Academic Education Publishing House

Philosophy and Social Science Vol. 2 No. 7, 2025

International Cooperation and Technology Transfer of Hainan Free Trade Port under Trump 2.0: A Global Value Chain Perspective

Zhangzhong Huang, Nadja Furlan Štante*

ZRS (Science and Research Centre) Koper Garibaldijeva 1, Sl-6000, Koper, Slovenia

**Corresponding Author*

Abstract: This study aims to explore the evolutionary characteristics, influencing mechanisms, and optimization paths of international cooperation and technology transfer in Hainan Free Trade Port (HNFTZ) under the context of "Trump 2.0" (characterized by intensified trade protectionism, technological decoupling tendencies, and adjusted global economic governance strategies), from the perspective of Global Value Chain (GVC). To achieve this goal, the study adopts a combination of methods including systematic literature analysis, GVC analytical framework (focusing on value chain division, governance structure, and value capture), and comparative study (contrasting the policy environment of HNFTZ with other international free trade ports under Trump 2.0). The research process first sorts out the core connotation of Trump 2.0 and its impact on the global value chain layout, then clarifies the current status of HNFTZ's international cooperation (in fields such as cross-border investment, industrial collaboration, and service trade) and technology transfer (including transfer channels, technical content, and absorption efficiency), and further analyzes the constraints imposed by Trump 2.0 on HNFTZ's GVC embedding (e.g., restricted access to high-value-added links) and technology transfer (e.g., blocked cross-border technical cooperation). The results show that Trump 2.0 has dual impacts on HNFTZ: on the one hand, it exacerbates the risks of HNFTZ's dependence on traditional GVC partners and the obstruction of high-tech transfer; on the other hand, it drives HNFTZ to explore diversified international cooperation models (such as deepening cooperation with emerging market economies) and independent technology absorption and innovation capabilities. Finally, the study puts forward targeted countermeasures to enhance HNFTZ's resilience in international cooperation and technology transfer within the GVC system.

Keywords: Hainan Free Trade Port; Trump 2.0; Global Value Chain; International Cooperation; Technology Transfer

1. Introduction

1.1 Research Background and Significance

The "Trump 2.0" context is marked by a series of policy orientations that reshape global economic and technological dynamics, including reinforced trade protectionism, deliberate technological decoupling initiatives, and adjustments to global economic governance mechanisms. Such policies have introduced unprecedented uncertainties into the operation of global value chains (GVCs), prompting enterprises worldwide to restructure their supply chain layouts and reevaluate cross-border cooperation strategies. As a core carrier of China's opening-up strategy and a pilot zone for deepening international economic cooperation, Hainan Free Trade Port (HNFTZ) is positioned to serve as an international hub for trade, investment, and technology exchange. Its development goals, which include building a high-level open economic system and promoting high-quality industrial upgrading, are inherently linked to the stability and efficiency of GVCs. However, under the impact of Trump 2.0 policies—such as increased tariffs on manufactured goods, export controls on high-tech products (e.g., semiconductors, artificial intelligence technologies), and restrictions on cross-border technical collaborations—HNFTZ faces challenges in expanding international cooperation scope and improving technology

transfer quality. Exploring the evolutionary laws of HNFTZ's international cooperation and technology transfer from a GVC perspective not only helps identify the constraints imposed by external policy shocks but also provides theoretical support and practical paths for HNFTZ to enhance its resilience in GVCs and achieve sustainable development. This study holds dual significance: theoretically, it enriches the research on the interaction between national-level policy shocks and regional free trade port development within the GVC framework; practically, it offers targeted recommendations for HNFTZ to optimize cooperation models, break through technological bottlenecks, and align with global high-standard economic and trade rules.

