

The Evolution and Policy Implications of Overseas Warehouses under the Belt and Road Initiative

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Abstract: Since the Belt and Road Initiative began, cross-border e-commerce has shifted from a peripheral activity to a main driver of regional economic cooperation. Bonded overseas warehouses that place inventory close to consumers and handle final delivery have become essential to this growth. The paper describes how these warehouses have moved beyond basic storage to create integrated platforms that merge logistics, customs clearance, after-sales care, product display and supply chain finance. It shows that although the network has cut delivery times, reduced return costs and improved the buyer experience, it now faces structural constraints in geographic spread, regulatory compliance, green transition and financing. To address these constraints, the study proposes five policy directions: closer public-private coordination, differentiated site selection, green and smart upgrading, compliance-oriented services and innovative financing. Together, these measures can embed overseas warehouses more firmly within the Belt and Road land and sea corridors and provide a sustainable micro-foundation for Chinese manufacturing to globalize, localize and upgrade.

Keywords: Overseas Warehouse; Belt and Road; Cross-Border E-Commerce; Localization; Policy Optimization

1. Introduction

The third decade of the twenty-first century finds the global trading system caught between de-globalization and re-globalization. On the one hand, the COVID-19 pandemic, geopolitical conflicts and protectionist waves have fragmented traditional multilateral trade; on the other, big data, cloud computing and mobile payments have given rise to cross-border e-commerce as a new commercial format that reconnects production and

consumption and reshapes global value chains. UNCTAD (2023) estimates that global B2C cross-border e-commerce reached USD 3.2 trillion in 2022, accounting for 14 per cent of world merchandise trade, with the Asia-Pacific region contributing more than half. Benefiting from a complete manufacturing system, digital platform ecosystems and resilient supply chains, China has remained the world's largest cross-border e-commerce exporter for nine consecutive years.

Launched in 2013, the Belt and Road Initiative has provided both an institutional framework and physical infrastructure for China to engage in digital trade with partner countries. By May 2024, China had signed over 200 cooperation documents with 152 countries and 32 international organizations, covering Central and South-East Asia, West Asia, the Middle East, Africa and Latin America. The “six corridors, six routes and many ports” network, together with the entry into force of the Regional Comprehensive Economic Partnership (RCEP), has drastically reduced tariffs and non-tariff barriers among member states, creating an unprecedented policy window for cross-border e-commerce. In 2023, China's cross-border e-commerce exports to Belt and Road countries reached RMB 1.3 trillion, recording a five-year compound growth rate of 28 per cent—twelve percentage points higher than the national average for merchandise exports—and becoming a key driver of stabilizing foreign trade, promoting transformation and creating employment.

Chen & Guo [1] point that: yet the supply side of cross-border logistics still suffers from a weak last mile. Traditional postal packets account for more than 60 per cent of China's cross-border e-commerce shipments, with average delivery times of 15–25 days that can extend to 40 days during peak seasons; return and exchange rates linger above 12 per cent, far higher than the 2 per cent average for domestic

e-commerce. Long transit and uncertain reverse logistics undermine consumer experience and leave sellers with slow cash turnover, high inventory risk and little room for brand premium. The World Bank's Logistics Performance Index shows that Belt and Road regions such as Central Asia, West Asia and Africa score more than 20 per cent below the global average in customs efficiency and shipment traceability, constituting a prominent bottleneck for digital trade. Xia [2] offers in the paper that: to solve the "slow logistics, high returns" dilemma, the overseas warehouse model has emerged. By exporting goods in bulk and fulfilling orders locally, it can deliver within 48 hours and cut return rates to below 3 per cent.

Using 2015–2020 data for China and 46 Belt and Road countries, Deng [3] constructed a gravity model and found that a 1 per cent increase in the number of overseas warehouses raises cross-border e-commerce exports by 0.47 per cent, with the strongest effect within a 1,500 km radius. Tan [4] argues that warehouses amplify exports by lowering transaction costs, reducing information asymmetry and improving institutional fit, although their study relies on aggregated macro data rather than firm- or SKU-level evidence. Zhang & Li [5] surveyed 112 export-oriented firms in the Yangtze River Delta and found that around 60 per cent of warehouse management teams are expatriate Chinese with insufficient knowledge of local labour laws and culture, pushing annual employee turnover above 35 per cent and raising operating costs by 8–12 per cent. Liu [6] points out that the EU Market Surveillance Regulation requires online products to display an "economic operator" label from July 2024, yet most warehouses have not built compliance-tagging systems and face both delisting and fines. In addition, lagging green transformation has become a new barrier: only 8 per cent of warehouses have installed rooftop photovoltaic or recycling packaging, making it difficult to qualify for EU green tariff rebates.

