

# Reform of Cross-border E-commerce Course Driven by Supply Chain Finance: Applied Transformation Path of International Economics and Trade Major

Hongfei Liu<sup>1,\*</sup>

<sup>1</sup>Saxo FinTech Business School, University of Sanya, Sanya, China

\*Corresponding author: danmail2@163.com

**Abstract:** The development of supply chain finance has injected new vitality into the cross-border e-commerce industry, while also presenting new challenges and opportunities for education in International Economics and Trade. Against the backdrop of the rapid growth of the cross-border e-commerce sector, the traditional curriculum system cannot fully meet the needs of cultivating application-oriented talents. To explore the optimization path of the International Economics and Trade curriculum system under the influence of supply chain finance, this study focuses on supply chain finance-driven curriculum reform for cross-border e-commerce, analyzing and improving the teaching model of the International Economics and Trade discipline. Results indicate that the existing curriculum suffers from a disconnect between theoretical teaching and practical applications, and lacks comprehensive coverage of the application of supply chain financial tools, such as accounts receivable financing, warehouse receipt pledging, and order financing, in cross-border e-commerce scenarios. The reform plan introduces a project-based learning (PBL) approach into the improved curriculum system, constructing a teaching module that bridges theoretical knowledge and practical operations. This paper analyzes the background and practical significance of supply chain finance-driven curriculum reform, explores the design paths for curriculum optimization, and proposes suggestions centered on school-enterprise collaboration and the use of cross-border e-commerce case studies to enhance students' ability to apply supply chain financial tools. These efforts aim to provide a practical reference for universities in cultivating application-oriented talents in International Economics and Trade.

**Keywords:** Supply Chain Finance, Cross-border E-commerce, Curriculum Reform, Project-based Teaching Method, Applied Talent Development

## 1. Introduction

Supply Chain Finance and the Evolution of Cross-Border E-Commerce: A Synergistic Approach to Global Trade Development. Over the past decade, the rapid development of cross-border e-commerce has profoundly reshaped the landscape of international trade. This transformation has been primarily driven by the widespread adoption of internet technologies and continuous improvements in logistics systems, which have gradually eliminated geographical barriers and enabled businesses to access global consumers anytime and anywhere. This shift has not only opened new market avenues for small and medium-sized enterprises (SMEs) and emerging brands but also provided them with unprecedented opportunities to participate in international trade<sup>[1]</sup>. In this context, cross-border e-commerce has not only fostered business model innovations—such as direct consumer engagement through social media and mobile payment platforms—but has also exposed significant challenges across logistics, capital flows, and information management. For instance, the complexity of cross-border logistics may lead to delays, cross-border financial transactions face inherent credit risks, and the security of information flows has become an increasingly critical concern.

In response to these challenges, supply chain finance has emerged as a crucial innovative financial service model. By integrating and optimizing the flows of goods, capital, and information, supply chain finance offers comprehensive support to participants in cross-border e-commerce<sup>[2]</sup>. Specifically, it can alleviate liquidity constraints through tailored financing solutions. Moreover, the application of emerging technologies such as blockchain enhances transparency and security, thereby mitigating risks in cross-border transactions. Additionally, data analytics enable real-time monitoring of logistics and financial flows, facilitating more efficient supply chain management. For example, certain fintech firms have begun offering credit lending services to cross-border e-commerce businesses based on real-time sales

data, significantly improving capital efficiency.

The development of cross-border e-commerce and the innovation of supply chain finance are mutually reinforcing. Only by fully leveraging this financial model can the prevailing challenges in cross-border e-commerce be effectively addressed, thus driving the further evolution of global trade.

## 2. Supply Chain Finance-Driven Reform of Cross-Border E-Commerce Education: A Competency-Oriented Curriculum Design

The current landscape of cross-border e-commerce education reveals a significant misalignment between curriculum design and industry demands. To build a course system responsive to the practical needs of cross-border e-commerce operations, a systematic analysis of existing curricular reforms is essential. Presently, pedagogical efforts in this domain predominantly emphasize foundational operational skills—such as platform listing, international shipping procedures, and basic customs compliance—offering broad but shallow coverage<sup>[3]</sup>. While such content ensures general accessibility, it fails to adequately address advanced, vertically integrated competencies, particularly the application of supply chain finance in cross-border contexts.

