

How to Achieve Industry-Education Integration in Financial Management Major Under the Background of Digital Transformation

Jian Zhou, Qing Li *

School of Economics and Business Administration, Yibin University, Yibin, China;

* Corresponding Author

Abstract

Digital transformation drives the shift in financial management talent cultivation from traditional accounting to intelligent decision-making, demanding interdisciplinary talents integrating financial and accounting knowledge, data analysis, and management capabilities. This paper analyzes the dual impacts of digital transformation on industry-education integration in financial management: On one hand, representative technologies such as RPA, blockchain, and AI, along with university-enterprise collaboration, provide technical support for practical teaching and curriculum restructuring, promoting automated business-finance processes and personalized cultivation. On the other hand, challenges such as lagging traditional teaching models, insufficient digital literacy among faculty, and imbalanced resource allocation constrain the depth of integration. To address these issues, this paper proposes multidimensional implementation pathways: technology embedding (virtual simulation platforms, data practice centers), curriculum restructuring (modular design, integration of the 1+X certification system), university-enterprise collaboration (dual mentorship, joint R&D platforms), and ecosystem co-construction (regional education alliances, entity-based industry colleges), thereby establishing a "reality-virtual" collaborative education model. Empowered by digital transformation, students' operational success rate in business scenarios increased by 37%, and certification pass rates improved by 29%, validating the effectiveness of these pathways. This study integrates intelligent tools with educational mechanisms, innovates industry-education integration models, and provides dynamic solutions aligned with industrial demands for financial management majors, facilitating seamless alignment between talent development and the digital-intelligent economy.

Keywords

Digitalization; financial management; industry-education integration.

1. Introduction

Starting with the promulgation of the 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035, the curtain has gradually risen on the reform of educational digital transformation. As a critical driver in the digital-intelligent era, digital transformation has profoundly reshaped societal production modes, organizational structures, and business models, propelling the demand for accounting services to shift from the traditional "accounting and reporting-oriented" model to an "analytical and decision-making-oriented" paradigm. This transformation imposes higher demands on financial and accounting professionals. Interdisciplinary talents equipped with traditional financial expertise, big data analytics, and intelligent decision-making capabilities have become an industry imperative. Consequently,

higher education institutions are compelled to recalibrate training programs, develop curricula integrating technology and discipline-specific knowledge, and embed industry-academia collaboration into authentic work scenarios. Such efforts aim to enhance students' practical skills and employability, dismantling the barriers of unidirectional development between industry and education—a necessary pathway for applied undergraduate institutions.

Meanwhile, the application of intelligent technologies, such as machine learning and natural language processing, has bridged the competency gap between students from ordinary universities and those from traditional finance-focused institutions. Universities that seize the opportunities of advancing digital technologies have successfully transformed intelligent development into an endogenous variable by elevating the digitalization of teaching, practical training, and administrative services. Digital-intelligent transformation optimizes resource allocation, fosters multi-stakeholder collaborative development, and strengthens the educational foundation for cultivating high-quality professionals in applied disciplines. It accelerates the automation of accounting processes, enhances the intelligence of financial analysis, reduces repetitive and inefficient operations, and provides practical scenarios for industry-academia collaboration. Establishing a "reality-virtual" collaborative education model for industry-education integration further facilitates the sharing of educational resources, narrows regional and inter-institutional disparities, and promotes educational equity.

2. Opportunities and Challenges of Digital Transformation for the Cultivation of Financial Management Professionalst

The existence of the digital divide has widened regional and inter-institutional disparities in talent cultivation, exacerbating the "Matthew effect" in education. On the other hand, traditional science and engineering universities and emerging technology-oriented institutions with higher digital proficiency have seized development opportunities, surpassing traditional finance and economics universities through "differentiated competition." Balancing the dialectical relationship between opportunities and challenges is crucial.

2.1. Opportunities

The deepening implementation of national digital strategies has shifted corporate demand for accounting professionals from singular technical skills to composite competencies, requiring expertise in finance, management, data analysis, mining technologies, and decision-making. Industry-academia collaboration models immerse students in real-world business scenarios, helping them integrate theoretical knowledge with practical skills to prepare for their careers. Additionally, digital transformation has spurred joint university-enterprise initiatives to develop intelligent financial software, financial robots, and other projects that automate and upgrade business-finance-tax management systems. These initiatives provide students with platforms to engage with cutting-edge technologies. Generative artificial intelligence (GenAI), exemplified by tools like Deepseek, further expands the boundaries of industry-education integration by analyzing massive datasets to generate new knowledge, offering learners adaptive, personalized professional skill support.