2. Role Evolution: Thirty Years of Leap from "Storage Point" to "Eco-Platform"

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left side, 2.5cm on the right, 3.0cm on the top, and 2.5cm on the bottom. Paper orientation in all pages should be in portrait style.

2.1 Functional Spillover: From Logistics Node to Comprehensive Service Platform

Overseas warehouses first emerged in the late 1990s in Europe and the United States. At that time, they were merely "last-mile transit stations" rented by Chinese export enterprises to shorten delivery time. The internal process was extremely simple: containers were dragged to the port, cartons were stacked by forklifts, and after receiving an order, workers manually picked the goods and handed them to local express companies or post offices—job done. Customs clearance, quality inspection, after-sales service, product display and other links were all left to the buyer's location; the warehouse bore no legal responsibility nor interfered in consumer experience.

After the launch of the Belt and Road Initiative, countries along the route became the main battlefield for cross-border e-commerce increment. Unlike mature European and American markets, these emerging economies generally face two pain points: first, customs rules are changeable and opaque; second, consumers have strong demands for "local return and exchange". If the old "storage + delivery" model continued, Chinese sellers would have to mail returns cross-border one by one, with time costs often reaching one month, directly lowering the repurchase rate. Market pain points forced warehousing functions to spill over. Overseas warehouses began to "front-load" customs clearance, after-sales service, display and supply-chain finance into the warehouse, forming a comprehensive service chain that compresses time and space.

Traditional exports require customs declaration at the port first; after the goods arrive, the consignee or its agent declares to the destination customs again. The process is serial and information is fragmented, frequently resulting in a one-week detention due to a single certificate of origin. Countries such as Poland, Hungary and the United Arab Emirates along the Belt and Road subsequently launched "bonded warehouse + fast customs clearance" schemes, allowing Chinese enterprises to set up "customs-supervised warehouses" in industrial parks. Once goods are warehoused, they are deemed to have entered the country, and

customs declaration, inspection and tax payment can be completed in one go. Cainiao's Polish warehouse took the lead in embedding the Alipay tax rebate system into its warehouse management system (WMS). When an order is released, VAT is automatically calculated and uploaded to the Polish tax authority's cloud in real time, achieving "tax rebate upon placing order". According to the warehouse operator, on average seven days of tax rebate cycle are saved for sellers, and for every million dollars of sales, cash flow increases by 35,000 US dollars, equivalent to two percentage points of net profit.

2.2 Financial Attribute Reversal: From Cost Centre to Profit Centre

Functional spillover not only improves buyer experience but also changes the financial model of overseas warehouses themselves. Early overseas warehouses were criticized as "heavy-asset, long-cycle, low-turnover", with the profit model relying solely on "warehouse rent + handling fee", fixed asset depreciation accounting for as high as 35 per cent, and investment payback periods generally exceeding six years. With value-added businesses such as local distribution, exhibition-by-warehouse and reverse procurement unfolding, the revenue structure of overseas warehouses has shifted from "single warehouse leasing" to "diversified operations", and the attribute of profit centre has become increasingly prominent.

Anker Innovations set up a secondary distribution centre in its Leipzig, Germany warehouse in 2019, supplying power banks and data cables directly to chain stores, and undertook shelf display and promoter training. In 2023, European offline sales increased by 43 per cent year-on-year, accounting for 28 per cent of total revenue, and the gross margin in the warehouse was six percentage points higher than that of pure e-commerce channels, contributing a net profit of 12 million US dollars for the whole year, equivalent to recovering 80 per cent of the initial investment of the warehouse.

Yiwu Small Commodities Group's Dubai warehouse utilizes the "Ramadan + National Day" dual nodes, holding "in-warehouse ordering fairs" in April and November every year, with 500 standard pallets on site, covering SKUs such as accessories, toys and daily

necessities, and inviting more than 600 purchasers from the six Gulf countries to view samples and place orders on the spot. Since exhibits are in the warehouse, purchasers can arrange same-day delivery immediately after confirming orders, shortening the transaction cycle from 30 days for traditional exhibitions to seven days. In the autumn of 2023, a single ordering fair achieved an intended turnover of 120 million US dollars, amortizing 30 per cent of annual operating expenses, and the output value per square metre of warehouse rose to 2.4 times that of ordinary storage.

The China-Europe Railway Express has long been troubled by full loads outbound and empty back haul. Casino's Polish warehouse signed a "heavy-load round-trip" agreement with the Chengdu-Europe Railway Express, using spare slots to consolidate European milk powder, cosmetics and auto parts back to Chengdu, and then distribute them to T mall Global and Koala. In 2022, the reverse procurement completed 3,200 TEU, contributing a net profit of 12 million RMB to Cainiao, while reducing trunk costs by 18 per cent, forming a "sell global + buy global" closed loop.

