

Research on Competency Model Construction and Training System for Cross-Border Digital Economy Finance and Economics Talents from a Demand-Side Perspective

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Abstract: With the deep penetration of digital technologies and the acceleration of globalization, the cross-border digital economy is reshaping the structure and behavioral patterns of the demand side, driving comprehensive transformations in consumption methods, business operations, and industrial value chains. Against this backdrop, the competency structure of traditional finance and economics professionals struggles to meet the market's emerging demands for data-driven decision-making, cross-domain integration, and strategic agility. From a demand-side perspective, this paper systematically analyzes the new competency requirements for finance and economics talents in the cross-border digital economy. It constructs a multi-layered competency model centered on professional expertise, supported by digital literacy and cross-boundary integration capabilities, and guided by innovative thinking and sustainable development competencies. Accordingly, it proposes talent cultivation pathways that integrate curriculum systems, optimize teaching resources, deepen industry-academia-research collaboration, and refine evaluation mechanisms. The aim is to provide theoretical reference and practical guidance for innovating the training systems for finance and economics professionals.

Keywords: cross-border digital economy; demand-side; finance and economics talents; competency model; training system

Introduction

The rise of the cross-border digital economy has profoundly reshaped the global business landscape, with structural transformations on the demand side imposing entirely new competency requirements on finance and economics talents. Traditional training models, which primarily emphasize the one-way transmission of specialized knowledge, struggle to address the dynamic, personalized, and increasingly complex trends of market demand. This results in a significant structural misalignment between talent supply and the demands of the market. Exploring the construction of a demand-side-oriented competency model and the optimization of training systems for finance and economics professionals is not only a critical measure to alleviate issues of talent shortages and mismatches but also an essential requirement for advancing finance and economics education to adapt to digitally-driven globalization. By deconstructing the specific impacts of demand-side changes on competency dimensions, this study systematically develops a competency framework and designs implementation pathways. Its aim is to provide a systematic approach for theoretical innovation and practical reform in the cultivation of finance and economics talents.

1. Transformation of the Demand Side in the Cross-Border Digital Economy and New Talent Competency Requirements

1.1 The Structural Impact of Digital Economy Development on the Demand Side

The deep penetration of digital technologies has triggered a fundamental transformation on the demand side. Consumption behaviors and business operation methods under the traditional economic model have been systematically reshaped. Data, as a new type of production factor, with its capacity for flow and analysis, has become the core force driving the evolution of market demand. The demand side

is no longer merely a passive endpoint receiving products and services. Instead, through channels such as digital platforms, social media, and online communities, it actively participates in the processes of value creation and definition. This shift has caused the expression of market demand to evolve from centralized and standardized forms towards fragmented, personalized, and real-time dynamics.

This structural impact is further manifested in the reconstruction of the industrial value chain. Dynamic data feedback from the demand side can be transmitted directly and rapidly to stages such as research and development, production, and logistics, giving rise to consumer-centric new business models. Against this backdrop, the complexity of cross-border economic activities has increased significantly, with traditional linear supply chains transitioning toward digitalized and networked value ecosystem. Enterprises must adapt to this high-frequency iteration and precision response rhythm driven by demand-side data, which imposes unprecedented demands for adaptability and foresight on the financial functions that serve corporate decision-making and strategy^[1].

1.2 Evolution of Cross-Border Business Models and Transformation of Talent Demand

The vigorous development of the cross-border digital economy is driving the evolution of business models from traditional import-export trade toward diversified, platform-based, and agile directions. Emerging models such as cross-border e-commerce, digital service exports, global remote collaboration, and distributed manufacturing have become mainstream. These models rely on highly interconnected digital infrastructure, enabling small-scale, high-frequency, and customized global transactions, which significantly blur the physical borders that once constrained commercial activities. The core of business logic has shifted from controlling channels and resources to the integration and optimization of data flows, information streams, and capital flows.

Profound transformations in business models have directly led to a qualitative shift in the demand for finance and economics talents. Traditional financial personnel, who were equipped to handle accounting standards and tax issues within a single country, are now struggling to cope with the complex compliance and risk management challenges posed by multi-jurisdictional, multi-currency, and multi-regulatory environments. Emerging business models require finance and economics talents to move beyond traditional bookkeeping and reporting functions. They must possess a deep understanding of the operational logic of digital platforms, global payment and clearing systems, and the regulatory frameworks governing cross-border data flows. The focus of talent demand has shifted from execution and accounting to strategic analysis, risk early warning, and global resource allocation.

