

# Practice and Exploration of Virtual Simulation System to Cultivate Cross-Border E-Commerce Talents in the Context of Big Data

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**Abstract:** Under the background of big data, there are many types of virtual simulation software in the field of e-commerce. This article uses the survey method, combined with its own practical experience, to discuss how to use the virtual simulation system to cultivate cross-border e-commerce talents. The article analyzes the difficulties of cultivating cross-border e-commerce talents from the perspective of market demand. By comparing the mainstream cross-border e-commerce virtual simulation systems in China and the business models of software development enterprises, the advantages and disadvantages of virtual simulation systems in practice are discussed comprehensively. Suggestions such as promoting learning by competition and reducing software purchase dependence; cooperating with software companies for development based on their own conditions and regional characteristics are put forward. It is hoped that in the training of cross-border e-commerce talents, the virtual simulation system can be used to avoid the risk of real-life practice and keep up with the market demand at the same time.

**Keywords:** Virtual Simulation System; Talent; Cross-Border; E-Commerce

## 1. Introduction

With the development of big data, cloud computing and other science and technology, the requirements for digital talents in the field of cross-border e-commerce are getting higher and higher. The rapid growth of e-commerce in China is nourished by carefully designed public policies [1]. According to the hotspot analysis of cross-border e-commerce teaching research [2], the hotspots of Chinese research include for the study of teaching status, the

study of cross-border e-commerce teaching based on international trade majors, the study of cross-border e-commerce teaching based on international business courses, the study of cross-border e-commerce teaching based on business English courses, and the study of deep integration of cross-border e-commerce teaching and entrepreneurship. For the research of virtual simulation system in cross-border e-commerce, there are simulation analysis of cross-border e-commerce development based on system dynamics [3], etc. For international studies, the representatives are Mitigating transaction risk for cross-border e-commerce firms: a multiagent-based simulation study [4], the impact of digital transformation on supply chains through e-commerce: literature review and a conceptual framework [5], etc.

The value proposition of blockchain technology has implications for the development of digital platforms [6], deep reinforcement learning (DRL) [7], and micro services systems have been proposed to solve practical problems in e-commerce.

In general, there are not many studies on the use of virtual simulation systems to train cross-border e-commerce talents. The current cross-border e-commerce ecological cluster includes consumers, e-commerce companies, suppliers, logistics providers, economic functional areas, payment and settlement institutions, and government regulatory agencies [8]. In terms of typical work including data-based product selection, digital marketing, smart logistics, digital payment, online customs clearance, etc., it is a challenge to efficiently cultivate the cross-border e-commerce talents needed by the market in the face of the industry chain.

This paper uses the survey method and combines its own practice of using the virtual simulation system for many years, and finds

that the virtual simulation system for cross-border e-commerce has advantages and limitations. Institutions can choose competition sandboxes produced by different enterprises to carry out competition training according to their own needs. Also according to the level and ability of students, they can choose different platforms, such as Amazon, Selling, Shopee and other platforms of virtual simulation software to simulate cross-border e-commerce transactions while avoiding the risk of practical operation. Institutions that want to dovetail supply and demand and create regional special education can consider in-depth cooperation with software development enterprises to cultivate cross-border e-commerce application-oriented talents that meet market demand.

## **2. The Current Situation of Cross-Border E-Commerce Talent Demand in the Context of Big Data**

### **2.1 Total Cross-Border E-Commerce Talent Gap in China**

As of February 2022, there are 132 comprehensive pilot zone for cross-border e-commerce in China, covering 30 provinces and cities.

The E-Commerce Development Plan for the "14th Five-Year Plan" Period [9] states that "from an international perspective, the digital transformation of the world economy is accelerating, a new round of technological revolution and industrial change is underway, and the iterative upgrading and integration of technology applications driven by e-commerce continues to deepen." In terms of cross-border e-commerce, the policy "supports the high-level development of cross-border e-commerce." In the face of the rapid development of the industry, cross-border e-commerce talent demand gap of 9.85 million [10].

### **2.2 Requirements of Cross-Border E-Commerce Related Positions**

There are three major employment positions in e-commerce, including operation, technology and management.

The operation positions are mainly engaged in the opening of cross-border stores, product selection, promotion, customer service, logistics and payment, etc. At present, the

demand for talents is large, and the talents with the background of international trade, e-commerce, foreign languages and other related majors have certain advantages.

Technical positions are mainly engaged in the design and development of software or platform, online store artwork, etc. The requirements for computer software programming, visual design and other abilities are high, and more consideration is given to computer, art design and other related professionals.

For general management positions, most enterprises hope that the practitioners have relevant cross-border e-commerce platform work experience, mainly engaged in platform enterprise general management, platform development project manager and other work.

## **3. The Difficulties of Cross-Border E-Commerce Talent Training**

### **3.1 Cross-Border E-Commerce is Developing Rapidly and There Is a Lack of Teachers with Comprehensive Practical Skills**

Cross-border e-commerce is developing fast and involves many fields, the core parts of which include cross-border e-commerce operation, cross-cultural marketing, international logistics and warehousing, digital finance, global customs, global supply chain and analysis of big data, etc.