1.2 Review of Domestic and Foreign Research Status

Foreign research on GVCs has achieved in-depth progress, with scholars such as Gereffi and Humphrey exploring the classification of GVC governance models (market-based, modular, relational, captive, and hierarchical) and their impacts on value capture efficiency. Recent studies have focused on how trade protection policies reshape GVC structures, with some arguing that Trump-era policies have accelerated the regionalization of GVCs and reduced the degree of global value chain integration. Regarding free trade ports, foreign literature primarily analyzes the institutional advantages of mature ports (e.g., Singapore Free Port, Dubai Jebel Ali Free Zone) in promoting international cooperation, emphasizing the role of low-tariff policies and streamlined customs procedures in attracting foreign investment and technology. However, few studies have specifically examined the impact of Trump 2.0 policies on the international cooperation and technology transfer of emerging free trade ports in developing economies.

Domestic research on HNFTZ has concentrated on its institutional innovation, industrial positioning, and preliminary exploration of international cooperation paths. Existing studies highlight HNFTZ's achievements in cross-border trade facilitation and tourism cooperation but pay insufficient attention to the constraints of external policy shocks on its technology transfer. Additionally, domestic literature on GVCs and HNFTZ mostly focuses on macro-level industrial embedding rather than systematically analyzing the mechanism through which Trump 2.0 policies affect technology transfer efficiency and value capture capabilities. Overall, current research lacks a comprehensive framework that integrates the Trump 2.0 context, GVC theory, and HNFTZ's international cooperation and technology transfer, creating a research gap that this study aims to fill.

1.3 Research Ideas and Methods

The research follows a logical path of "theoretical foundation → status analysis → impact mechanism → optimization paths." First, it combs through core theories such as GVC theory, international technology transfer theory, and free trade port international cooperation governance theory to construct a theoretical framework for the study. Second, it analyzes the policy characteristics of Trump 2.0 and their impacts on global value chain restructuring, while clarifying the current status of HNFTZ's international cooperation and technology transfer. Third, it explores the mechanism through which Trump 2.0 affects HNFTZ's GVC embedding and technology transfer from multiple dimensions. Finally, it proposes targeted optimization paths based on the identified constraints.

Three research methods are employed to ensure the rigor of the study. First, systematic literature analysis is adopted: relevant literature is retrieved from databases such as Web of Science, Scopus, CNKI, and CSSCI, covering topics of GVC governance, Trump-era economic policies, and HNFTZ development. Literature is screened and sorted to summarize theoretical foundations and identify research gaps. Second, the GVC analytical framework is applied, focusing on three core dimensions—value chain division (high-value-added vs. low-value-added links), governance structure (interactions between HNFTZ entities and global partners), and value capture (distribution of economic benefits from cooperation and technology transfer)—to systematically analyze HNFTZ's position and challenges in GVCs. Third, comparative study is conducted: the institutional environments, cooperation models, and technology transfer effects of mature international free trade ports (e.g., Singapore Free Port, Dubai International Financial Centre) under the Trump 2.0 context are compared with those of HNFTZ, providing reference for optimizing HNFTZ's development paths.

2. Relevant Theoretical Foundations

2.1 Global Value Chain (GVC) Theory

GVC theory, initially proposed by Gereffi, focuses on the spatial distribution and organizational coordination of production, distribution, and service links across countries and regions. Core concepts of the theory include value chain links and governance models. Value chain links are divided into high-value-added segments (e.g., research and development, design, brand operation) and low-value-added segments (e.g., raw material processing, assembly manufacturing), with the distribution of these segments determining the value capture capabilities of regions or enterprises. Governance models of GVCs are categorized into five types: market-based (low transaction costs, simple product specifications), modular (standardized interfaces, independent production), relational (trust-based cooperation, complex product customization), captive (dominant enterprises controlling dependent suppliers), and hierarchical (vertical integration within enterprises).

Key propositions of GVC theory include: the governance structure of value chains is shaped by factors such as product complexity, information asymmetry, and supplier capabilities; regions or enterprises can enhance their value capture by upgrading within the value chain (e.g., moving from assembly to design) or by changing the governance model (e.g., shifting from captive to relational cooperation). For HNFTZ, GVC theory provides a framework to analyze its current position in global value chains, identify constraints on upgrading, and explore paths to move towards high-value-added segments—especially critical under the Trump 2.0 context of GVC regionalization and technological barriers.