1.3 New Dimensions of Talent Competencies Driven by the Demand Side

In a market environment driven by the demand side, the competency framework for finance and economics talents must incorporate new critical dimensions. The first is the dimension of data literacy. This requires talents not only to possess the ability to interpret financial data but also to master the skills for integrating and analyzing heterogeneous data from multiple sources, such as market operations and consumer behavior. Through data mining and modeling to reveal commercial insights and support strategic decision-making, this has become the core pathway for finance functions to create value. The capability for data-driven decision-making has transitioned from an additional skill to a fundamental requirement^[2].

The second dimension involves interdisciplinary integration and business insight. The cross-integration of financial expertise with fields such as digital technology, marketing, and supply chain management has become critically important. Professionals must comprehend the operational mechanisms of the entire business ecosystem, enabling them to combine financial metrics with non-financial information, qualitative judgment with quantitative analysis, to form comprehensive assessments of business health and growth potential. This capability ensures that financial work can be genuinely embedded within business processes, serving the entire value creation chain rather than remaining confined to ex-post reflection and supervision.

1.4 Competency Demands of Globalization and Digitalization Integration

The deep integration of globalization and digitalization has shaped a new normal of borderless business operations. This convergence places a demand for composite competencies in finance and economics talents, with the core requirement being the ability to navigate complexity and uncertainty. Coordinating resources, managing teams, and responding to market volatility on a global scale

necessitate that professionals possess exceptional cross-cultural communication and collaboration skills. This capability extends beyond mere language proficiency, delving into a profound understanding and respect for diverse business practices, legal environments, and social norms.

The deeper-level competency demands manifest in strategic agility and innovative thinking. The digital global market is constantly in flux, with new technologies, business models, and competitors continuously emerging. Finance and economics professionals must possess systems thinking, enabling them to foresee the potential impacts of global trend shifts on financial strategies and proactively drive innovation in financial processes and tools to adapt to these changes. This requires them to be not merely a technical specialist, but also a business partner with a global perspective and strategic foresight, capable of identifying opportunities, assessing risks, and guiding organizations to make sound yet agile financial decisions within the intricate landscape of global digitalization.

2. Deconstruction of the Demand-Side-Oriented Core Competency Model for Finance and Economics Talents

2.1 Theoretical Foundation and Framework Design of the Core Competency Model

The construction of the demand-side-oriented core competency model is rooted in the deep evolution of dynamic capabilities theory and human capital theory within the digital context, while also integrating core perspectives from complex adaptive systems theory. This theoretical framework emphasizes that organizations and individuals, in response to the high uncertainty inherent in the cross-border digital economy environment, must develop a system of dynamic capabilities that enables rapid identification of market signals, reconfiguration of resource layouts, and continuous iterative updating. The model design breaks through the static limitations of traditional competency lists, shifting focus towards the non-linear interactions and synergistic evolution mechanisms among various competency elements. It particularly aims to delineate the adaptability and creative problem-solving abilities demonstrated by talents when navigating the complexities of cross-border business. The logical starting point for framework construction is placed on the entire value-creation process within the cross-border digital economy ecosystem. By reversely deconstructing the critical nodes of value realization, it ensures that each competency element forms a precise mapping relationship with market demands.

This competency framework exhibits a multi-layered, multidimensional, and internally interconnected systemic architecture. The core layer focuses on the in-depth development of finance and economics professional capabilities, encompassing traditional areas of expertise such as international financial reporting and cross-border capital operations, which constitute the stable foundation of the competency system. The intermediate layer integrates interdisciplinary capabilities, including digital technology application, understanding of business processes, and cross-cultural coordination, serving as a crucial nexus for translating professional capabilities into value. The peripheral layer emphasizes strategic foresight, sustainability assessment, and leadership in innovation and change, shaping the long-term trajectory of talent competency evolution^[3]. This concentric layered architecture not only reflects the inherent logical sequence of competency formation but also, through bidirectional enabling mechanisms across the layers, constructs an elastic competency network capable of dynamically adjusting to shifts in market demand. This provides a systematic guiding framework for talent cultivation and evaluation.

2.2 Elements of Professional Competence and Interdisciplinary Integration Capabilities

Within the dimension of professional competence, the cross-border digital economy imposes unprecedented demands for both depth and breadth on finance and economics talents. Professional depth is reflected not only in the proficient mastery of International Financial Reporting Standards, multi-jurisdictional tax regulations, and cross-border capital management but also extends to professional judgment in emerging areas such as digital asset valuation and the accounting treatment of smart contracts. This knowledge system must be built upon a thorough understanding of the global financial market regulatory framework and the ability to flexibly respond to regulatory differences across jurisdictions in areas like data privacy and digital service taxation. The value manifestation of professional competence has shifted from mere technical compliance to providing forward-looking risk warnings and value assessment support for cross-border business decisions through professional analysis.