Most schools have a limited number of teachers, which makes it difficult to fully cover all aspects of cross-border e-commerce. If traditional teaching materials are used and traditional teaching methods are used, it is difficult to cultivate applied talents that meet the requirements of enterprises and the market.

### **3.2 Cross-Border E-Commerce Platform Policies Change Quickly, and It Is Easy to Make Mistakes If You Don't Follow the Rules Closely**

Some institutions try to use real platform accounts to pilot cross-border e-commerce operations. In the process of practice, it is found that the platform and site rules change quickly, and students are not experienced and attentive enough, so they are especially prone to blocking and fines in the absence of checking and auditing. This also gives instructors or cooperative enterprises a

headache, making it difficult to promote school-enterprise practice cooperation on a large scale.

### 3.3 Cross-Border E-Commerce Sites Are Many and Different, Making It Difficult to Master a Lot of Cross-Cultural Knowledge

Cross-border e-commerce requires practitioners to have cross-cultural communication skills, including mastering corresponding foreign languages and understanding laws and regulations. Facing the mainstream cross-border e-commerce markets such as Europe and the United States, there is still a relatively rich cross-cultural information and cross-border e-commerce data. But in the face of the emerging Southeast Asian market, or even the Latin American market, most talent training is difficult to start, and can only be generalized. In terms of e-commerce selection, it is difficult to target local sites and carry out special operations.

### 4. The Promotion of Cross-Border E-Commerce Virtual Simulation System for Talent Training

Facing the difficulty of training cross-border e-commerce talents, a group of technology-based companies actively researched and developed a virtual simulation system to help train cross-border e-commerce talents under the

background of "strengthening the construction of highly skilled talents in the new era", using technology to obtain big data of cross-border e-commerce platforms.

#### 4.1 Cross-Border E-Commerce Virtual Simulation System Representatives

Cross-border e-commerce virtual simulation system, mostly developed by software technology enterprises, mainly includes two major types, one is the competition sandbox, the second is a virtual simulation of well-known cross-border e-commerce platform.

The competition sandbox mainly simulates the whole process of cross-border e-commerce, and is operated by multiple groups in the form of a competition, running multiple rounds and giving the competition results based on the backend algorithm. This kind of software focuses on the cultivation of operational thinking and helps to understand the whole chain of cross-border e-commerce.

Virtual simulation of well-known cross-border e-commerce platform software, mostly simulating the interface and rules of the mainstream platform, helps to master the multi-module operation of the real platform and avoid the risk of violation.

The current representative cross-border virtual simulation systems and development companies in China are as Table 1 "Representative cross-border virtual simulation systems in China".

**Table 1. Representative Cross-Border Virtual Simulation Systems in China**

Company Name	Cross-border e-commerce virtual simulation system representative	Main types of virtual simulation systems	Official Website
Zhongjiao changxiang (Beijing) Technology Co.	Cross-border e-commerce import and export practical training system V1.0 Cross-border e-commerce platform practical training system V1.0	Competition Sandbox AliExpress Amazon WISH eBay	www.itmc.cn
Beijing Bodao qiancheng Information Technology Co.	Boxingzhuoyue Cross-border E-commerce Logistics Teaching and Training System V2.0 Boxingzhuoyue Cross-border Multi-Platform Practical Training System V2.0	Competition Sandbox Alibaba AliExpress Amazon WISH DHgate	www.bjbodao.com
Xiamen Youyou huilian Information Technology Co.	Comprehensive practical platform for cross-border e-commerce operation、3D cross-border e-commerce scenario interactive teaching training system	Competition Sandbox Amazon eBay Shopee	www.uulian.com
Nanjing Aopai Information Industry Co.	Cross-border e-commerce data-based product selection software、Amazon operation integrated practical training teaching platform software	Competition Sandbox Amazon AliExpress	www.allpass.com.cn
Nanjing Shige Software	Shige cross-border e-commerce	Competition Sandbox	www.desunsoft.com

Company Name	Cross-border e-commerce virtual simulation system representative	Main types of virtual simulation systems	Official Website
Co.	operation simulation sandbox soft Shige Digital Trade B2B Full Process Simulation Training Platform	Amazon AliExpress	

#### 4.2 Cross-Border E-Commerce Virtual Simulation System Development Enterprise Business Model

Most of the cross-border e-commerce virtual simulation system development enterprises cooperate with colleges and universities to jointly cultivate cross-border e-commerce

talents, and the enterprise side can obtain profits from software sales, certificate training, and co-construction of professional, etc. The content and direction of cooperation are as Figure 1. "Diagram of cooperation between software development companies and institutions".