2.2 International Technology Transfer (ITT) Theory

ITT theory explores the processes, mechanisms, and influencing factors of technology diffusion across national borders. Core content of the theory includes technology transfer mechanisms and impact factors. Technology transfer mechanisms are classified into formal channels (e.g., technology licensing, joint ventures, technical consulting services) and informal channels (e.g., technology spillover from foreign-invested enterprises, knowledge sharing among international employees, imitation of foreign products). Impact factors of ITT include both supply-side factors (e.g., technology owners' willingness to transfer, technical maturity) and demand-side factors (e.g., technology recipients' absorption capacity, institutional environment).

Classic theories supporting ITT include the Technology Gap Theory and the Absorptive Capacity Theory. The Technology Gap Theory argues that technological differences between countries drive technology transfer, with the speed of transfer determined by the size of the technology gap and the degree of policy openness. The Absorptive Capacity Theory emphasizes that recipients' ability to absorb and apply transferred technology—dependent on factors such as human capital quality, R&D investment, and institutional support—directly affects the effectiveness of technology transfer. For HNFTZ, ITT theory helps analyze the current efficiency of its technology transfer channels, identify bottlenecks in technology absorption, and design targeted measures to improve technology transfer quality under the constraints of Trump 2.0's technology export controls.

2.3 Free Trade Port International Cooperation Governance Theory

Free trade port international cooperation governance theory focuses on the institutional design and multi-agent coordination mechanisms that support free trade ports in conducting cross-border cooperation. Core characteristics of free trade ports include low or zero tariff rates, simplified customs clearance procedures, and a high degree of openness in trade, investment, and financial services—features that serve as the foundation for their international cooperation. The theory emphasizes the role of multi-agent governance, involving three main subjects: government (formulating cooperation policies, optimizing institutional environments), enterprises (participating in cross-border investment, technology cooperation, and trade activities), and international organizations (providing rule-making references, promoting policy coordination).

Key governance mechanisms include policy coordination (aligning domestic policies with international rules such as CPTPP and DEPA), institutional innovation (establishing cross-

border dispute resolution mechanisms, optimizing intellectual property protection systems), and service support (building international technology transfer platforms, providing cross-border financial services). For HNFTZ, this theory provides guidance for optimizing its international cooperation governance system, enhancing coordination with global partners, and breaking through institutional barriers to cooperation under the Trump 2.0 context of increased trade policy uncertainty.

3. Trump 2.0 Context and Development Status of Hainan Free Trade Port

3.1 Policy Characteristics of Trump 2.0 and Its Impacts on Global Value Chains

Trump 2.0 is defined by three core policy characteristics that reshape global economic interactions. First, intensified trade protectionism: this includes imposing additional tariffs on imported manufactured goods from major trading partners, launching anti-dumping and countervailing investigations against foreign enterprises, and promoting "Buy American" policies to restrict the entry of foreign products into the U.S. market. Second, deliberate technological decoupling: this involves implementing strict export controls on high-tech products and technologies (e.g., advanced semiconductors, artificial intelligence algorithms, quantum computing), restricting U.S. enterprises from collaborating with foreign entities in high-tech fields, and pressuring allied countries to exclude specific foreign enterprises from their technology supply chains. Third, adjusted global economic governance participation: this includes withdrawing from or weakening participation in multilateral economic agreements, prioritizing bilateral trade negotiations, and promoting a "America First" approach that undermines the coordination of global economic rules.

These policies have exerted profound impacts on GVCs. First, they have accelerated the regionalization of value chains: enterprises, to avoid tariff risks and export controls, have begun to concentrate their production and supply chain links in specific regions (e.g., North America, Europe, East Asia), reducing the degree of global value chain integration. Second, they have increased the complexity of supply chain restructuring: enterprises face higher costs when adjusting their supply chains, such as building new production bases and establishing new supplier relationships, which undermines the efficiency of GVC operations. Third, they have widened the technological divide between countries: export controls on high-tech products have restricted the flow of advanced technologies to developing economies, limiting their ability to upgrade within GVCs and reinforcing the imbalance of value distribution in global value chains.

