

Transformation of Financial Management Discipline in the Context of Big Data: Take Zhongkai University of Agriculture and Engineering for Example

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Abstract: Under the big data environment, great changes have taken place in the financial management activities of enterprises. As a college that provides professional talents for the society, it should explore the reform of financial management curriculum. Our school also positively responds to the change, proposed the reform measure. Some achievements have been made, but some problems remain. The present article takes Zhongkai University of Agriculture and Engineering as an example to explore the transformation path of the financial management discipline. It delves into the importance, current situation, goals, existing issues, and measures taken to address them in the process of transforming the financial management discipline. In the analysis of the measures, we put forward four directions of transformation, including teachers, curriculum, curriculum assessment and teaching resources. Through these reforms, we look forward to contributing to the development of professionals who can meet the needs of financial management in the big data era.

1. Introduction

The current development and application of new technologies such as big data have brought significant changes to the financial environment of businesses, while also presenting higher demands for the training of financial management talents. Traditional financial management training has primarily focused on developing skills in financing, investment, operations, and analysis. However, in the new era of big data, financial management professionals are required to extract valuable information for financial management from massive amounts of data [1], analyze and organize the data, and provide evidence for crucial decision-making in enterprises. Our country has been exploring the training of accounting talents to meet the demands of economic development. Accounting and financial management majors have been established in major universities nationwide, and the number of talents generally meets social needs. However, with the advent of artificial intelligence and high-tech development, financial professionals in our country are facing unprecedented challenges, such as business transformation, digitalization, and intelligence. Financial accountants must confront the rapid development of artificial intelligence, diverse business requirements, and the financial sharing

model, among others. The changing demands for talents compel colleges and universities to reform relevant courses in order to meet the demand for accounting talents in this new era [2]. In order to cultivate talents that meet the needs of society, the field of financial management needs to undergo a transformation. Therefore, universities need to adjust their approaches and plans for talent cultivation to meet the demands of the big data era [3].

2. The Necessity of Transformation in the Financial Management Discipline at Zhongkai University of Agriculture and Engineering

In Zhongkai College's talent cultivation program for 2016, we can see that the core courses and elective courses follow a traditional curriculum structure. The program covers topics such as fundamental knowledge in financial management, investment decision-making, management accounting, and risk management. The main courses include Microeconomics, Macroeconomics, Financial Management, Fundamentals of Accounting, Principles of Statistics, Financial Accounting, Advanced Financial Management, Investments, and Asset Valuation. However, there are no theoretical courses or practical arrangements related to big data analysis in the talent cultivation program.

These traditional core courses are still important. However, in the Big Data era traditional courses have not kept up with the needs of the times, there are the following shortcomings:

(1) Lack of focus on the application of new technologies, such as digitization, artificial intelligence and the use of high-tech tools such as big data.

(2) Less attention is paid to fostering students' ability to innovate, and improvements are needed to enhance humanistic literacy and global awareness.

(3) The lack of emphasis on data acquisition, screening and use does not meet the requirements of the information age.

(4) Professional courses and teaching methods fail to meet the needs of the industry and technological development, and lack practical teaching.

Therefore, in order to keep pace with the times, the financial management major must strengthen the students' application of data analysis and information technology to meet the complex needs of modern markets and enterprises, and keep pace with the development of technology so as to lay a foundation for future development planning. At the same time, we should expand humanistic education and cultivate students' ability of strategic planning, innovative thinking and social responsibility. The combination of management methods and humanistic spirit enables students to have comprehensive qualities of management, leadership, program formulation and value consideration.

3. Transformation Objectives of ZhongKai Financial Management

According to the structure of social talent demand, targeted talent cultivation is one of the most important tasks at Zhongkai University of Agriculture and Engineering. Especially as a practical and vocational field, it is crucial to closely integrate the goals of financial management talent cultivation with the actual needs of society. This is necessary to effectively meet the practical demands for professionals in the field of financial management and enhance students' competitiveness in the job market. Against this backdrop, the Department of Financial Management has carried out comprehensive reforms in the talent cultivation program, aiming to achieve the following objectives:

3.1. Adapting to Market Demands

The discipline of financial management is an important discipline in enterprise management. With

the strengthening of market competition, technological development and internationalization trend, enterprises have higher requirements for financial management, and the disciplinary transformation has strong market adaptability and practical significance.

