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Research on the Development of Interdisciplinary Studies in Finance and Economics Universities: A Case Study of Smart Finance

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Abstract: *With the acceleration of global digitalization, Smart Finance, a pivotal branch of Financial Technology (FinTech), is transforming the operational dynamics of the financial industry. This article examines Smart Finance as a case study to investigate the development of interdisciplinary studies within finance and economics universities and the cultivation of versatile talents suited to this emerging field. It posits that the rise of the digital economy has intensified the demand for multidisciplinary integrated talents, underscoring the necessity of a comprehensive multidisciplinary curriculum system. The teaching of Smart Finance is characterized by several key features, including an integrated multidisciplinary curriculum, practice-oriented teaching methods, and the promotion of innovative thinking and problem-solving skills. Future Smart Finance education must emphasize the integration of interdisciplinary knowledge, the development of practical skills, and the enhancement of innovative capabilities to nurture versatile talents capable of adapting to and leading the intelligent transformation of the financial industry. This article seeks to provide theoretical support and practical guidance for the educational reform of finance and economics universities in the realm of Smart Finance.*

Keywords: *Smart Finance, Interdisciplinary Studies, Innovative Capabilities, FinTech*

1. Introduction

As the global digitalization process accelerates, Financial Technology (FinTech), particularly Smart Finance, is emerging as a pivotal force in transforming and upgrading the financial industry [1]. Smart Finance leverages modern information technologies, such as big data, artificial intelligence, and blockchain, significantly enhancing the efficiency and quality of financial services while also creating new pathways for innovation and development within the sector. In this context, universities specializing in finance and economics are encountering unprecedented opportunities and challenges. The urgent question of how to cultivate interdisciplinary talents with diverse knowledge and skills has become a critical issue that requires immediate attention. Traditional disciplines in finance and economics, including economics, management, and law, have made substantial strides in theoretical research and talent development. However, in the face of emerging fields like Smart Finance, the knowledge framework of a single discipline is insufficient to meet practical demands. Consequently, exploring and developing interdisciplinary curricula in finance and economics universities, particularly in relation to Smart Finance, is of paramount importance. Smart Finance encompasses not only the fundamental principles of finance but also integrates insights from computer science, data science, artificial intelligence, and other relevant fields. Its complexity and breadth impose heightened requirements on talent cultivation.

2. Background of Interdisciplinary Development in Finance and Economics Universities

With the accelerated progress of global digitalization, the digital economy has emerged as a significant force driving global economic and social development. According to the "China Digital Economy Development White Paper (2022)," the scale of China's digital economy represented 39.8% of GDP in 2021. The role of the digital economy within the national economy is becoming increasingly solidified, and its supportive function is becoming more evident. The development of the digital economy has not only transformed the operational modalities of traditional industries but has also given rise to numerous emerging sectors, such as financial technology, intelligent manufacturing, and digital

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healthcare. Consequently, the demand for multidisciplinary talent in these burgeoning industries is becoming increasingly urgent. As a crucial institution for cultivating economic management professionals, finance and economics universities are encountering unprecedented opportunities and challenges [2].

As a significant branch of financial technology, smart finance has undergone an intelligent, personalized, and efficient transformation of financial services through the application of modern information technologies such as big data, artificial intelligence, and blockchain. This evolution has further stimulated the exploration and implementation of interdisciplinary frameworks within finance and economics universities. Both domestic and international institutions have reported successful experiences in developing interdisciplinary smart finance programs. For instance, the Massachusetts Institute of Technology (MIT) has established the FinTech Lab, which engages in cutting-edge research in the field of financial technology through collaboration among interdisciplinary teams. Similarly, Stanford University offers a course titled "FinTech and Innovation," which encompasses multiple disciplines, including finance, computer science, and data science, with the goal of cultivating professionals equipped with multidisciplinary knowledge and skills. Domestic universities are also proactively exploring the development of interdisciplinary smart finance programs. Zhongnan University of Economics and Law has introduced majors in "Digital Economy" and "Actuarial Science," while Southwest University of Finance and Economics has launched a major in "Computational Finance." These newly established interdisciplinary majors not only address existing gaps in finance and economics education but also lay a robust foundation for the sustainable development of finance and economics universities. The government places significant emphasis on the advancement of financial technology and smart finance. In 2020, the Ministry of Education, along with four other departments, issued the "Plan for the Adjustment and Optimization of Ordinary Higher Education Disciplines and Specialties," which advocates for the digital transformation of liberal arts majors.