**Figure 1. Diagram of Cooperation between Software Development Companies and Institutions**

Common cooperation includes talent training, through the purchase of virtual simulation software for cross-border e-commerce, which is used to teach professional courses. Further, they can co-construct courses, including developing provincial high-quality courses and writing planning textbooks. Secondly, in terms of talent certification, different awards can be judged through skill competitions. Vocational certificates can also be promoted, including 1+X certificates, such as 1+X cross-border e-commerce multi-platform operation vocational skills level certificate [11], as well as certificates related to cross-border e-commerce from industry associations.

For college construction, courses, competitions and certificates can help professional construction, and further professional cluster construction can be explored, or even joint multi-party industry colleges. In terms of talent employment, software development companies also have their own talent pool and can make employment recommendations.

### 5. The Shortcomings of the Virtual Simulation System Software of the Realm of Electricity

#### 5.1 Virtual Simulation System Price Is High, Affecting the Promotion

The price of virtual simulation software of cross-border e-commerce in the market is high at present, and the price of competition sandbox system is mostly 100-300 thousand RMB, and the price of virtual simulation of well-known cross-border e-commerce platform class software is 100-200 thousand RMB. With limited funds for school professional construction, in terms of software system procurement, it usually tends to purchase the application software actually used by enterprises first, followed by the competition sandbox class software supporting the national and provincial competitions, and finally consider purchasing the virtual simulation of well-known cross-border e-commerce platform class software. A department usually has several majors, if all purchase virtual simulation system, for the school is too heavy burden

#### 5.2 There are Certain Differences between the Virtual Simulation System and the Actual Market

Cross-border e-commerce virtual simulation system, used as a teaching can avoid the risk brought by students' operation violations, and also facilitate teachers to develop lesson plans and fully explain the knowledge points of each module. But the simulation system also has certain shortcomings, for example, the

competition class system algorithm there is a set, want to get a high score of some people, will use the algorithm loopholes brush points, ignoring the laws of the market. Secondly, the data update of the simulation system is slow, and the product categories are not rich enough, so there is still a gap with the real market's rapidly changing market.

### **5.3 Virtual Simulation System Lacks Regional Industrial Characteristics**

Cross-border e-commerce is not only about product selection and operation, but also needs to be based on industrial zones and good supply chain management. Although the virtual simulation system has the embodiment of regional differentiation in the development process, it lacks regional characteristics, and most of the simulated goods are FMCG industrial goods. Not only the lack of cross-border sales simulation of large goods, special goods, non-standard goods and other goods, but also no non-heritage products and other goods with local characteristics.

## **6. Suggestions for Virtual Simulation System to Cultivate Cross-Border E-Commerce Talents**

For the shortage of virtual simulation system software for cross-border e-commerce, we also give the following suggestions in the process of practice, hoping to better combine the virtual simulation system software to cultivate cross-border e-commerce talents.

### **6.1 Reduce the Reliance in Software Purchase by Promoting Learning through Competitions**

For the situation of insufficient budget for purchasing software, it is suggested that colleges and universities can actively participate in cross-border e-commerce skills competitions, and the competition organizers usually provide trial accounts for students to participate for free. By making good use of the trial accounts of each virtual simulation software and arranging special weeks for practical training, the reliance on software purchase can be reduced to a certain extent. However, as the competition time and events are usually not fixed, there is difficulty in planning for the construction of professional courses.

### **6.2 The Study of Virtual Simulation System Software is Placed in the Middle of Academic Education**

According to the characteristics of cross-border e-commerce simulation system software, it is suggested that the relevant courses containing this type of software are offered in the sophomore stage of academic education, which can give students a more solid theoretical foundation and with certain operation practice in combination with the use of software. In the third and fourth year stage, it is recommended to focus on 1-2 platforms to carry out real platform cross-border e-commerce operations according to the school's talent training program. The virtual simulation platform and the real platform must be consistent, so that they can continuously provide talents for the project, and also bring experience by the real project to make up for the lack of data in the virtual simulation platform.

### **6.3 Colleges and Universities with Conditions Can Jointly Develop with Virtual Simulation Software Developers**

In order to deepen the reform of innovation and entrepreneurship education in higher education, in 2016, the Department of Higher Education of the Ministry of Education started the collaborative education project [12], and from 2021, the supply and demand matching employment education project is opened. At present, many virtual simulation software development enterprises also join the project and carry out joint talent cultivation with universities. Software development, curriculum construction, professional group construction, all these need multiple collaborations, based on regional characteristics and focusing on industrial sectors.

## **7. Conclusions**

In a word, in the future, with the development of big data, the digital requirements for talents in the field of e-commerce will become higher and higher. New technology allows more and more virtual simulation software to be used in cross-border e-commerce talent training, reducing the risk of non-compliance and simulating the transaction process of the whole chain of cross-border e-commerce. It is necessary for institutions to consider

combining the features of virtual simulation software to better teach when training talents. In the future, with the development of metaverse, technologies such as natural language processing, machine vision, blockchain, networking, digital twin, and neural interface, may also appear in the cross-border e-commerce virtual simulation system, making the teaching scenario more three-dimensional and full of interest.

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