3.2. Promoting Talent Cultivation

The transformation of the financial management discipline can train students to enter new financial technology enterprises and high-tech companies, promote the close connection between education and industry, accelerate the talent cultivation process, and enhance the practicality and applicability of education.

3.3. Innovate the Teaching Mode of Financial Management

The subject transformation can introduce new theories and the application of software, and gradually distinguish between traditional and digital teaching methods. Through the classroom practice teaching, the theory and the software application simultaneously carry on, strengthens student's independent study ability, the hands-on ability.

The transformation of financial management discipline can expand the depth of knowledge, substantially enhance the practicability and leading degree of financial management knowledge.

4. Thoughts and Practice of Transformation of Zhong Kai's Financial Management

4.1. Transformation in Faculty Resources

The transformation of financial management requires the use of emerging technologies, such as big data, artificial intelligence, blockchain, etc., which are difficult to apply and require professional explanation. At the same time, teachers should have enough technical accomplishment and ability. At present, the teachers of Zhong Kai's Department of Financial Management mostly accept the traditional financial knowledge system, there is no comprehensive system to learn big data financial technology, teachers are still weak. Therefore, it is necessary to strengthen teachers before the subject transformation.

To achieve the transformation goals of the financial management discipline, it is essential to focus on upgrading the faculty resources. The following measures can be implemented:

(1) Recruiting high-quality faculty: Zhongkai University of Agriculture and Engineering needs to actively seek and attract experienced professionals and experts in the field of financial management who have a deep understanding of market demand and industry trends. This can be achieved through targeted recruitment campaigns and partnerships with industry organizations.

(2) Enhancing faculty development: Zhongkai University of Agriculture and Engineering needs to provide professional development opportunities for existing faculty members to upgrade their knowledge and skills in emerging areas such as financial technology, data analysis, and digital finance. Encourage participation in conferences, workshops, and training programs to stay updated with the latest industry practices.

(3) Promoting research and innovation: Zhongkai University of Agriculture and Engineering should encourage faculty members to engage in cutting-edge research and collaborate with industry partners to address practical challenges in financial management. This can be achieved by establishing research grants, fostering collaborations, and providing necessary resources to support research endeavors.

(4) Supporting interdisciplinary collaboration: The Academy can promote collaboration among teachers from different disciplines, such as finance, technology and business management, through activities such as communication sessions. This interdisciplinary approach will enhance the comprehensive understanding of financial management and encourage innovative teaching and

research practices.

(5) Schools fully utilize big data for analysis and investigation. Schools utilize big data technology to collect, compile, and analyze information pertaining to the teaching of financial management. This enables them to identify existing problems in the current training of financial management professionals [4].

By focusing on upgrading the faculty resources, the financial management discipline can effectively respond to market demand, provide high-quality education, and foster the development of competent professionals in the field.

4.2. Transformation in Curriculum Design

Zhong Kai's graduates majored in finance are generally employed in accounting firms, corporate finance departments, banks or other financial institutions, government agencies. Finance graduates have a wide range of employment opportunities in various enterprises and institutions, which require students to have a good professional foundation and practical experience, at the same time to meet market trends, conform to the changes of the big data era, to meet market demand, to achieve their career goals. Therefore, we should attach importance to financial management information, international education. With the advent of the era of "Internet Plus" and big data, enterprises gradually attach importance to the informatization of financial management, which requires all major colleges and universities to strengthen the cultivation of computer application ability in the curriculum of financial management, implant information technology courses in the traditional financial management courses, and form "Internet Plus big data plus financial management" [5].

To achieve the transformation goals of the financial management discipline, it is necessary to undergo a transformation in curriculum design. The following measures can be implemented:

(1) Updating course content: Update the course content in line with market demands and industry trends, introducing knowledge and skills in emerging areas such as financial technology, blockchain, data analysis, and digital finance. Ensure that the curriculum remains relevant to industry changes.

(2) Strengthening practical components: Increase the inclusion of practical elements in the curriculum, such as case studies, simulated trading, field visits, etc., to help students apply theoretical knowledge to real-world problems and develop skills to address practical financial management challenges.

(3) Introducing interdisciplinary courses: Collaborate with other disciplines to offer interdisciplinary courses, such as the integration of finance and technology or the fusion of finance and strategic management, to enhance students' overall abilities and develop a multidisciplinary mindset.