In 2023, the National Financial Regulatory Administration articulated clear expectations for a new standard of productivity in financial services, highlighting the necessity to fully support technological innovation and to offer comprehensive lifecycle financial services for technology-driven enterprises. These policies significantly bolster the development of interdisciplinary programs within finance and economics universities.

3. Development of Smart Finance and Its Teaching Characteristics

Smart Finance, a significant branch of FinTech, has transformed financial services through the intelligent, personalized, and efficient application of modern information technologies, including big data, artificial intelligence, and blockchain. According to the "China Financial Technology Development Report (2021)," the market size of China's financial technology surpassed one trillion yuan in 2021, with projections indicating continued growth at an annual rate exceeding 20% in the coming years. Smart Finance has not only enhanced the efficiency and accuracy of financial services but has also spurred innovation in financial products and service models. For instance, robo-advisory services deliver personalized financial consulting to clients by leveraging big data analysis and artificial intelligence technologies; intelligent risk control systems significantly improve the risk management capabilities of financial institutions through data mining and machine learning. The implementation of these technologies has not only altered the operational modes of the traditional financial industry but has also given rise to new business models and market opportunities [3]. The establishment of Smart Finance courses must comprehensively consider the characteristics of various disciplines to ensure that students systematically acquire the necessary multidisciplinary knowledge and skills. Below are several key features of Smart Finance teaching.

3.1. Interdisciplinary Integration of the Curriculum System

The curriculum design for Smart Finance should encompass fundamental and core courses across multiple disciplines, including finance, computer science, data science, and artificial intelligence. The foundational course module provides essential knowledge in finance, computer science, and data science, establishing a robust multidisciplinary theoretical base for students. The professional core course module features introductions to financial technology, intelligent advisory and asset management, intelligent risk control and credit assessment, blockchain, and digital currencies. These courses not only present the fundamental concepts and applications of Smart Finance but also explore specific technical implementations and practical case studies. Through this interdisciplinary integrated curriculum system,

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students can acquire a comprehensive mastery of the knowledge and skills pertinent to the field of Smart Finance.

3.2. Practice and Application-Oriented Teaching Methods

Teaching in Smart Finance prioritizes practice and application-oriented methodologies, enabling students to translate theoretical knowledge into practical application skills through real-world projects and case analyses. For instance, by designing an intelligent advisory system, students engage in the complete process from requirement analysis, data collection, model training, to system implementation, thereby enhancing their hands-on and teamwork capabilities. FinTech project practices and FinTech labs offer students opportunities for practical engagement, allowing them to apply their knowledge in real environments and refine their practical skills. Additionally, corporate internships and case analyses are crucial components of Smart Finance education. Through collaborations with enterprises, students are placed in financial institutions for internships, participate in actual projects, and deepen their understanding of Smart Finance through comprehensive case analyses.

3.3. Interactive and Problem-Based Learning Teaching Model

The Smart Finance program employs an interactive and problem-based learning (PBL) approach to enhance student engagement and interest. PBL involves presenting real-world problems that guide students in autonomous learning and exploration, thereby fostering their problem-solving abilities and innovative thinking. For example, designing an intelligent risk control system enables students to engage in the entire process, from requirement analysis and data collection to model training and system implementation. This project-driven teaching methodology effectively integrates theoretical knowledge with practical application through actual projects, thereby enhancing students' hands-on experience and teamwork skills. Various interactive teaching methods, such as flipped classrooms, group discussions, and online interactions, are utilized to further promote student participation and interest. For instance, online platforms can facilitate interactive learning activities, including programming exercises and data analysis. Through these pedagogical strategies, students not only acquire theoretical knowledge but also continuously refine their capabilities and skills in practical applications [4].

4. Smart Finance and the Cultivation of High-Level Talents in Finance

The emergence of Smart Finance has introduced new demands for the cultivation of financial talent. In contrast to traditional financial education, which primarily emphasizes the transmission of financial theories and foundational knowledge, Smart Finance necessitates that students acquire interdisciplinary expertise and skills. Specifically, professionals in Smart Finance must be well-versed in finance, computer science, data science, artificial intelligence, and related fields. The foundational knowledge in finance encompasses key areas such as monetary banking, financial markets, and investment, thereby establishing a robust theoretical base for students. Concurrently, the foundation of computer science includes essential components such as programming languages (e.g., Python, Java), data structures and algorithms, and database systems, equipping students with critical computer science competencies. Furthermore, the foundation of data science comprises statistics, probability theory, data mining, and machine learning, which enable students to master fundamental data processing and analysis techniques [5]. Moreover, it is imperative for professionals in Smart Finance to demonstrate the ability to apply theoretical knowledge to real-world challenges. Engaging in practical projects and case analyses allows students to convert their theoretical understanding into practical application skills. For instance, by developing an intelligent advisory system, students can engage in the entire process—from requirement analysis and data collection to model training and system implementation—thus enhancing their practical and teamwork capabilities. Additionally, FinTech project practices and FinTech laboratories offer students valuable opportunities for hands-on experience, enabling them to apply their knowledge in real-world contexts and further refine their practical competencies.