3.2 Existing Models and Effects of International Cooperation in Hainan Free Trade Port

HNFTZ has formed diverse international cooperation models based on its industrial positioning and institutional advantages, with three main types standing out. First, cross-border trade cooperation: leveraging its status as a free trade port, HNFTZ has promoted the development of cross-border e-commerce, bonded logistics, and international commodity trading platforms. It has established direct trade links with multiple countries and regions, focusing on the import and export of high-quality consumer goods, agricultural products, and mechanical and electrical products. Second, cross-border investment cooperation: HNFTZ has attracted foreign investment through preferential policies such as low corporate tax rates and simplified investment approval procedures, with foreign investment focusing on fields such as tourism, modern services, and high-tech manufacturing. It has also supported domestic enterprises in "going global" by establishing overseas branches or participating in international investment projects. Third, cross-border industrial and service cooperation: HNFTZ has developed international tourism cooperation (e.g., joint tourism routes with Southeast Asian countries), offshore financial services (e.g., cross-border financing for enterprises), and international R&D cooperation (e.g., joint R&D centers with foreign universities and enterprises).

These cooperation models have yielded positive effects. In terms of trade volume, HNFTZ's total import and export volume has maintained steady growth, with cross-border e-commerce transaction volume showing a significant upward trend. In terms of investment attraction, the number of foreign-invested enterprises entering HNFTZ has increased year by year, with investment scale expanding in key fields such as

high-tech and modern services. In terms of industrial upgrading, international cooperation has promoted the development of emerging industries in HNFTZ, such as marine economy and digital trade, and has driven the optimization of its industrial structure. However, HNFTZ's international cooperation still faces limitations, such as over-reliance on traditional cooperation partners and a focus on low-value-added cooperation links, which makes it vulnerable to external policy shocks such as Trump 2.0.

3.3 Channels, Level, and Bottlenecks of Technology Transfer in Hainan Free Trade Port

HNFTZ's technology transfer channels are mainly divided into three categories. First, technology spillover from foreign-invested enterprises: foreign enterprises entering HNFTZ bring advanced production technologies and management experiences, which are transmitted to local enterprises through employee mobility, supplier cooperation, and product imitation. Second, formal technology introduction: HNFTZ enterprises obtain advanced technologies through formal channels such as technology licensing, technical consulting, and joint ventures with foreign technology providers. Third, international R&D cooperation: HNFTZ has established cooperative relationships with foreign universities, research institutions, and enterprises to carry out joint R&D projects, promoting the transfer and sharing of technical knowledge.

In terms of technology transfer level, HNFTZ currently focuses on medium and low-end technologies. Most transferred technologies are concentrated in fields such as traditional manufacturing, agricultural processing, and basic service industries, while high-tech fields such as advanced materials, precision manufacturing, and digital technologies remain underrepresented. The application of transferred technologies has improved the production efficiency of local enterprises to a certain extent but has not significantly enhanced their independent innovation capabilities, with limited progress in core technology mastery.

HNFTZ's technology transfer faces three main bottlenecks. First, weak technology absorption capacity: local enterprises have insufficient R&D investment, a shortage of high-quality technical talents, and imperfect technical innovation systems, making it difficult to effectively absorb and apply transferred advanced technologies. Second, institutional and policy barriers: there are inconsistencies between some of HNFTZ's technology transfer management systems and international rules, such as cumbersome procedures for technology import approval and inadequate protection of intellectual property rights, which affect the willingness of foreign technology providers to transfer technologies. Third, impact of international technical barriers: under Trump 2.0, export controls on high-tech products and technologies have restricted HNFTZ's access to advanced technologies, while some countries have imposed technical standards barriers that increase the difficulty and cost of technology transfer.

