system first focuses on the systematic reconstruction of curriculum design and teaching mode, aiming to build a new paradigm centered on cultivating students' future abilities [7]. In the reform of the curriculum system, it is necessary to break the isolation of traditional disciplines and achieve triple integration: firstly, to add core AI and data courses, such as Python Financial Data Analysis, Fundamentals of Management Accounting Big Data Technology, Application of AI in Management Accounting, Business Intelligence Visualization and other compulsory or core elective courses, to fill the gap in technical abilities; The second is to promote the intelligent iteration of traditional core courses, organically embedding big data analysis cases, predictive modeling experiments, and practical applications of AI decision support tools in courses such as Cost Management, Budget Control, Performance Management, and Strategic Management Accounting. For example, introducing machine learning-driven supply chain cost optimization models in cost courses so that technological empowerment runs through the knowledge system from beginning to end [8]; the third is to build a knowledge module that integrates "technology management ethics", strengthens data governance norms, algorithm ethics considerations, human-machine collaboration strategies, and digital transformation strategies, and cultivates students' ability to responsibly apply AI technology.

At the same time, it is also crucial to change the paradigm of teaching modes. Teachers can vigorously promote project-based learning and upgrading cases based on real enterprise problems in teaching. When writing teaching plans, they can design complex projects such as using AI to optimize supply chain costs, building intelligent budget prediction models, and analyzing customer

profitability based on machine learning. They can introduce real data from enterprise desensitization and require students to complete the entire process from data cleaning, model construction, analysis and verification to final decision recommendations. They can lead students to exercise practical abilities in the classroom [9]. At the same time, teachers can also adopt flipped classroom and blended learning models, using AI driven adaptive learning platforms to provide personalized theoretical knowledge learning resources for students. In the classroom, it is not just about explaining textbook knowledge, but also incorporating in-depth problem discussions, project collaboration, advanced thinking training, and personalized guidance from teachers, providing students with opportunities and experiences for theoretical application and practice. In addition, teachers can also use AI driven virtual business simulation platforms as regular training tools. By building a highly simulated business sandbox environment, students can deeply integrate the application ability of AI tools with the cultivation of business judgment through repeated simulation decision-making exercises.

4.2. Building a solid transformation support ecosystem with the dual engines of upgrading teacher capabilities and deep collaboration between schools and enterprises

The successful transformation of the management accounting education system cannot be achieved without the reconstruction of a high-quality teaching staff and the deepening of the integration of industry and education ecology, which together form a solid support system. The upgrading of the teaching staff's capabilities is the core driving force for transformation, and three key measures need to be focused on. Firstly, a systematic AI empowerment training program should be implemented to provide in-service teachers with tools covering mainstream data analysis, organize teaching of machine learning fundamentals, conduct in-depth training on specific application cases of AI in the fields of finance and accounting, establish practical workshops and continuous learning mechanisms, and provide a platform for in-service teachers to further their studies; secondly, establish a practice oriented incentive mechanism to encourage and fund teachers to deepen their practical experience in enterprises, participate in real AI management accounting consulting projects, undertake research on enterprise intelligent transformation related topics, and significantly incorporate teachers' achievements in AI teaching innovation, curriculum development, and application research into the professional title evaluation, performance assessment, and promotion evaluation system [10]; thirdly, we will implement a diversified teacher structure strategy and actively introduce composite talents with backgrounds in data science, information technology, and rich practical experience in enterprise financial intelligence to join the full-time teaching staff. At the same time, we will widely hire senior experts from enterprise finance departments as part-time teachers or industry mentors to bridge the gap in AI application cognition between academia and industry. At the level of school enterprise collaboration, it is necessary to build a multi-level and closely linked practical teaching system. The core is to jointly build a high-level AI management accounting laboratory with well-known enterprises in the industry, deeply cooperate with top software solution providers, financial sharing centers of large enterprises, and major cloud service providers, introduce their advanced financial cloud platforms, professional AI analysis tools, and real business datasets that have been desensitized, and create a highly simulated intelligent teaching, experimental, and research and development environment; schools can also collaborate with core partner companies to design and develop internship positions, ensuring that students can practice in the real intelligent financial scenarios of enterprises, closely connecting the practical teaching process with the forefront of industrial intelligence, and avoiding disconnection from practice [11].