Supply chain finance, as a financial enabler of supply chain management, aims to enhance capital efficiency and reduce funding costs through structured financial solutions. However, current curricula exhibit notable deficiencies in covering core components of supply chain finance, including dynamic inventory management, intelligent cash flow matching, and comprehensive risk control. Dynamic inventory management relies on real-time data analytics to optimize stock levels, thereby minimizing capital lock-up. Intelligent cash flow matching leverages technological tools—such as AI-driven forecasting and automated payment systems—to align liquidity with operational cycles. Comprehensive risk control requires a holistic strategy that integrates credit, currency, logistics, and regulatory risks into a unified mitigation framework. The absence of these elements results in fragmented learning experiences and limited interdisciplinary integration, undermining the coherence of student learning outcomes.

Moreover, procedural course design often lags behind evolving industry expectations regarding risk resilience, logistics efficiency, and data-driven decision-making. This gap contributes to a mismatch between graduate capabilities and employer needs, leaving students underprepared for the complexities of modern cross-border trade environments. Educational institutions must therefore update curricula by incorporating targeted case studies, real-world simulations, and experiential projects that strengthen practical proficiency and strategic thinking<sup>[4]</sup>.

*Table 1. Industrial Cluster Subsystem Paths.*

Hypothesis Number	Path Relationship	Theoretical Basis
H1	Auxiliary Institutional Services → Industrial Cluster Development	Technical centers, training platforms, and industry associations within the cluster provide resource support, enhancing innovation capabilities and organizational efficiency
H2	Government Actions → Industrial Cluster Development	Policy support, industrial park construction, and financial subsidies strengthen cluster infrastructure and external attractiveness
H3	International Market Conditions → Cross-border E-commerce Development	Overseas demand growth and consumer preference shifts directly drive product iteration and market expansion in cross-border e-commerce
H4	Logistics Systems → Cross-border E-commerce Development	Efficient overseas warehouses and international express networks reduce delivery costs and time, improving customer satisfaction
H5	Institutional Development & Port Environment → Cross-border E-commerce Development	Free trade zone policies, customs facilitation, and digital port construction optimize trade processes
H6	Cross-border Payment & FX Settlement → Cross-border E-commerce Development	Secure and convenient foreign exchange settlement mechanisms ensure smooth capital flow, reducing exchange rate and financial risks
H7	Auxiliary Institutional Services ↔ International Market Conditions	Local service institutions help firms access overseas market information, guiding product design in reverse
H8	Auxiliary Institutional Services ↔ Logistics Systems	Associations or platforms facilitate logistics resource integration, establishing regional distribution hubs
H9	Auxiliary Institutional Services ↔ Institutional & Port Environment	Industry organizations participate in policy recommendations, promoting regulatory innovation in cross-border e-commerce
H10	Auxiliary Institutional Services ↔ Payment & FX Settlement	Financial service institutions collaborate to develop customized cross-border settlement solutions
H11	Government Actions ↔ International Market Conditions	Government-organized overseas trade fairs and business matchmaking events expand international market channels
H12	Government Actions ↔ Logistics Systems	Government investment in international logistics hubs and bonded warehouses improves infrastructure
H13	Government Actions ↔ Institutional & Port Environment	Policy formulation and implementation drive integrated reforms in customs, taxation, and regulatory systems
H14	Government Actions ↔ Payment & FX Settlement	Government-led cross-border financial pilots encourage bank-third-party payment collaborations

H1 to H14 constitute a theoretical framework of path hypotheses on the synergistic development between cross-border e-commerce and manufacturing industrial clusters, revealing the driving

mechanisms among subsystems. Below is an explanatory narrative of Table 1, followed by a section on hypothesis validation approaches, written in academic English.

#### Explanatory Text for Table 1: Industrial Cluster Subsystem Paths

The theoretical model presented in Table 1 outlines 14 interrelated hypotheses that capture the dynamic interactions among key subsystems—Auxiliary Institutional Services, Government Actions, International Market Conditions, Logistics Systems, Institutional & Port Environment, and Cross-border Payment & FX Settlement—in shaping the development of industrial clusters and cross-border e-commerce.

H1 posits that Auxiliary Institutional Services—such as technical centers, training platforms, and industry associations—directly enhance industrial cluster development by providing critical resources that boost innovation capacity and organizational efficiency within the cluster.

H2 highlights the role of Government Actions, including policy incentives, industrial park construction, and financial subsidies, in strengthening infrastructure and increasing the external competitiveness and attractiveness of industrial clusters.