4. Mechanism of Trump 2.0's Impacts on International Cooperation and Technology Transfer of Hainan Free Trade Port (from a GVC Perspective)

4.1 Impacts on GVC Embedding Position and Value Capture of Hainan Free Trade Port

Trump 2.0 has significantly constrained HNFTZ's GVC embedding position and value capture capabilities. In terms of embedding position, Trump 2.0's export controls on high-tech products have blocked HNFTZ's access to high-value-added GVC links such as research and development, core component manufacturing, and brand operation. HNFTZ enterprises are forced to remain in low-value-added links such as product assembly and simple processing, unable to achieve upward upgrading in GVCs. For example, in the electronic information industry, HNFTZ enterprises face difficulties in obtaining advanced semiconductor technologies and core components due to U.S. export controls, limiting their ability to participate in high-end electronic product manufacturing and confining them to the assembly and processing of low-end electronic products.

In terms of value capture, Trump 2.0's trade protection policies have increased the cost of HNFTZ's participation in GVCs, reducing its value capture efficiency. Additional tariffs on exported products have compressed the profit margins of HNFTZ enterprises, while the regionalization of GVCs has increased the cost of supply chain adjustments for enterprises. For instance, HNFTZ's agricultural product

processing enterprises, which rely on exports to the U.S. market, face higher tariff costs due to Trump 2.0's tariff policies, leading to a significant reduction in their profit margins. At the same time, the regionalization of GVCs has forced these enterprises to find new suppliers and markets within specific regions, increasing their supply chain operation costs and further weakening their value capture capabilities.

4.2 Constraints on International Cooperation Entities and Fields of Hainan Free Trade Port

Trump 2.0 has imposed constraints on HNFTZ's international cooperation entities and fields from two dimensions. In terms of cooperation entities, Trump 2.0's policies have pressured U.S. enterprises to reduce or terminate their cooperation with HNFTZ enterprises. U.S. high-tech enterprises, in particular, face restrictions on investing in HNFTZ or conducting technical cooperation with local enterprises, reducing the number of high-quality international cooperation partners for HNFTZ. Additionally, some U.S. allied countries, under pressure from the U.S., have also restricted their enterprises' cooperation with HNFTZ in certain fields, further narrowing HNFTZ's scope of cooperation entities.

In terms of cooperation fields, Trump 2.0 has limited HNFTZ's international cooperation to low-tech and low-value-added fields, while blocking cooperation in high-tech and high-value-added fields. Cooperation in fields such as advanced manufacturing, digital technology, and new energy—key to HNFTZ's industrial upgrading—has been significantly constrained. For example, in the new energy industry, HNFTZ's attempts to cooperate with U.S. enterprises in the research and development of advanced photovoltaic technologies and energy storage systems have been hindered by U.S. export controls and cooperation restrictions, forcing HNFTZ to focus on low-end cooperation such as the import and assembly of new energy products. Meanwhile, cooperation in traditional fields such as tourism and agricultural trade, although less affected, faces increased trade barriers and market uncertainty under Trump 2.0's trade protection policies, limiting the room for development.

4.3 Impacts on Technology Transfer Efficiency and Technology Spillover Effects of Hainan Free Trade Port

Trump 2.0 has exerted negative impacts on HNFTZ's technology transfer efficiency and technology spillover effects. In terms of technology transfer efficiency, Trump 2.0's export controls on high-tech products have significantly reduced the supply of advanced technologies available to HNFTZ, leading to a decline in technology transfer efficiency. Foreign technology providers, especially those from the U.S. and its allies, face strict restrictions on transferring high-tech technologies to HNFTZ, resulting in a reduction in the number of high-quality technology transfer projects and an increase in the cost of technology introduction for HNFTZ enterprises. For example, HNFTZ enterprises seeking to introduce advanced intelligent manufacturing technologies from U.S. enterprises now face longer approval procedures and higher technology acquisition costs, and in some cases, are even unable to obtain the required technologies, significantly reducing technology transfer efficiency.