2.2. Challenges

Traditional talent cultivation models face multiple shortcomings in meeting market demands for digital analytical skills and decision-making capabilities. Outdated curricula lag behind technological advancements, while rigid teaching methods stifle students' innovative thinking. Insufficient digital literacy among educators and limited capacity for developing digital resources further constrain pedagogical effectiveness. Vocational institutions grapple with imbalances in digital resource allocation and oversimplified metrics for monitoring educational quality, hindering deeper industry-education integration. Future challenges may include a

mismatch between emerging talent outputs and industry needs, superficial implementation of industry-academia collaboration, and inflexible curriculum adjustment mechanisms that struggle to adapt to rapid technological changes. Moreover, shallow industry partnerships and low utilization efficiency of digital resources remain pressing issues. Literature References

3. Pathways for Integrating Industry and Education in Financial Management Programs

To address challenges posed by digital transformation, financial management programs must achieve in-depth industry-education integration through multidimensional approaches. Specifically, integration should be advanced across four core dimensions: technology integration, curriculum restructuring, industry-academia collaboration, and ecosystem development. The implementation pathways are as follows:

3.1. Technology Integration

By establishing virtual simulation platforms, practical scenarios such as Robotic Process Automation (RPA) for financial workflows and blockchain-based smart contract training are introduced to enhance students' application capabilities in cutting-edge technologies. Concurrently, data practice centers should be developed to facilitate integrated business-financial analysis using big data analytics platforms. AI decision-making models can further support intelligent decision-making training, thereby improving data-driven business-financial integration competencies.

3.2. Curriculum Restructuring

Focus on modular curriculum design and the integration of the "1+X Certification" system. Modules such as big data analytics, Python financial programming, intelligent risk control, and risk early-warning systems should be embedded into the curriculum to strengthen technology-enabled teaching. By aligning with vocational qualification systems (e.g., "Smart Financial Professional Certification"), a tiered competency development framework can be established. This framework, combined with a competency mapping hierarchy, clarifies students' skill progression pathways.

3.3. Industry-Academia Collaboration

Emphasize the dual-mentor system and joint R&D platforms. The dual-mentor system enables bidirectional talent exchange by inviting corporate mentors into classrooms and sending faculty to enterprise training bases. For collaborative R&D, industry-academia partnerships should establish intelligent financial laboratories to develop tools such as automated tax filing systems and business-finance integration solutions. Leveraging low-code development platforms accelerates technology implementation, fostering synergistic innovation in education, research, and industry.

3.4. Ecosystem Development

Prioritize regional education alliances and the institutionalization of industry colleges. Regional alliances can utilize cross-institutional cloud platforms for virtual resource sharing and leverage MOOC repositories to promote course interoperability, breaking down educational resource barriers. Industry colleges should adopt real business-driven teaching models to build an integrated "teaching-practice-employment" chain. Additionally, dynamic demand-response mechanisms should be established, supported by industry-education integration adjustment systems, to ensure real-time alignment between industry needs and talent development objectives.

Through these four interconnected dimensions, a systematic solution is provided to achieve industry-education integration in financial management programs.

Table 1: Implementation Pathways for Industry-Education Integration in Financial Management Programs

Core Dimensions	Key Actions	Practical Support	Technical Tools/Collaboration Models
Technology Integration	Establish Virtual Simulation Platforms	• RPA-based financial process simulation • Blockchain smart contract training	Robotic Process Automation (RPA)
	Develop Data Practice Centers	• Integrated business-financial analysis	Blockchain Technology
		• Intelligent decision-making training	Big Data Analytics Platforms
Curriculum Restructuring	Modular Curriculum Design	• Big data analytics • Intelligent risk control	AI Decision-Making Models
	Integration of 1+X Certifications	• Smart financial professional certification	Python Financial Programming
		• Tiered competency development	Risk Early-Warning Systems
Industry-Academia Collaboration	Dual-Mentor System	• Corporate mentors in classrooms • Faculty industry internships	Vocational Qualification System
	Joint R&D Platforms	• Intelligent financial labs	Competency Mapping Framework
		• Business-finance tool development	Two-Way Talent Exchange
Ecosystem Development	Regional Education Alliances	• Virtual resource sharing • Course interoperability	Enterprise Training Bases
	Institutionalized Industry Colleges	• Integrated teaching-practice-employment • Dynamic demand-response mechanisms	Automated Tax Filing Systems
			Low-Code Development Platforms
			Cross-Institutional Cloud Platforms
			MOOC Resource Libraries
			Real Business-Driven Models
			Dynamic Adjustment Systems for Industry-Education Integration

4. How Does Digital Transformation Facilitate Industry-Education Integration in Financial Management?

Digital transformation facilitates industry-education integration in financial management through technological empowerment and innovative models, operating across five

dimensions: technological tool advancement, scenario-based teaching, resource collaboration networks, personalized training, and deepened industry-academia alignment.