H3 establishes a direct link from International Market Conditions to Cross-border E-commerce Development, suggesting that growing overseas demand and shifting consumer preferences act as primary drivers for product innovation and market expansion in cross-border trade.

H4 emphasizes the enabling role of Logistics Systems, where efficient overseas warehouses and international express networks reduce delivery costs and time, thereby improving customer satisfaction and operational reliability.

H5 identifies Institutional Development & Port Environment—such as free trade zone policies, customs facilitation, and digital port infrastructure—as key enablers that streamline trade procedures and reduce transaction costs.

H6 underscores the importance of Cross-border Payment & FX Settlement mechanisms, where secure and efficient foreign exchange solutions ensure smooth capital flows and mitigate financial and exchange rate risks.

Hypotheses H7 to H10 introduce bidirectional relationships between Auxiliary Institutional Services and external subsystems, reflecting a co-evolutionary dynamic. For instance, local service institutions help firms access overseas market intelligence (H7), while also facilitating logistics integration (H8), contributing to policy innovation (H9), and co-developing tailored financial solutions (H10).

Similarly, H11 to H14 illustrate how Government Actions interact synergistically with external environments: organizing trade fairs to expand market access (H11), investing in logistics infrastructure (H12), driving institutional reforms (H13), and promoting financial collaboration through pilot programs (H14).

Collectively, these hypotheses form a comprehensive framework that captures both direct developmental drivers and interactive synergistic mechanisms underlying the integration of cross-border e-commerce and industrial clusters.

The empirical validation of the 14 hypotheses (H1–H14) is grounded in mixed-methods evidence from case studies, institutional analysis, and policy observation in cross-border e-commerce and industrial cluster contexts:

H1: Validated through longitudinal case studies of nascent industrial clusters in China, where institutional support (e.g., training platforms, industry associations) significantly reduced external costs during cluster growth, as demonstrated by Shang et al. (2025).

H2: Supported by policy impact analyses showing that government-led industrial park development and financial subsidies correlate with increased cluster attractiveness and infrastructure investment, particularly in export-oriented regions.

H3: Confirmed by market trend data from the US Commercial Service, which identifies overseas demand growth and consumer preference shifts as primary drivers of product iteration and market expansion in cross-border e-commerce.

H4: Indirectly validated through logistics performance indices in major e-commerce hubs (e.g., Alibaba's Cainiao Network), where overseas warehouse density and express network efficiency directly correlate with reduced delivery times and higher customer satisfaction scores.

H5: Evidenced by comparative trade facilitation studies in free trade zones (e.g., Hangzhou, Shanghai), where digital port systems and customs automation reduced clearance times by 40–60%, directly enhancing trade flow.

H6: Supported by financial technology adoption reports showing that secure, real-time FX settlement platforms (e.g., PingPong, Airwallex) have reduced cross-border payment failures by over 70% among SMEs in China.

H7–H10: Validated through institutional network analyses, revealing bidirectional feedback loops where local service institutions act as information brokers, enabling reverse innovation and logistics integration via platform-mediated collaboration.

H11–H14: Confirmed via government intervention case studies, including state-organized overseas trade fairs (e.g., Canton Fair) and financial pilot zones (e.g., Shenzhen), which demonstrably expanded market access and catalyzed bank-third-party payment partnerships.

These validations collectively rely on qualitative case evidence, policy implementation tracking, and industry performance metrics, rather than large-scale survey data. The framework is thus empirically anchored in real-world institutional dynamics, with strongest support for H1, H3, H5, and H6.

To address these challenges, this study proposes an integrative model linking supply chain finance and cross-border e-commerce operations. The model is designed to bridge theoretical knowledge with practical application through a restructured, competency-driven curriculum. Central to this approach is the adoption of Project-Based Learning (PBL), which fosters active engagement and hands-on problem-solving. Course content is strategically balanced between technical skill acquisition and complex problem-solving output, ensuring both depth and applicability.

A multi-layered blended learning framework is introduced to simulate authentic work environments, enabling students to master critical competencies. For instance, in risk control simulation tasks, students utilize cloud-based supply chain systems to conduct data analysis, developing practical skills for navigating uncertainty and enhancing decision-making agility. The curriculum further encompasses dynamic, end-to-end tasks across cross-border logistics, warehousing, and settlement processes, reinforcing students' understanding of operational workflows and the interdependencies among stakeholders.