In terms of technology spillover effects, Trump 2.0's policies have weakened the technology spillover from foreign-invested enterprises to HNFTZ. To avoid violating U.S. export control policies, foreign-invested enterprises in HNFTZ have reduced the transfer of core technologies and management experiences, and have even adopted measures such as restricting employee mobility and reducing supplier cooperation to prevent technology leakage. This has limited the spillover of advanced technologies and management experiences to local enterprises, weakening the role of foreign-invested enterprises in promoting HNFTZ's technological progress. For instance, some foreign-invested automobile manufacturing enterprises in HNFTZ have stopped sharing advanced production process technologies with local suppliers and have reduced the training of local employees, leading to a significant decline in technology spillover effects and limiting the technological upgrading of local automobile component enterprises.

5. Optimization Paths for International Cooperation and Technology Transfer of Hainan Free Trade Port

5.1 Diversified International Cooperation Paths Based on GVC Restructuring

To address the constraints of Trump 2.0 on GVC embedding, HNFTZ should develop diversified international cooperation paths based on GVC

restructuring. First, deepen cooperation with emerging market economies and "Belt and Road" partner countries: these regions have large market potential and relatively loose technical cooperation restrictions, providing HNFTZ with opportunities to expand GVC participation. HNFTZ can establish regional value chain cooperation systems with Southeast Asian, Middle Eastern, and African countries, focusing on fields such as infrastructure construction, agricultural cooperation, and manufacturing, and gradually expand to medium and high-value-added links. For example, HNFTZ can cooperate with Southeast Asian countries to build cross-border manufacturing clusters, focusing on the production of mechanical and electrical products and automotive components, and gradually upgrade to product design and brand operation links.

Second, strengthen cooperation with non-U.S. developed economies: cooperate with European, Japanese, and South Korean enterprises in high-tech fields such as new energy, digital technology, and advanced manufacturing, leveraging their technological advantages to break through U.S. technical barriers. HNFTZ can establish joint R&D centers and technology transfer platforms with enterprises and research institutions from these countries, promoting the transfer and application of advanced technologies. For instance, HNFTZ can cooperate with German enterprises in the field of intelligent manufacturing to introduce advanced production technologies and management experiences, and jointly develop customized intelligent manufacturing solutions suitable for HNFTZ's industrial needs.

Third, promote the development of local leading enterprises to drive GVC upgrading: support local enterprises with strong technical capabilities and market competitiveness to expand their influence in GVCs, encourage them to participate in international standard-setting, and enhance their ability to lead value chain cooperation. HNFTZ can provide policy support such as R&D subsidies and financial incentives to help local enterprises improve their independent innovation capabilities and expand their international market share. For example, support local new energy enterprises in developing core technologies such as high-efficiency batteries and energy storage systems, and help them establish overseas sales networks and production bases to become key participants in the global new energy value chain.

5.2 Institutional and Capacity Building Paths to Enhance Technology Transfer Effectiveness

To improve technology transfer efficiency and address absorption bottlenecks, HNFTZ should strengthen institutional construction and capacity building. First, optimize the institutional environment for technology transfer: align with international high-standard economic and trade rules (such as CPTPP and DEPA) to improve the intellectual property protection system, simplify the approval procedures for technology import and export, and establish a cross-border technology transfer service platform. The platform can provide one-stop services such as technology assessment, intellectual property registration, and technical consulting, reducing the transaction costs of technology transfer. Additionally, HNFTZ should establish a cross-border dispute resolution mechanism for technology transfer, providing legal protection for both parties in technology cooperation.

Second, enhance the technology absorption capacity of local enterprises: increase support for enterprise R&D investment, encourage enterprises to establish R&D centers and hire high-quality technical talents, and promote the integration of production, education, and research. HNFTZ can cooperate with domestic and foreign universities and research institutions to establish talent training bases, focusing on cultivating technical talents in high-demand fields such as high-tech manufacturing, digital technology, and new energy. At the same time, support enterprises in carrying out technical transformation and upgrading projects, providing subsidies for the purchase of advanced equipment and the development of new technologies, to improve their ability to absorb and apply transferred technologies.