Overall data show that the profit contribution rate of some 3C sellers' overseas warehouses has reached 35 per cent, and Xu [7] points that the investment payback period has been shortened from six years to 2.8 years, officially transforming overseas warehouses from "money-burning infrastructure" to "profitable value-added units".

2.3 Operating Entity Differentiation: From Enterprise Self-Operation to Public Sharing

Functional expansion and profit improvement have attracted a large number of small and medium-sized sellers, but the heavy-asset model remains a high threshold. Since 2020, the Ministry of Commerce has included public overseas warehouses in the catalogue of new foreign trade formats, and the operating model has shifted from "closed self-operation" to "open sharing", with institutional arrangements in three dimensions: certification standards, capital subsidies and data interconnection.

Zhao [8] offers that from 2021 to 2023, the Ministry of Commerce cumulatively recognized 255 "excellent overseas warehouses", of which 67 per cent explicitly open to small and medium-sized sellers and provide unified customs declaration, tax rebate, training, brand

promotion and other public services. Recognized warehouses can use the “Ministry of Commerce Excellent Overseas Warehouse” logo on their official websites, equivalent to a government endorsement, significantly reducing the trust cost of purchasers and platforms. After a Yiwu accessories enterprise moved into a Dubai public warehouse, it obtained the Noon platform home-page traffic entrance for the first time, adding 120,000 fans in 30 days.

Public warehouses generally adopt a flexible “space rental + handling fee” model, where sellers can rent space by the day and enjoy the first month free of warehouse rent; compared with self-operated warehouses, sellers’ upfront input drops by 70 per cent and inventory turnover days are shortened by 5.6 days. In 2022, Shenzhen Radiant Technology transferred 300 cubic meters of goods from its self-operated British warehouse to a public Manchester warehouse, saving a one-time deposit of 120,000 pounds and using the funds for TikTok advertising, with European site sales growing by 110 per cent in that quarter.

The Yiwu Public Overseas Warehouse Alliance launched the “Silk Road e-Warehouse” platform, which pools real-time inventory, in-transit and sales data from 38 warehouses in 12 countries. Sellers can log in to view regional sales velocity at SKU level. The system also embeds an intelligent replenishment model, which automatically pushes purchase suggestions when inventory falls below the safety threshold, improving replenishment decision efficiency by 40 per cent and reducing the out-of-stock rate by three percentage points. The Export Credit Insurance Corporation provides “overseas stock write-off insurance” for SMEs that move into public warehouses. Once goods become unsalable due to political risk or platform delisting, up to 80 per cent of the value of goods can be compensated. In 2023, a Zhejiang thermos-cup enterprise suffered inventory backlog due to Amazon category adjustments. Thanks to this insurance, it successfully received 420,000 US dollars in compensation, avoiding a cash-flow break.

2.4 Evolution Path Summary

From “single-point warehouse” to “eco-platform”, overseas warehouses along the Belt and Road have experienced three-dimensional leaps in function, finance and organization: in

terms of function, customs clearance, after-sales, display and finance are successively included in the service bundle; financially, local distribution, exhibition-by-warehouse and reverse procurement shift them from cost centers to profit centers; organizationally, certification systems and data sharing promote the transition from self-operated warehouses to public warehouses, significantly lowering the entry threshold for small and medium-sized enterprises. This evolution not only enhances the commercial sustainability of overseas warehouses themselves, but also provides a micro-foundation for the high-quality development of cross-border e-commerce under the Belt and Road, laying a practical basis for subsequent chapters to explore mechanisms and policy optimization.

3. Policy Recommendations

3.1 Government–Enterprise Coordination

A permanent and workable coordination mechanism between government and business should be established, going beyond the issuance of subsidies or the holding of occasional seminars. First, an inter-ministerial “Overseas Warehouse Collaboration Office” can be created, jointly staffed by the Ministry of Commerce, the General Administration of Customs, the Export & Credit Insurance Corporation and leading logistics enterprises. This office would collect operational problems encountered abroad and coordinate external responses through a single window. When a firm faces a customs-code dispute in Poland, a labour inspection in Saudi Arabia or a power-capacity approval in Kenya, it can obtain clear guidance from one channel instead of having to approach multiple authorities. Second, a shared “compliance-risk pool” can be founded. Financed by an initial fiscal injection and by annual contributions from warehouse operators and insurers in proportion to their business volume, the pool would form a dedicated fund to pay for delisting, fines or returns caused by sudden regulatory changes. Through this pool, small and medium-sized enterprises would no longer need to hire expensive law firms; by paying a modest premium, they could obtain basic compliance cover, sharply lowering entry barriers while giving government a concrete lever for institutional opening-up.