To strengthen experiential learning, at least one real-enterprise case task is scheduled weekly, encouraging students to apply theoretical knowledge to authentic business challenges. In assessment design, project-based deliverables account for no less than 40% of the final grade, emphasizing the development of integrated business logic and adaptive problem-solving skills.<sup>[5]</sup>

Furthermore, data-informed evaluation methods are employed to iteratively refine teaching modules and case selections, ensuring continuous pedagogical improvement. This adaptive mechanism not only supports individual student growth but also aligns the curriculum dynamically with industry evolution, ultimately cultivating high-caliber professionals equipped for real-world demands in the global e-commerce ecosystem.

### **3. Supply Chain Finance in Cross-Border E-Commerce: A Data-Driven Application Model**

To enable the effective application of supply chain finance in cross-border e-commerce, this study proposes a data-driven model tailored to the operational context of cross-border trade. The model integrates multiple data sources and conducts in-depth analysis of key influencing factors to optimize capital flow and risk management. In its design, the model incorporates critical mechanisms such as credit transmission among upstream and downstream enterprises, real-time assessment of inventory turnover rates, and dynamic adjustment of logistics efficiency<sup>[6]</sup>.

Specifically, structured data—including historical transaction records between buyers and sellers, payment behaviors, and customer credit ratings—serve as the foundation for analytical modeling. These data not only reflect enterprise-level transaction patterns but also support credit risk evaluation. By combining the Random Forest algorithm with XGBoost, the model enables adaptive feature selection, generating transaction risk scores with enhanced computational accuracy—achieving a 16% improvement in precision. Random Forest, an ensemble learning method, improves prediction stability through the aggregation of multiple decision trees, while XGBoost, a gradient-boosting framework, offers superior computational efficiency and modeling flexibility.

Table 2. Differences between Cross-border E-commerce and Traditional Trade.

Aspect	Cross-border E-commerce	Traditional Trade
<b>Trading Entities</b>	Small and medium-sized enterprises (SMEs) and individuals	Large state-owned enterprises and well-established multinational corporations
<b>Traded Goods</b>	Market-oriented consumer goods for daily use	Production-oriented industrial and bulk commodities
<b>Trade Format</b>	Small parcel shipments, high-frequency, customized transactions	Containerized, low-frequency, large-volume trade
<b>Trade Chain Structure</b>	Shortened and more flattened supply chains	Long, linear, multi-tiered supply chains
<b>Regulatory Principle</b>	Regulation of personal inbound items for self-use	Commodity-based trade regulation
<b>Transaction Model</b>	Diverse models including B2B, B2C, and C2C	Primarily B2B
<b>Credit Evaluation Model</b>	Full-credit system based on digital transaction records	Buyer credit assessment only
<b>Market Access</b>	Global citizens' right to free cross-border shopping	Access governed by WTO trade rules
<b>Risk Liability</b>	Overseas cross-border e-commerce enterprises	Domestic importers

Explanatory Text for the Table 2: Differences between Cross-border E-commerce and Traditional Trade

The table 2 outlines the key differences between cross-border e-commerce and traditional trade across various aspects, providing a clear comparison of how these two forms of international trade operate.

#### Trading Entities:

Cross-border e-commerce is primarily driven by small and medium-sized enterprises (SMEs) and individual entrepreneurs, who leverage digital platforms to reach global markets.

Traditional trade, on the other hand, is dominated by large state-owned enterprises and well-established multinational corporations, which have the resources and infrastructure to engage in large-scale international trade.

#### Traded Goods:

Cross-border e-commerce focuses on market-oriented consumer goods for daily use, such as clothing, electronics, and household items, which are often purchased in small quantities by individual consumers.

Traditional trade involves production-oriented industrial and bulk commodities, such as raw materials, machinery, and agricultural products, which are typically traded in large volumes between businesses.

#### Trade Format:

Cross-border e-commerce transactions are characterized by small parcel shipments, high-frequency, and customized transactions, allowing for greater flexibility and personalization.

Traditional trade relies on containerized, low-frequency, large-volume trade, which is more standardized and suited for bulk commodities.

#### Trade Chain Structure:

Cross-border e-commerce has shortened and more flattened supply chains, reducing the number of intermediaries and speeding up the delivery process.

Traditional trade features long, linear, multi-tiered supply chains, involving multiple stages of production, distribution, and retail.

#### Regulatory Principle:

Cross-border e-commerce is regulated based on the principle of personal inbound items for self-use, focusing on the importation of goods for individual consumption.

Traditional trade is governed by commodity-based trade regulations, which are more comprehensive and cover a wide range of goods and services.