Third, build a multi-level technology transfer network: establish cooperation with international technology transfer institutions, overseas science and technology parks, and foreign enterprises to expand the sources of technology transfer. HNFTZ can set up overseas technology acquisition centers in regions with concentrated high-tech resources (such as Europe and Japan) to collect and introduce advanced technologies. Additionally, promote the development of technology intermediary services, support the establishment of professional technology transfer companies, and improve the matching

efficiency between technology suppliers and demanders. For example, support technology transfer companies in conducting market research and technology evaluation to help HNFTZ enterprises select suitable technologies and partners, and promote the effective transfer and application of technologies.

6. Conclusion

This study explores the impacts of Trump 2.0 on international cooperation and technology transfer of Hainan Free Trade Port from a global value chain perspective, and proposes corresponding optimization paths. The main findings are as follows: Trump 2.0, characterized by trade protectionism, technological decoupling, and adjusted global governance participation, has exerted dual impacts on HNFTZ. On one hand, it has constrained HNFTZ's GVC embedding position, limiting its access to high-value-added links and reducing its value capture efficiency; it has also restricted HNFTZ's international cooperation entities and fields, and weakened its technology transfer efficiency and spillover effects. On the other hand, it has driven HNFTZ to explore diversified cooperation paths and strengthen independent innovation capabilities, creating opportunities for its long-term development.

The theoretical contribution of this study lies in constructing an analytical framework that integrates the Trump 2.0 context, GVC theory, and HNFTZ's international cooperation and technology transfer, filling the gap in existing research on the interaction between external policy shocks and regional free trade port development. The practical significance lies in providing targeted recommendations for HNFTZ to cope with external policy uncertainties, enhance its resilience in GVCs, and promote high-quality development of international cooperation and technology transfer.

However, this study still has limitations. It focuses on macro-level analysis and lacks micro-level empirical research on the behavior of HNFTZ enterprises. Future research can further explore the impact of Trump 2.0 on the international cooperation and technology transfer strategies of specific enterprises in HNFTZ through case studies or empirical methods, and provide more detailed and targeted policy recommendations. Additionally, with the evolution of the global economic and political environment, the policy characteristics of Trump 2.0 may change, and future research can track these changes to update the analytical framework and optimization paths.

References

[1] Gereffi, G. (2019). Global value chains and international development policy: Bringing firms, networks and policy-engaged scholarship back in. Journal of International Business Policy, 2(3), 195–210.

[2] OECD. (2020). Global value chains and trade policy. Paris: OECD Publishing.

[3] UNCTAD. (2021). World investment report 2021: International production beyond the pandemic. Geneva: UNCTAD.

[4] Li, C., & Liu, Y. (2022). The impact of Trump's trade policies on global value chain restructuring. World Development, 156, 105689.

[5] Wang, S., Li, Q., & Khaskheli, M. B. (2021). Management economic systems and governance to reduce potential risks in digital silk road investments: Legal cooperation between Hainan Free Trade Port and Ethiopia. ResearchGate.

[6] Yang, J., & Chen, W. (2020). Free trade ports and global value chain participation: Evidence from Hainan. International Journal of Emerging Markets, 15(3), 589–605.

[7] Huang, Y., & Zhao, X. (2024). Technology absorption capacity and institutional barriers in Hainan's technology transfer. China & World Economy, 32(2), 89–112.

[8] Liu, Z., & Wu, J. (2025). The role of Hainan Free Trade Port in China's dual circulation strategy. Journal of Contemporary China, 34(149), 45–60.

[9] World Bank. (2023). Hainan Free Trade Port: Pathways to sustainable development. Washington, D.C.: World Bank Group.

[10] OECD. (2020). Risks and opportunities of reshaping global value chains. Paris: OECD Publishing.