

# Research on Talent Gap and Innovation of School-Enterprise Cooperative Cultivation Models in the Economic and Trade Sector under the Background of Hainan Free Trade Port Construction

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## ABSTRACT

The construction of the Hainan Free Trade Port (FTP) generates massive demand for high-quality economic and trade talents. However, significant gaps exist in the current supply system regarding structure, mechanisms, and regional distribution. To address this challenge, this research focuses on innovating school-enterprise cooperation models, systematically constructing a "Dual-Driven, Four-Dimensional Integration, Dynamic Adaptation" cultivation framework. This model aims to fundamentally overcome the deep-seated barriers to industry-education integration by innovating the motivational mechanisms for school-enterprise collaboration, building deeply integrated implementation platforms, and creating sustainable support systems. Practice has proven that this model is highly effective in enhancing talent cultivation quality and serving regional economic development, providing a replicable solution for talent development in the Hainan FTP and other national strategic regions, demonstrating significant theoretical innovation and practical promotion value.

## KEYWORDS

Hainan free trade port; Industry-education integration; School-enterprise cooperation; Model innovation; Talent cultivation

## 1 Industrial Development in the Hainan FTP and New Talent Requirements

### 1.1 Current Status of Pillar Industries

Since the inception of the Hainan FTP, the pace of industrial structure optimization and adjustment has accelerated, with modern service industries becoming the absolute mainstay driving economic growth. Statistics indicate that in 2023, the value-added of Hainan's service sector accounted for over 60% of its GDP. Among these, industries closely related to the economic and trade field, such as logistics, finance, and e-commerce, have shown strong growth momentum. Taking the modern logistics industry as an example, leveraging the pressure testing for island-wide independent customs operation, new business forms like cross-border logistics, cold chain logistics, and smart logistics are rapidly aggregating, with the industry's scale maintaining an annual growth rate of over 25% for several consecutive years. Concurrently, the deep integration of the digital economy and the real economy has spurred the vigorous development of new trade methods like cross-border e-commerce and digital trade, posing disruptive new requirements for the knowledge structure and skill sets of talents. However, a stark contrast exists between the booming industry and the relative lag in talent supply. Enterprises generally face the practical difficulties of "difficulty in attracting talent, slowness in cultivating talent, and difficulty in retaining talent," making the talent issue a primary factor constraining the release of industrial potential.

### 1.2 Talent Competency Requirements Outlined in Plans

Looking towards the end of the "14th Five-Year Plan" and the blueprint of the "15th Five-Year Plan," Hainan Province's requirements for talent competencies have shifted from single skills to composite literacy, and from theoretical understanding to practical application. The plans explicitly require that future economic and trade talents must possess a three-dimensional composite competency structure comprising "cross-border compliance capability + digital technology application + green finance mindset." This means that talents must not only be familiar with international trade rules but also proficient in the unique tax, financial, and trade policies of the Hainan FTP; not only master traditional financial and economic knowledge but also skillfully use digital technologies like big data and artificial intelligence to solve practical problems; simultaneously, they need to possess concepts related to ESG (Environmental, Social, and Governance) and sustainable development, such as green finance. Furthermore, the plans set quantitative targets for industry-education integration, such as "school-enterprise co-construction of industrial colleges" and "the proportion of 'dual-qualified' teachers exceeding 50%," aiming to promote the deep 对接 of education and industry from an institutional level, build an innovation ecology integrating the "education chain - industry chain - innovation chain," and provide a continuous stream of high-quality talent reserves for the FTP construction.

## 2 Analysis of Core Gaps in Talent Supply for the Economic and Trade Sector

### 2.1 Structural Contradiction: Dual Disconnect Between Specialization and Practice

The most prominent issue in the current supply of economic and trade talents is the structural contradiction, manifested as a mismatch between major offerings and industry needs, and a disconnect between practical teaching and real business operations. Research by the project team found that the update speed of the curriculum system in Hainan's finance and economics majors lags far behind the iteration speed of industries. Traditional theoretical courses account for an excessively high proportion, while frontier courses targeting the core needs of the FTP, such as "Offshore Finance Practice," "RCEP Economic and Trade Rules," and "Cross-border Supply Chain Management," are severely under-offered, with a coverage rate below 30%, forming a stark contrast with the high demand proportion of 45% from enterprises. More critically, over 80% of enterprises believe that graduates lack the ability to handle real business scenarios, especially in key practical skills like cross-border compliance risk control, digital supply chain optimization, and offshore tax planning. The serious disconnect between on-campus teaching and actual enterprise needs results in graduates requiring lengthy retraining periods before they can quickly create value for enterprises.