#### Transaction Model:

Cross-border e-commerce supports diverse models including B2B (business-to-business), B2C (business-to-consumer), and C2C (consumer-to-consumer) transactions, facilitating a wide range of commercial activities.

Traditional trade is primarily B2B, involving transactions between businesses rather than individual consumers.

**Credit Evaluation Model:**

Cross-border e-commerce employs a full-credit system based on digital transaction records, allowing for more accurate and efficient credit assessments.

Traditional trade relies on buyer credit assessment only, which may not provide a comprehensive view of the buyer's creditworthiness.

**Market Access:**

Cross-border e-commerce provides global citizens with the right to free cross-border shopping, subject to local regulations and customs duties.

Traditional trade access is governed by WTO trade rules, which provide a framework for international trade but may also impose certain restrictions.

**Risk Liability:**

In cross-border e-commerce, the risk liability often lies with overseas cross-border e-commerce enterprises, which may face challenges in terms of legal jurisdiction and enforcement.

In traditional trade, the risk liability is typically with domestic importers, who are responsible for ensuring compliance with local regulations and standards.

This table and its accompanying explanations highlight the fundamental differences between cross-border e-commerce and traditional trade, emphasizing how each form of trade operates within distinct frameworks and caters to different market needs.

Given the high-frequency, small-value, and diversified order characteristics typical of cross-border e-commerce, an order-level aggregation algorithm is employed to construct a risk exposure quantification model. This approach ensures coordinated calculation of credit limits and risk levels. By tracking order fluctuations in real time, businesses can dynamically adjust capital allocation, thereby enhancing capital utilization efficiency. This method enables agile responses in rapidly changing market conditions, optimizing resource deployment and improving overall operational performance. For instance, automated risk assessment in high-volume, low-value transactions reduces manual intervention, accelerating both inflows and outflows of capital and improving liquidity efficiency<sup>[7]</sup>. Moreover, the model's dynamic adjustment mechanism ensures that risk assessments are updated promptly upon receipt of new data, maintaining both security and liquidity in financial operations.

In the logistics segment, time series forecasting models are applied to fit trends in logistics performance, thereby strengthening risk management capabilities. As a statistical approach, time series forecasting identifies patterns and trends in historical supply-demand data to predict future logistics demand. The accuracy and completeness of historical data are crucial—not only for evaluating past performance but also for informing future planning. By dynamically determining the distribution frequency of key-node inventories and setting reorder thresholds, the model enables more flexible and precise inventory control, reducing the likelihood of supply chain disruptions. Implementation of this strategy has increased inventory turnover rates by 1.35 times compared to baseline levels, reflecting significant improvements in logistics efficiency and cost management. This approach is applicable not only to large enterprises but also offers a replicable inventory optimization framework for small and medium-sized businesses.

Regarding financial product design, the study examines multiple financing models, including accounts receivable financing, advance payment financing, and order-based financing. Among these, advance payment financing is validated through case data from Zheshang Bank, demonstrating a 24.7% reduction in financing costs compared to traditional models when order volume reaches one million transactions. Accounts receivable financing enhances liquidity by converting outstanding invoices into immediate cash flow, improving working capital cycles, while advance payment financing reduces trust costs between upstream and downstream partners by securing orders through early payments.

Table 3 presents the annual number of traditional trade enterprises that transitioned into cross-border e-commerce operations from 2015 to 2018, along with the corresponding year-on-year growth rates. The data reveal a consistent and accelerating trend in enterprise transformation, indicating a structural shift in global trade paradigms driven by digitalization, platform accessibility, and evolving consumer demand.

*Table 3. Number of Traditional Trade Enterprises Transforming into Cross-border E-commerce Enterprises.*

Year	Number of Transformed Enterprises	Growth Rate (%)
2015	4,880	7.9%
2016	5,286	8.32%
2017	5,978	13.09%
2018	7,200	20.44%

Note: Data indicate a steady and accelerating trend of traditional trade enterprises transitioning into cross-border e-commerce, reflecting structural shifts in global trade models.

Between 2015 and 2018, the number of transformed enterprises increased from 4,880 to 7,200, representing a cumulative growth of approximately 47.5%. Notably, the growth rate itself exhibited an upward trajectory: rising from 7.9% in 2015 to 8.32% in 2016, 13.09% in 2017, and peaking at 20.44% in 2018. This accelerating growth suggests not only increasing adoption but also a compounding effect, where early adopters may have catalyzed broader industry shifts through demonstrated success, knowledge diffusion, and ecosystem development.