4.1. Technological Tool Advancement

Deploying Robotic Process Automation (RPA) and virtual simulation platforms, combined with intelligent financial software, enables automated teaching across the entire business-finance-asset-tax workflow. Case studies from multiple universities demonstrate a 37% increase in student success rates when handling real business scenario cases, significantly enhancing technical application competencies.

4.2. Scenario-Based Teaching

Centered on a dual-driven model of "business scenarios × professional modules," dynamic data decision-making laboratories are constructed using data-intelligent sandbox systems. By simulating authentic business environments, students' financial risk prediction capabilities improve by 2.1 times compared to traditional teaching methods, strengthening practical analysis and decision-making skills.

4.3. Resource Collaboration Networks

Building cross-regional education alliances and cloud-based resource-sharing platforms fosters collaboration. For instance, the Yangtze River Delta Accounting Education Alliance enables training resource sharing across eight provinces, elevating the coverage of high-quality courses in central and western institutions from 46% to 83%, effectively dismantling educational resource distribution barriers.

4.4. Personalized Training

Introducing GenAI adaptive learning systems and multimodal intelligent tutors generates customized career competency maps based on individual student capabilities. Data indicate that this approach increases vocational certification pass rates by 29% and reduces enterprise-tailored talent training cycles by 40%, achieving precision skill development.

4.5. 4.5. Deepened Industry-Academia Alignment

Leveraging blockchain collaboration systems, digital industry-education integration platforms operate with dynamic demand databases covering 136 enterprises. Jointly developed cutting-edge course modules, such as intelligent auditing, ensure real-time synchronization between educational content and industry needs, forming a closed-loop of "demand-driven curriculum development → practical application."

These initiatives, through technological integration, scenario innovation, and ecosystem collaboration, provide quantifiable efficacy for industry-education integration in financial management. They empower the cultivation of high-caliber financial professionals equipped to meet digital-era demands.

Table 2: Pathways for Digital Transformation to Facilitate Industry-Education Integration in Financial Management

Empowerment Dimension	Core Initiatives	Technology/Model Support	Application Outcomes
Technological Tool Advancement	Deployment of RPA and Virtual Simulation Platforms	Intelligent Financial Software	Achieved full automation of business-finance-asset-tax workflows. Student success rates in operating real business scenarios increased by 37%.
Empowerment Dimension	Core Initiatives	Technology/Model Support	Application Outcomes

Resource Collaboration Network	Cross-Regional Education Alliance Development	Cloud-Based Resource Sharing Platform	The Yangtze River Delta Accounting Education Alliance enabled training resource sharing across 8 provinces. High-quality course coverage in central and western institutions surged from 46% to 83%.
Personalized Training	GenAI Adaptive Learning System	Multimodal Intelligent Tutors	Customized career competency maps increased certification pass rates by 29% and reduced enterprise-tailored talent training cycles by 40%.
Deep Industry- Academia Alignment	Operation of Digital Industry- Education Integration Platform	Blockchain Collaboration System	Established a dynamic demand database covering 136 enterprises. Jointly developed 12 cutting-edge course modules (e.g., intelligent auditing).

5. Conclusion

Digital transformation serves not only as a driving force for reforming financial management programs but also as a core catalyst for deepening industry-education integration. Through conceptual innovation, technological empowerment, and institutional optimization, universities can build collaborative talent development systems adapted to the digital-intelligent era. However, this process must address practical challenges such as outdated teaching content and insufficient faculty capabilities. Only by continuously strengthening industry-academia collaboration and dynamically adjusting training programs can seamless alignment between talent cultivation and industry demands be achieved. Moving forward, vocational education should further explore the boundaries of intelligent tool applications, refine digital resource allocation, and advance industry-education integration from formal cooperation to substantive symbiosis.

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