Professionals in Smart Finance must exhibit innovative thinking and problem-solving capabilities. Problem-Based Learning (PBL) enables students to engage in autonomous learning and exploration, thereby enhancing their problem-solving skills and fostering innovative thought. For example, the design of an intelligent risk control system allows students to practice the entire workflow, from requirement analysis and data collection to model training and system implementation. Project-driven teaching integrates theoretical knowledge with practical application through real-world projects, thereby improving students' hands-on experience and teamwork abilities. Furthermore, professionals in Smart

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Finance should also possess skills in interactive and interdisciplinary collaboration. Interactive teaching methods, including flipped classrooms, group discussions, and online interactions, enhance student engagement and interest. Interdisciplinary collaboration, involving partnerships with educators and peers from fields such as computer science and data science to complete joint projects, further cultivates students' interdisciplinary collaboration skills [6].

The emergence of Smart Finance presents both new opportunities and challenges in the cultivation of financial talent. Firstly, Smart Finance has catalyzed innovation in financial education. Unlike traditional financial education, which primarily focuses on theoretical knowledge, Smart Finance education emphasizes practical application. This approach enables students to translate theoretical concepts into real-world capabilities through hands-on projects and case analyses. Secondly, the advancement of Smart Finance fosters interdisciplinary integration within financial education. Professionals in this field must possess expertise in finance, computer science, data science, artificial intelligence, and other related disciplines. Consequently, this necessitates innovative curriculum design and teaching methodologies to adequately prepare students for the demands of Smart Finance. Lastly, the growth of Smart Finance has enriched educational resources and practical platforms for financial training. Collaborations with enterprises and research institutions to establish industry-academia-research platforms provide students with enhanced internship and practical opportunities, thereby increasing their understanding of industry dynamics and improving their employability. In summary, the development of Smart Finance not only drives the transformation and upgrading of the financial industry but also introduces new opportunities and challenges in the training of financial talent. By implementing an interdisciplinary integrated curriculum, practice-oriented teaching methods, and collaborative teaching models, Smart Finance education aims to cultivate versatile professionals equipped with multidisciplinary knowledge and skills, thereby offering robust support for the intelligent transformation of China's financial sector [7].

5. Conclusions

The emergence of Smart Finance is catalyzing a transformation within the financial sector, presenting both new challenges and demands for financial education. Consequently, innovation in educational models has become essential to adapt to these changes. Future financial education will emphasize the establishment of an interdisciplinary curriculum that encompasses not only fundamental and core courses in finance, computer science, data science, and artificial intelligence, but also the comprehensive mastery of knowledge and skills across these domains. This integrated educational model will enable students to grasp the complexities and nuances of Smart Finance, thereby facilitating the intelligent transformation of the financial industry. Furthermore, the innovation of teaching methodologies is pivotal for the advancement of Smart Finance education. Application-oriented teaching strategies will empower students to translate theoretical knowledge into practical problem-solving skills. Through project-based practice and case analysis, students will have the opportunity to apply their knowledge in real-world contexts, thereby enhancing their practical competencies. Additionally, the adoption of problem-based learning (PBL) and project-driven instruction will be expanded to foster students' innovative thinking and problem-solving capabilities. Collaboration between industry, academia, and research institutions is integral to the education of Smart Finance. Close partnerships with enterprises and research organizations can offer students valuable internships and practical experiences, enriching their understanding of industry dynamics and improving their employability. Such collaborations not only enhance educational resources but also provide students with practical platforms, such as FinTech labs and corporate internships, thereby supporting their holistic development.

In summary, the future of Smart Finance education will increasingly emphasize the integration of interdisciplinary knowledge, the development of practical skills, and the enhancement of innovative capabilities. Advancements in educational models will foster the cultivation of versatile talents capable of adapting to and leading the intelligent transformation of the financial industry. By implementing these strategies, Smart Finance education will establish a robust foundation of talent and intellectual support for the future advancement of the financial sector.

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