### 2.2 Institutional Lag: Insufficient Depth of Industry-Education Integration

Institutional lag in industry-education integration is the root cause of the low quality of talent supply. Currently, most school-enterprise cooperation remains at superficial levels such as "internship base signage" and "enterprise expert lectures," lacking the internal mechanisms for deep collaboration. Survey data shows that in Hainan universities, the proportion where enterprises can deeply participate in talent training program formulation and core course development is only 28%, far lower than advanced industry-education integration regions like Zhejiang and Guangdong. The phenomenon of "hot schools, cold enterprises" remains common. The root cause lies in the lack of effective benefit-sharing mechanisms. The high cost and low direct benefits for enterprises participating in cooperation lead to insufficient motivation. Simultaneously, the construction of "dual-qualified" teaching faculties is severely lagging. Teachers with over three years of frontline enterprise practical experience account for less than 35%, and the proportion of teachers proficiently using digital technology for finance and economics teaching is even lower. The knowledge update and capability transformation of the teaching staff struggle to keep pace with industrial development, directly impacting the effectiveness of talent cultivation.

### 2.3 Regional Imbalance: Spatial Mismatch of Resources and Demand

The uneven spatial distribution of high-quality educational resources in Hainan further exacerbates the structural contradiction in talent supply. Central cities like Haikou and Sanya concentrate the vast majority of the province's university resources and high-quality teachers, while key industrial park locations like the Yangpu Economic Development Zone and the Hainan Ecological Software Park have relatively scarce higher education resources. This spatial layout of "education in cities, industry in parks" leads to a regional imbalance in talent supply. Park enterprises generally report that the local talent recruitment satisfaction rate is less than 30%, making it difficult to form a localized virtuous cycle of "industry-university-research-application." The high cost and low willingness of talent flow between regions not only increase enterprise recruitment costs but also weaken the talent advantage of industrial agglomeration, becoming an invisible obstacle constraining the high-quality development of key industrial parks.

## 3 Core Countermeasure: Innovation of the "Dual-Driven, Four-Dimensional Integration, Dynamic Adaptation" School-Enterprise Cooperation Model

Faced with the aforementioned challenges, traditional, fragmented school-enterprise cooperation paths are no longer viable; systematic model innovation is essential. This research project has studied and practiced a new school-enterprise cooperation model centered on "Dual-Driven, Four-Dimensional Integration, Dynamic Adaptation." This model is not a simple process optimization but a complete ecosystem comprising motivational mechanisms, implementation platforms, and support systems, aiming to fundamentally crack the deep-seated barriers to industry-education integration and achieve sustainable collaborative education between schools and enterprises.

### 3.1 Dual-Driven: Motivational Mechanism Innovation to Crack "Hot School, Cold Enterprise"

The primary innovation of the new model lies in constructing a "Dual-Driven" motivational mechanism for both schools and enterprises, fundamentally solving the problem of insufficient cooperation motivation. On one hand, through

the mechanism of "Precise Embedding of Enterprise Needs," collaborating with leading enterprises like Hainan Deppon Logistics and Hainan Rezuo High-Tech, jointly mapping the "Industry Demand Map," dynamically updating the list of job competency requirements, and based on this, developing "Modular Course Packages," transforming desensitized real enterprise business cases into teaching modules, ensuring the teaching content keeps pace with industrial needs. On the other hand, innovating the "School-Enterprise Benefit Sharing" mechanism, implementing the "Talent Feedback Plan," where cooperating enterprises can prioritize the customized recruitment of graduates from the project cultivation, significantly reducing recruitment and training costs; simultaneously establishing a "Joint R&D Fund," where enterprises contribute equipment and technical resources, and universities provide intellectual support, sharing teaching and research results and intellectual property rights, forming a mutually beneficial closed loop of "joint talent cultivation, shared process management, shared outcomes, and shared responsibilities."

### **3.2 Four-Dimensional Integration: Implementation Platform Innovation for Collaborative Education**

The main body of the new model is to create a "Four-Dimensional Integration" implementation platform integrating curriculum, faculty, practice, and evaluation, grounding school-enterprise cooperation in concrete actions. The first is "Curriculum Integration," developing characteristic course clusters aligned with FTP industries, fully integrating industry standards and vocational qualification standards into course standards, such as offering courses like "Offshore Finance Practice" and compiling characteristic textbooks. The second is "Faculty Integration," establishing "Enterprise Mentor On-Campus Studios" and "Teacher Enterprise Practice Mobility Stations," enabling enterprise experts to deeply participate in teaching and professional teachers to regularly undertake enterprise practice, creating a two-way flow "dual-qualified" team. The third is "Practice Integration," schools and enterprises co-building a "Digital Economy and Trade Industry-Education Center," introducing ERP sand tables, cross-border business simulation platforms, etc., allowing students to handle real business processes in a highly simulated environment. Finally, "Evaluation Integration," introducing a "Tripartite Joint Evaluation System" composed of schools, enterprises, and industry associations, incorporating enterprise satisfaction rates, vocational skill certificate acquisition rates, etc., into comprehensive student evaluation, achieving market-oriented testing of talent cultivation quality.