4.3. Guided by data-driven evaluation system innovation, achieve precise ability profiling and continuous optimization of teaching in a closed loop

In order to effectively measure and promote the cultivation of high-level abilities required in the AI era, the traditional score-based evaluation mechanism must undergo fundamental innovation and shift towards building a data-driven, dynamic, and ability-development-centered evaluation and optimization closed-loop system [12]. In the evaluation system, it is necessary to establish the cornerstone position of diversification and process-oriented evaluation dimensions. Transforming the traditional scoring criteria based on paper exams, significantly increasing the weight of process evaluation and ability performance, and using the quality of project reports, the ability to analyze complex cases, the effectiveness of simulating business decisions, the feasibility of scheme design, the logic and persuasiveness of oral statements, and the contribution to team collaboration as the core evaluation criteria for students. On this basis, explore the feasibility of using AI tools to score test answers and provide references for teachers. More importantly, it is necessary to construct a dynamic and multidimensional portrait of students' abilities, and use AI to record and evaluate the performance of key nodes in project execution.

Through algorithm model analysis, a dynamic capability map covering multiple dimensions such as proficiency in technical tool application, data analysis, and insight depth is formed, accurately depicting the strengths, weaknesses, and development trajectory of each student, providing a scientific basis for personalized guidance. Teachers can use AI to automate basic assessments, efficiently process the correction of multiple-choice and fill-in-the-blank questions, and perform basic grammar and logic error checks on programming assignments, greatly freeing up teachers' energy for high-level evaluation and guidance. By integrating intelligent mentor functions into virtual simulation platforms or learning systems, real-time, personalized, and contextualized prompts and feedback are provided during students' practice, project, and simulation decision-making processes, achieving accompanying ability development and evaluation. Finally, regular in-depth mining and analysis of evaluation data should be conducted, especially based on the comprehensive results of student ability profiling and process evaluation, to systematically diagnose knowledge blind spots or lagging points in course content design, and analyze the effectiveness of teacher teaching methods, the rationality of teaching resource allocation, and the common ability shortcomings of student groups. The analysis results should then be transformed into specific and actionable improvement suggestions to guide the revision of the next round of curriculum outline, adjustment of teaching methods, update and supplement of teaching resources, and identification of teacher professional development needs.

5. Conclusion

In response to the three major questions raised in the introduction, this article draws the following conclusions. Firstly, the curriculum system has achieved a transformation from static knowledge to dynamic abilities through "triple integration". The addition of AI and data courses, intelligent transformation of traditional courses, and the introduction of real enterprise data and AI tools into the classroom through project-based, flipped classroom, and virtual simulation have significantly enhanced students' abilities in big data processing, modeling, and decision-making. Secondly, the "dual wheel drive" of teacher upgrading and school enterprise collaboration has taken shape, with systematic AI empowerment training, practice-oriented incentives, and diversified talent introduction mechanisms, enabling teachers to have the ability to design AI scenario courses; the joint construction of the AI management accounting laboratory and real enterprise internship

positions effectively connects the "classroom-laboratory-industry" chain, enhances the scenario-based and forward-looking teaching. Thirdly, a data-driven evaluation system can construct a multidimensional capability map, increase the proportion of process evaluation, and release teachers' energy through AI automatic grading and real-time feedback from intelligent mentors, achieving precise profiling and closed-loop optimization of teaching. However, there are still shortcomings in this study: firstly, there is a lack of large-scale empirical data to verify the effectiveness of transformation. Secondly, the depth of collaboration between schools and enterprises is affected by the degree of data anonymization and business cycle fluctuations, and sustainability needs to be strengthened. In the future, the following improvements can be made: firstly, conducting longitudinal tracking research in collaboration with multiple universities and leading enterprises to quantitatively evaluate the long-term impact of AI empowerment on students' abilities and employment performance; Secondly, establish a tripartite data sharing and risk governance mechanism of "education industry government" to ensure the safe and compliant entry of real data into teaching scenarios. Looking towards the future, with the maturity of AI and big data algorithms, management accounting education will further move towards immersion, personalization, and globalization. The goal of talent cultivation will also shift from "mastering AI tools" to "managing the AI ecosystem", continuously leading enterprise value creation and governance innovation.

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