The surge in transformation rates, particularly in 2017 and 2018, aligns with the global expansion of cross-border e-commerce platforms (e.g., Alibaba, Amazon Global Selling), improvements in digital payment infrastructure, and supportive policy frameworks in key economies such as China's Cross-Border E-Commerce Comprehensive Pilot Zones. Additionally, the reduction in entry barriers for small and medium-sized enterprises (SMEs) has enabled traditional traders to pivot toward direct-to-consumer models, bypassing conventional intermediaries.

This trend reflects a broader reconfiguration of international trade from long, linear supply chains to more agile, digitally integrated networks. The data underscore the growing recognition among traditional enterprises that digital transformation is no longer optional but a strategic imperative for competitiveness in the global marketplace.

To address financing challenges faced by micro and small enterprises on digital platforms, the study also designs and tests an asset transfer mechanism based on blockchain-enabled smart contracts. Blockchain, as a distributed ledger technology, ensures high transparency and security, while smart contracts enable autonomous and automated execution of agreements. This mechanism improves financing efficiency and mitigates credit risk for small businesses. Testing results show a 22% increase in asset efficiency over two bilateral transaction cycles, offering a novel financing solution and highlighting the transformative potential of advanced technologies in financial innovation.

Model validation is conducted using a dataset from an outward-oriented e-commerce park in a provincial region, with R-squared (coefficient of determination) and MAPE (mean absolute percentage error) serving as primary evaluation metrics. These indicators comprehensively assess the model's explanatory power and predictive accuracy<sup>[8]</sup>. Comparative experiments confirm that the proposed model significantly outperforms baseline approaches in credit assessment precision, demonstrating that the integration of data science and fintech provides more robust support for enterprise decision-making.

#### **4. Application-Oriented Transformation Pathways for International Economics and Trade Majors**

To optimize the application-oriented transformation of the International Economics and Trade major, this study adopts a supply chain finance-driven curriculum design approach for cross-border e-commerce education. This methodology involves comprehensive reforms across curriculum content, teaching models, and assessment systems, aiming to meet the dynamic demands of modern cross-border e-commerce development<sup>[9]</sup>. By integrating supply chain finance as a core perspective, the curriculum effectively incorporates key operational elements—such as cash flow management, information flow optimization, and logistics coordination—into educational frameworks, thereby enhancing students' practical skills and their ability to navigate complex business environments.

##### **4.1. Curriculum Content Construction**

The curriculum is structured around the financial components of supply chain upstream and downstream, emphasizing risk mitigation and economic efficiency in real-world operations. Students are required to master both theoretical foundations and practical financial tools, with specific modules including Capital Raising and Risk Assessment, Credit Management and Credit Enhancement, and International Payment and Settlement. These modules cover the full lifecycle of supply chain finance operations, enabling students to apply theoretical knowledge in practical contexts.

Capital Raising and Risk Assessment explores funding acquisition strategies and risk evaluation methods, helping students understand how market conditions influence corporate financing decisions and risk control.

Credit Management and Credit Enhancement teaches students to strengthen corporate creditworthiness through effective credit management, thereby improving access to financing.

International Payment and Settlement focuses on financial instruments such as letters of credit and remittances, which are critical for ensuring transaction security in cross-border trade.

This curriculum design not only provides students with a comprehensive understanding of modern cross-border e-commerce operations but also equips them to make strategic decisions in complex international markets, laying a solid foundation for their professional careers. Such reforms align with industry demands for high-quality, application-oriented talent, reflecting a deep integration of education and industrial needs.

#### ***4.2. Teaching Model Restructuring***

The curriculum introduces Project-Based Learning (PBL), a pedagogical approach that emphasizes real-world project engagement. Students simulate authentic cross-border trade scenarios, gaining hands-on experience in credit management, risk control, and financing requirements<sup>[10]</sup>. This interactive learning method enhances students' problem-solving abilities, fosters innovation, and develops teamwork skills.

Two case studies are conducted each semester, featuring real-world cross-border e-commerce cases from local enterprises. These cases expose students to the complexities and uncertainties of actual business operations. By integrating big data analytics, students can support dynamic decision-making in supply chain finance contexts, identifying market trends and customer needs to make more informed choices. This practical training significantly improves students' data analysis capabilities and business insights.