(4) Enhancing innovation and entrepreneurship education: Integrate innovation and entrepreneurship elements into the curriculum to cultivate students' innovative thinking, teamwork, and entrepreneurial spirit, enabling them to identify opportunities and create value.

(5) Strengthening the application of information technology: Provide training and education on information technology, ensuring that students become proficient in financial management software, data analysis tools, etc., and enhance their IT skills to meet the industry's digitalization requirements.

By transforming the curriculum design, the financial management discipline can offer more practical, innovative, and adaptable education, equipping students with the latest knowledge and skills and laying a solid foundation for their career development in the field of financial management.

Against this background, starting from 2020, the Department of Financial Management at Zhongkai University of Agriculture and Engineering initiated a professional transformation to further optimize the Big Data course, aligning it more closely with the employment needs of students and nurturing talents that meet societal demands. This transformation has the following characteristics.

(1) Data-driven transformation: The Department of Financial Management is undergoing a transition towards data-driven education. By combining theory with practical applications, the curriculum aims to strengthen students' skills in data analysis and enhance their ability to handle data

effectively.

(2) Interdisciplinary integration: In addition to collaborating with disciplines such as management, law, and economics, the department is integrating new technologies and professional fields relevant to financial management. This includes incorporating theories and practical experiences in areas like cloud computing and financial big data, in order to adapt to the challenges brought about by the new supply-side reforms.

(3) Strengthening the application of financial technology: The financial management discipline actively supports the development of fintech. Students have the opportunity to learn about the application of financial technology through hands-on experiences in financial innovation and other related areas of the financial industry [6]. In the new talent development program of Zhongkai Financial Management in 2020, a significant emphasis was placed on big data analysis. A total of seven new theoretical courses were introduced, including Financial Engineering and its Application in Python, Python Statistical Analysis, Business Data Analysis and Visualization, Securities Investment and Quantitative Analysis, Business Intelligence and Data Mining, Application and Development of Financial Decision Support Systems, and Application and Development of Financial Robots. These courses cover a wide range of popular subjects that integrate big data with finance.

(4) Adding practical courses. Integrating classroom teaching with practical experience, we aim to establish a blended learning model that combines offline theoretical knowledge, online practical exercises, and extracurricular practical extensions[1]. Including: financial engineering and quantitative investment simulation practice, financial decision-making and financial intelligence practice, financial modeling methods and technical practice. Each internship course lasts one week and is designed to enhance students' practical application and creativity. In addition, different courses are equipped with corresponding software, such as Python 3.10, Guoxin iQuant strategy trading platform, PowerBI and so on. Theory teaching in class is combined with software practice. Traditional data analysis courses such as stata and spss also offer practical courses.

4.3. Transition from Curriculum Assessment

In the context of big data, universities should strengthen the reform of assessment methods for financial management courses [7]. Traditional assessment methods typically include a combination of continuous assessment and final exams, with continuous assessment accounting for around 30%-40% of the total grade and final exams accounting for 60%-70% of the total grade. This assessment approach places emphasis on exam results and has issues such as low student engagement and a narrow focus on assessment content. Furthermore, this approach may allow students who do not study regularly and only cram before exams to achieve high scores, which hinders their comprehensive understanding of knowledge and fails to reflect their innovative and practical abilities [8]. In the context of big data, it is necessary to assess students' practical application and innovation abilities. Therefore, teaching should establish a diverse assessment system that transforms students from passive learners in the classroom to active learners and shifts the focus from exams to hands-on experience. In addition to case analysis, competitions can be used to encourage students to participate in big data competitions and include competition results as part of the assessment. This approach can stimulate students' learning motivation and competitive awareness, cultivate practical application skills, and enhance their innovation consciousness.

4.4. Transformation of Teaching Resources

Relative to the traditional PowerPoint (PPT) teaching mode in financial management, the course in the context of big data poses higher requirements for both software and hardware facilities. Establishing experimental facilities that meet these requirements is essential for the smooth conduct of teaching. In order to facilitate the transformation of the financial management discipline, I believe the following facilities are necessary:

(1) Providing training facilities to ensure practical courses. Training laboratories can be established on campus to provide students with hands-on experience. Collaboration with external organizations and enterprises can also be strengthened to increase practical exposure for students [9].