The element of interdisciplinary integration capability serves as the critical transformer that multiplies the value of professional competence. Its essence lies in constructing cognitive bridges and solution interfaces between finance and economics expertise and other disciplinary fields. This capability requires finance and economics professionals to translate technical language into financial implications, convert market data into investment insights, and transform operational processes into risk control checkpoints, thereby forming a business comprehension framework centered on finance and economics. It is concretely demonstrated in the ability to evaluate the transformative value of blockchain technology on settlement processes, analyze the marginal benefits of digital marketing investments, or design fund management solutions adaptable to flexible supply chains^[4]. The hallmark of maturity in this interdisciplinary capability is the formation of a "Finance Plus" mindset. This means maintaining professional depth while possessing the systems thinking ability to redefine financial and economic issues from multidisciplinary perspectives and to integrate innovative solutions. Consequently, such professionals can play the central role of value integrators within the cross-border digital business ecosystem.

2.3 Composition of Digital Literacy and Data Analysis Capability

Digital literacy constitutes the foundational prerequisite for working in digital environments, which far transcends mere proficiency in basic office software. Its essence encompasses an understanding of the fundamental principles of cutting-edge digital technologies—such as cloud computing, blockchain, and artificial intelligence—and their potential applications within the finance and economics domain. It also involves awareness of data privacy, cybersecurity, and digital ethics. Finance and economics professionals with robust digital literacy can interact efficiently with technological tools and anticipate the potential disruptive impact of technological change on financial workflows and business models.

Data analysis capability represents the advanced manifestation of digital literacy at the decision-making level, with its core lying in the ability to transform massive data into strategic assets. This competency encompasses a series of technical skills, including data collection and cleansing, multi-dimensional data modeling, statistical analysis, and visual presentation. At a deeper level, analytical capability requires finance and economics talents to construct data-based predictive models, conduct scenario simulations and risk projections. This thereby provides a quantitative foundation for market entry, pricing strategies, and investment decisions in cross-border operations, driving the transformation of the decision-making paradigm from experience-oriented to data-driven.

2.4 Requirements for Innovative Thinking and Sustainability Competency

Innovative thinking plays the role of driving change within the competency model, requiring finance and economics professionals to break free from the constraints of established processes and patterns. In the context of the cross-border digital economy, this mindset manifests as the ability to design novel financing solutions, optimize global tax structures, and develop data-driven financial products and services. Innovation is not fanciful or unfounded; rather, it is built upon profound professional expertise and keen insight into market pain points. It constitutes a systematic, value-creation-oriented problem-solving methodology aimed at addressing cross-border business challenges that traditional financial and economic approaches cannot resolve.

Sustainability competency requirements shift the perspective of finance and economics talents toward long-termism and systemic responsibility. This encompasses not only an understanding of how environmental, social, and governance factors impact an enterprise's long-term financial performance and valuation but also necessitates the internalization of ESG principles into the processes of investment analysis, risk management, and strategic planning. This capability ensures that financial and economic decisions, while pursuing economic value, can also account for their externalities within broader social and environmental systems. Consequently, it safeguards an organization's sustained legitimacy and competitive advantage in a global market increasingly focused on integrated value.

3. Integration and Implementation Pathways for the Finance and Economics Talent Cultivation System Based on the Competency Model

3.1 Theoretical Basis and Goal Orientation for Cultivation System Integration

The theoretical foundation for constructing an integrated cultivation system lies in the combination

of constructivist learning theory and systems engineering philosophy. Constructivism emphasizes the importance of learners actively constructing their knowledge systems within authentic or near-authentic task contexts, which aligns closely with the comprehensive problem-solving abilities required by the cross-border digital economy. The systems engineering philosophy, on the other hand, necessitates viewing the cultivation system as a whole. Its internal elements — including curriculum, faculty, platforms, and evaluation mechanisms — require systematic design and organic integration to achieve the emergent effect where the functionality of the whole surpasses the sum of its parts.

The overall goal of this cultivation system is to shape composite-type finance and economics professionals with a global perspective, digital literacy, and cross-boundary integration capabilities. This objective is specifically broken down into three levels: at the knowledge level, it aims to achieve deep integration of core finance and economics knowledge with digital technology and international business studies; at the competency level, it focuses on strengthening data-driven decision-making and complex problem-solving abilities within simulated and real cross-border business scenarios; at the literacy level, it seeks to cultivate a lifelong learning mindset and the concept of sustainable development, enabling adaptation to changes in the global business environment^[5]. This target system provides clear direction for subsequent curriculum design and resource allocation.