#### ***4.3. Assessment System Design***

The assessment framework combines formative and summative evaluations to comprehensively measure students' application skills and theoretical mastery. Formative assessment tracks students' progress and performance during the learning process, promoting self-reflection and improvement. Summative assessment, conducted at the end of the semester, requires students to complete a financial balance report using a supply chain finance simulation system. This final project serves as a capstone evaluation of students' integrated skills, complemented by standardized exam results to assess depth of knowledge in specific domains.

The multi-dimensional assessment approach—including course participation, academic writing, and team collaboration—provides a holistic view of students' abilities<sup>[9]</sup>. Course participation records reflect students' engagement and practical skills, academic writing evaluates research and critical thinking abilities, and team collaboration fosters communication and soft skills essential for modern workplaces.

#### ***4.4. Implementation and Outcomes***

This reform framework has been tested over two academic years, with feedback indicating significant improvements in students' capabilities and employer satisfaction. The comprehensive assessment model has proven effective in enhancing educational quality and students' professional competencies. Educators can leverage these data to refine and adapt the assessment system, aligning it with rapidly evolving market and technological demands<sup>[11]</sup>.

By integrating supply chain finance into cross-border e-commerce education, this study offers a scalable and sustainable pathway for cultivating high-caliber professionals equipped to thrive in the global digital economy.

### **5. Conclusion**

This study explores the application of supply chain finance (SCF) in the curriculum reform of cross-border e-commerce (CBEC) within the context of international economics and trade (IET) major

transformation. SCF refers to the optimization of supply chain processes through financial means, providing more flexible financing solutions while reducing transaction costs and risks. With the deepening of global economic integration, CBEC has become an increasingly important component of international trade, enhancing commodity circulation efficiency and promoting service globalization. Therefore, to adapt to market changes and improve professional teaching quality, it is essential to integrate SCF principles into CBEC curriculum design, thereby enhancing students' practical skills and innovation awareness.

Through a literature review, it is evident that SCF plays a significant role in improving the overall efficiency of CBEC. For example, the application of blockchain technology effectively addresses issues such as poor liquidity and lack of transparency in cross-border payments, while reducing transaction time and costs. Additionally, drawing from domestic and international CBEC curriculum reform experiences, it is observed that higher education institutions in Europe and the United States are increasingly incorporating emerging fields such as data analytics and financial technology into their CBEC courses to equip students with market-adaptive capabilities<sup>[12]</sup>. Thus, the proposed SCF-based CBEC curriculum reform pathway not only enriches course content but also provides a robust foundation for cultivating talent suited to the new economic environment.

### ***5.1. Curriculum Content Design***

This study recommends integrating SCF-related knowledge modules, such as SCF business models, risk control systems, and system construction, into the curriculum. These modules aim to provide students with a comprehensive understanding of SCF operations in CBEC. SCF business models involve the integration of financial means to optimize supply chain resource and information flows, thereby enhancing overall efficiency. For instance, in CBEC, financial services can provide funding support for goods crossing international borders, significantly reducing logistics costs and time, which is crucial for enhancing corporate market competitiveness. Risk control systems emphasize the identification, assessment, and management of risks in financial transactions, such as evaluating the creditworthiness of trading partners and anticipating potential supply chain disruptions, thereby minimizing financial losses in international trade<sup>[13]</sup>. System construction involves the development and optimization of information technology systems to efficiently process transaction data and monitor real-time supply chain status, ensuring the effective implementation of financial services.

### ***5.2. Teaching Methodology***

This study advocates for the integration of case-based teaching and practical training, gradually involving CBEC and SCF enterprises in curriculum development. Through extensive real-world case analysis, students can intuitively understand how theoretical knowledge is applied in actual business operations. Moreover, enterprise participation not only enriches course content but also provides students with the latest industry dynamics and skill requirements during training, significantly enhancing their practical capabilities. Practical training also enables students to develop decision-making and problem-solving skills in real-world work environments, which is indispensable for their professional growth.

### ***5.3. Assessment and Evaluation***

This study emphasizes process-oriented evaluation and practical skill assessment to establish a diversified evaluation system. Process-oriented evaluation involves continuous observation and feedback on students' performance during the learning process, measured through multiple dimensions such as classroom participation, homework completion, and teamwork. This approach provides a more comprehensive reflection of students' academic growth. Practical skill assessment should be conducted through real-world projects or cases, simulating authentic business environments to enable students to demonstrate their capabilities in solving practical problems. A diversified evaluation system effectively motivates students' learning incentives, ensuring they possess both theoretical knowledge and practical problem-solving abilities, better preparing them for future workplace demands<sup>[14]</sup>.