(2) Configuration of high-performance computers and software: Financial management requires a significant amount of data processing and analysis. Therefore, it is necessary to provide high-spec desktop computers or laptops, as well as data analysis software and database software such as SAP, SAS, SQL Server, Python 3.10, PowerBI, etc. Equipping the necessary software is the basic guarantee for teaching financial big data.

(3) Improved experimental datasets: To enable students to practice and operate, the laboratory needs access to appropriate datasets for experimentation. These datasets can be obtained from various sources such as companies, government agencies, or financial institutions. Students can then use these datasets for processing and analysis.

(4) Improving Experimental Data: In order to enable students to practice their skills, it is essential for the laboratory to have access to relevant experimental data. This data can be obtained from various sources such as businesses, government agencies, and financial institutions, and made available for students to process and analyze.

To ensure that students have access to high-quality, reliable experimental data, we recommend establishing an extensive network of collaborations. Building close relationships with businesses, government agencies, and financial institutions will enable the acquisition of a large volume of authentic financial data that covers different industries and economic sectors. These collaborative partners can provide various types of financial data, including historical financial statements, transaction data, market data, and industry-specific data.

Additionally, establishing collaboration agreements can help ensure data security and privacy protection. By clearly defining the scope of data usage and confidentiality obligations in these agreements, it ensures that students are only permitted to use the data for experimentation and educational purposes, preventing any unauthorized disclosure or commercial use. Such a collaborative model will expose students to real-life data scenarios, enhancing their skills in data processing and analysis.

Furthermore, we encourage the college to establish its own database or data repository to gather and organize diverse financial data for student experimentation and analysis. This data can include macroeconomic indicators, financial market data, and corporate financial information, catering to the varied needs of students. Establishing a comprehensive system for data acquisition and management will facilitate smooth teaching and research activities in the era of big data.

By improving the acquisition of experimental data, students have the opportunity to learn practical financial management skills from real-world data. They will gain experience in collecting, cleaning, organizing, and analyzing data, effectively transforming their theoretical knowledge into practical skills. This hands-on learning approach will prepare them for their future careers and enable them to better navigate the challenges brought by the era of big data.

(5) Schools establish and collect big data resources for teaching. In the process of allocating teaching resources, we should fully consider the factors such as technology, resources and needs. The financial management major shall make full use of teaching big data, and timely feedback all kinds of problems and difficulties encountered by the students in the course of study to the teachers engaged in the teaching of corresponding courses, so as to facilitate the teachers to provide pertinent support for the students' learning activities according to the feedback, and answer questions and solve doubts in real time [10].

By implementing the above measures, students can benefit from a practical and experiential learning environment, enabling them to better understand and adapt to the challenges of financial management in the era of big data.

5. Conclusion

In the era of big data, the discipline of financial management is undergoing unprecedented changes at an unprecedented speed. The demand for financial professionals from businesses is no longer limited to traditional financial skills, but also includes the ability to analyze data, make data-driven decisions, and engage in strategic planning. In this context, Zongkai College of Agriculture and Engineering is actively exploring the transformation and upgrading of the financial management discipline in the big data environment to cultivate finance professionals who are up-to-date and relevant.

The measures and recommendations presented in this article aim to promote the development of the financial management discipline and enable it to better adapt to the trends of the big data era. Firstly, by providing high-performance computers and software devices, students are given ample opportunities for practical experiences and data analysis. Secondly, improving the acquisition of experimental data helps students engage in authentic data processing and analysis experiments. Lastly, developing case studies for experimentation allows students to apply their learned knowledge in solving real-world financial problems.

The implementation of these measures will provide students with a practical and experiential learning environment, enabling them to understand and adapt to the challenges of financial management in the era of big data. Through data processing and analysis in practice, students will cultivate data-driven decision-making abilities and learn how to apply theoretical knowledge to real-life situations. Such professionals will be better equipped to meet the demands of businesses and the market in the field of financial management.

We hope that through these efforts, the discipline of financial management can continue to develop and innovate, aligning with the developmental needs of the big data era. At the same time, we also look forward to cultivating outstanding talents who can meet the demands of the emerging financial talent market and contribute to social and economic development. Zhongkai University of Agriculture and Engineering will continue to dedicate itself to the development of the financial management discipline and actively promote educational reforms to foster finance professionals with both innovative and practical capabilities.

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