3.2 Curriculum Design and Synergistic Optimization of Teaching Resources

The optimization of the curriculum system follows a modular architecture designed around "Core, Specialization, and Frontier" components. The core module solidifies the theoretical foundation in international finance, accounting, and economics. The specialization module offers thematic courses centered on emerging fields such as cross-border e-commerce finance, intelligent risk control, and digital taxation. The frontier module dynamically incorporates proactive content like blockchain finance and ESG investment. This modular design ensures both the systematic nature and the flexibility of the knowledge system, enabling rapid iteration and real-time updates in response to industry and technological changes.

The synergistic optimization of teaching resources serves as the supporting guarantee for the effective delivery of curriculum content. Its focus lies in constructing an integrated digital teaching platform that incorporates case libraries, data analysis tools, and virtual simulation experiment systems. This platform should aggregate authentic, de-identified data from global capital markets and cross-border transaction platforms, providing students with a highly simulated decision-making environment. Simultaneously, the development of the faculty team must transcend traditional academic boundaries by introducing industry experts with experience in multinational corporations or hands-on backgrounds in digital projects, thereby forming a teaching team that combines theoretical depth with practical breadth.

3.3 Cultivation of Practical Capabilities and the Industry-Academia-Research Integration Mechanism

The forging of practical capabilities must be achieved through tiered, immersive teaching components. At the foundational level, basic operational and analytical skills are cultivated through the analysis of case studies using real business data, business simulation exercises, and financial modeling competitions. At the advanced level, reliance is placed on a highly simulated cross-border business virtual simulation platform. This allows students to engage in full-process decision-making within simulated complex tasks such as multi-currency settlement, cross-border mergers and acquisitions, and tax planning, thereby fostering their strategic thinking and risk response capabilities^[6].

The key to deepening the industry-academia-research integration mechanism lies in constructing a closed-loop ecosystem for knowledge creation, transformation, and application. This necessitates establishing structured collaborative partnerships with industry associations, leading enterprises, and research institutions to jointly establish joint laboratories or innovation workshops. Within this framework, enterprises provide cutting-edge business challenges and data resources, academic institutions contribute theoretical frameworks and research support, while students participate in project initiatives under dual mentorship. This model not only seamlessly connects academic frontiers with industrial practice but also catalyzes students' innovative potential through the process of solving real-world problems.

3.4 Training Effectiveness Evaluation and Continuous Improvement Pathways

The evaluation of training effectiveness should transcend the single dimension of traditional course examination scores, shifting towards a multidimensional comprehensive assessment system. This system must integrate multi-source information, including assessments of course knowledge, outcomes from project-based practice, evaluations of competencies and literacy, and long-term tracking of career development. Particularly, it requires the introduction of behavioral indicators based on the competency model to objectively evaluate students' implicit abilities—such as critical thinking in complex projects, cross-boundary collaboration, and innovative solution generation—thereby comprehensively portraying the quality of talent cultivation.

The continuous improvement pathway relies on a data-driven feedback and optimization mechanism that operates throughout the entire cultivation process. This mechanism systematically collects feedback data from students, faculty, employers, and alumni, and conducts comprehensive analysis in conjunction with socio-economic and technological development trends. The evaluation results are used to accurately identify gaps and lagging points within the curriculum system, teaching content, and practical components. This, in turn, triggers updates to course content, reforms in teaching methodologies, and upgrades to practical platforms. This closed-loop management mechanism ensures that the talent cultivation system possesses the vitality for self-evolution, enabling it to respond sensitively and effectively to dynamic changes in external demand.

Conclusion

This study, from a demand-side perspective, systematically constructs a competency model for finance and economics talents within the context of the cross-border digital economy and proposes corresponding integrated pathways for the cultivation system. The research indicates that the competencies of finance and economics talents must undergo a comprehensive transformation—from professional depth to interdisciplinary integration, from tool operation to data-driven capabilities, and from static execution to innovation leadership. Correspondingly, the cultivation system requires support through modular curricula, immersive practical experiences, and closed-loop evaluation mechanisms. Future research could further explore the weight relationships and dynamic evolution mechanisms among the various elements within the competency model. It could also conduct in-depth analysis of differentiated implementation strategies for cultivation pathways across different regions and industry contexts. Furthermore, continuous validation and optimization of the model's effectiveness and adaptability through dynamic tracking are essential to promote the deep synergy between the cultivation of finance and economics talents and the demands of the digital economy.

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