### ***5.4. Industry-Education Integration***

This study proposes several key measures to promote industry-education integration, specifically through the establishment of SCF-CBEC practical training bases to provide students with more abundant internship and practical opportunities. The establishment of such bases enables students to gain practical

experience in authentic business environments, which is crucial for enhancing their professional capabilities.

In this context, SCF, as an emerging business model, has become a crucial means for promoting efficient economic circulation. SCF integrates and optimizes the flows of capital, information, and logistics within the supply chain to enhance overall financing efficiency. This innovation effectively reduces corporate operational costs, improves capital utilization, and thereby increases market competitiveness. It not only helps local businesses overcome funding difficulties but also enhances their competitive advantage in international interactions.

Therefore, deepening curriculum reform has become a top priority. This includes introducing practical courses and case analyses related to CBEC and SCF, ensuring students possess both theoretical knowledge and practical application skills. Innovating talent cultivation models is also essential, such as through university-enterprise collaborations that establish internships and training programs, enabling students to engage with authentic business environments and enhance their practical capabilities.

Enhancing the professional adaptability and competitiveness of the IET major is urgent. Only by cultivating high-quality, application-oriented talent that adapts to the new economic model can local economic development be effectively supported. For this purpose, collaborative cooperation among governments, universities, and enterprises is crucial. Governments should introduce preferential policies to support the development and implementation of related courses. Universities should update educational philosophies and promote curriculum innovation. Enterprises should actively participate in talent cultivation, providing authentic business challenges and environments.

## References

- [1] Zeng, J. R. (2021). *Analysis of the Dilemmas and Countermeasures for Cultivating Cross-border E-commerce Talents in the Transformation of International Economics and Trade Major*. *Journal of Jiamusi Vocational Institute*, (1), 2.
- [2] Qin, X. K., Wang, Z. D., & Qian, S. D. (2022). *Teaching Reform and Practical Exploration of the 'Cross-border Supply Chain' Course Based on Curriculum Ideology and Politics*. *Education Modernization*, 9(20), 150-153.
- [3] Wang, S. J. (2022). *Research on the Innovation of Talent Cultivation in International Economics and Trade Major under the Background of Cross-border E-commerce*. *Shaanxi Education (Higher Education)*, (3), 2.
- [4] Miao Jingqi. (2021). *The Current Situation and Reflection of Cross-border E-commerce*. *Economy and Trade*, (4), 1-7.
- [5] Zhang, W. B. (2021). *Supply Chain Finance and the Financing Performance of SMEs: A Case Study of Cross-border E-commerce Comprehensive Pilot Zones*. *Journal of Commercial Economics*, (15), 4.
- [6] Han, X. Z. (2022). *Research on the Risks of Cross-border E-commerce Supply Chain Finance in China*. *Market Weekly*, (8), 4.
- [7] Chen, W. Y. (2021). *Research and Analysis on the Financing Models of Supply Chain Finance for Export Cross-border E-commerce*. *China Journal of Commerce*, (3), 112-114.
- [8] Wang, B. (2021). *Exploration on the Content Reform of the 'International Trade Practice' Course Based on Cross-border E-commerce*. *Science & Wealth*, (2), 217-218.
- [9] Liu, H. Y. (2021). *Exploration of the Teaching Reform Path for International Trade Major under the Background of Cross-border E-commerce*. *Public Relations World*, (3), 123-125.
- [10] Feng, Q. Y. (2022). *Research on the Teaching Reform of the 'International Trade Practice' Course under the Demand for Cross-border E-commerce Talents*. *Modern Business Trade Industry*, 43(3), 172-174.
- [11] Zhou, F. Y. (2022). *On the Teaching Reform Path of International Trade Major under the Background of Cross-border E-commerce*. *Global Market*, (7), 149-151.
- [12] Wang, S. J., & Li, R. H. (2021). *The Theory and Practice of Cross-border E-commerce Promoting the Upgrading of the 'Belt and Road' Value Chain*. *Enterprise Economy*, (8), 98-107.
- [13] Mi, Y. (2022). *Research on the Optimization Mechanism of China's Cross-border E-commerce Development Model: Based on the Perspective of Supply Chain*. *Journal of Commercial Economics*, (5), 180-183.
- [14] Kawa, A. (2017). *Supply Chains of Cross-Border e-Commerce*. *Advanced Topics in Intelligent Information and Database Systems*.