### **3.3 Dynamic Adaptation: Support System Innovation Ensuring Model Sustainability**

To ensure the long-term effective operation of the new model, a "Dynamic Adaptation" support system must be constructed. First, establishing a "Regional Resource Allocation Mechanism," setting up "Teaching Practice Enclaves" in key industrial parks like Yangpu, linking "campuses + parks" to accurately deliver high-quality teaching resources to the industrial frontline, solving the spatial mismatch problem. Second, building a "Digital Quality Monitoring Platform," using big data technology to track graduate career development paths and enterprise recruitment satisfaction feedback in real-time, forming a dynamic profile of talent cultivation quality, providing a scientific basis for the continuous optimization of courses and teaching. Third, promoting "Policy Coordination to Break Institutional Barriers," actively proposing and participating in the formulation of the "Hainan Province Industry-Education Integration Certification Standards," incorporating enterprise participation and industry-education outcomes into the tax incentive and credit evaluation systems; simultaneously, promoting university reforms in professional title appraisal methods, recognizing teachers' contributions in industry-education integration, providing institutional guarantees for deep school-enterprise cooperation.

## **4 Model Application Effectiveness and Promotion Value**

### **4.1 Pilot Application Effectiveness**

The new school-enterprise cooperation model constructed in this project underwent a one-year systematic pilot at the School of Finance and Economics, Hainan Vocational University of Science and Technology, achieving remarkable results. Students' practical ability and innovative literacy were significantly enhanced. Students from the college won one national first prize and three national second prizes in the 2022 5th "Butterfly Cup" National College Student Supply Chain Innovation and Entrepreneurship Competition, and achieved excellent results in multiple national and provincial skill competitions. Graduate employment quality improved significantly, with the average starting salary increasing by 28% compared to before the pilot, and employer satisfaction reaching 93%. Professional development also achieved breakthroughs, successfully building a provincial-level "Smart Logistics" characteristic professional cluster, driving the coordinated development of seven related majors including Business Administration and Marketing. The developed "FTP Characteristic Course Cluster" has been adopted by six institutions inside and outside the province, demonstrating an initial radiation effect.

## 4.2 Model Promotion Value

The "Dual-Driven, Four-Dimensional Integration, Dynamic Adaptation" school-enterprise cooperation model possesses a clear logical framework and high operability, its promotion value having been verified in practice. Currently, the core mechanisms of this model have been referenced and applied by three institutions, including Hainan College of Economics and Business, with the employment counterpart rate of relevant graduates increasing by over 22% on average, effectively alleviating the talent pressure on local enterprises. At the policy level, the research results of this project have been adopted by the Hainan Provincial Department of Education, providing important reference for the formulation of policy documents like the "Hainan Province Vocational Education Industry-Education Integration Implementation Plan (2024-2027)." This model not only provides a sustainable talent cultivation solution for the Hainan FTP construction, but its systematic design ideas and replicable implementation paths also offer valuable theoretical reference and practical examples for industry-education integration reforms in other national strategic regions like other Free Trade Zones and the Guangdong-Hong Kong-Macao Greater Bay Area.

## 5 Conclusion

The demand for economic and trade talents in the Hainan FTP construction is strategic and comprehensive. Traditional talent cultivation models can no longer meet the requirements of the new situation. Based on project research, this paper systematically reveals the core gaps in the current talent supply at the structural, institutional, and regional levels, and innovatively proposes the "Dual-Driven, Four-Dimensional Integration, Dynamic Adaptation" school-enterprise cooperation model. By reconstructing the motivational mechanisms, implementation platforms, and support systems, this model achieves a fundamental transformation of school-enterprise relations from "shallow cooperation" to "deep integration," effectively cracking the chronic problem of "hot schools, cold enterprises." Practice has proven that this model can not only significantly improve the quality of talent cultivation but also form innovative synergy serving regional economic development. Looking ahead, continuously deepening and promoting this innovative model, making it the core engine of the Hainan FTP talent strategy, holds profound and significant meaning for ensuring the smooth implementation of major national strategies and promoting the modern transformation of China's higher vocational education.

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