Coordination should also extend to standard

setting and data sharing. At present the industry lacks unified service-quality standards, so warehouses differ widely in charging methods, return processes and environmental requirements, raising firms' switching costs and creating regulatory blind spots. The Collaboration Office could lead the formulation of sectoral standards covering customs, environmental protection, labour and fire safety, and introduce a "white list" system under which only warehouses meeting the benchmarks would receive official certification and policy loans. Meanwhile, government could open data interfaces to customs, tax and foreign-exchange authorities, creating a closed loop of export declarations, overseas inventories, platform sales and fund repatriation. This would allow regulators to track cargo flows in real time and help banks to assess the value of pledged inventories dynamically, reducing credit risk. Driven by institutional supply and data factors, government-enterprise coordination would move from the paper level to the operational level and truly enhance the global competitiveness of overseas warehouses.

3.2 Differentiated Location Planning

Construction of overseas warehouses should abandon the old pattern of "rushing headlong into Europe and the United States" and instead follow the land-sea logic of the Belt and Road by creating a tiered layout in such hub cities as those in ASEAN, the Middle East and Africa. Benefiting from RCEP tariff reductions and a young demographic structure, ASEAN is experiencing double-digit annual growth in e-commerce penetration. Public warehouses located in Port Klang, Malaysia and Ho Chi Minh City, Vietnam can cover more than 600 million consumers and offer next-day delivery by road or short-sea shipping. Moreover, most ASEAN countries adopt common-law systems and have high English proficiency, so Chinese management teams face relatively low legal and cultural barriers, making the region an ideal first stop for "going out". Alongside public warehouses, offline display centers can be built, with permanent sample showrooms and training classrooms that allow Southeast Asian wholesalers to see new product functions first-hand, reducing disputes caused by "ordering online but rejecting offline" and raising closing rates.

The Middle East and Africa are suitable for a

"front-shop/back-warehouse" model that integrates storage, live streaming and trade fairs. Middle-Eastern consumers have strong purchasing power and value brand stories and on-site experience. Composite warehouses with built-in live-streaming studios can be set up in Dubai's Jebel Ali Free Zone and Saudi Arabia's Jeddah Islamic Port to hold "in-warehouse ordering fairs" during Ramadan and National Day holidays, inviting wholesalers from the six Gulf countries to view samples and place orders on the spot. This saves exhibition costs and creates topic diffusion during religious festivals. The African Continental Free Trade Area has been officially launched, but infrastructure is weak. Regional distribution warehouses can be built in Egypt's Suez Canal Economic Zone and Kenya's Port of Mombasa, offering one-stop customs clearance, quality inspection and financing services and eliminating the need for multiple port calls. Through an ASEAN-Middle East-Africa three-step jump, the overseas warehouse network will mesh with the Belt and Road's land-sea corridors, dispersing the risk of over-concentration in Europe and America and bringing Made-in-China closer to consumer frontiers.

3.3 Green and Smart Upgrading

Green transformation is no longer optional; it is the "passport" to premium markets such as the EU. Overseas warehouses can install rooftop distributed photovoltaic panels with battery storage to power lighting, forklift charging and sorting machines first, reducing electricity purchased during peak hours. At the same time, foldable reusable cartons can be introduced: couriers collect them on the spot after consumers sign for the parcel and return them to the warehouse for another cycle, lowering the consumption of single-use cartons and plastic tape. The combination of "self-generation + reusable cartons" turns the warehouse from a carbon source into a miniature green-power station, allowing it to obtain local environmental subsidies and to accumulate carbon-footprint data for sellers, which can later serve as original evidence when applying for EU green tariff rebates.

On the smart side, warehouses can deploy autonomous mobile robots and intelligent sorting lines to replace traditional forklifts and manual scanning. Robots communicate with the warehouse management system through Lidar

in real time, realizing “goods-to-person” picking and reducing unnecessary walking; sorting lines integrate dynamic weighing, scanning and dimension measurement, automatically matching the optimal package size and cutting material and freight costs. Smart equipment not only improves operational efficiency but also compresses unit energy consumption, enabling every order to be shipped in less time and with lower energy use. The overlay of green and smart technologies will shift overseas warehouses from “cost orientation” to “value orientation” and help Chinese sellers build an environmentally friendly and efficient image in overseas markets.

3.4 Compliance First

As regulations such as the EU Market Surveillance Regulation, the UK Product Safety and Metrology Act and the German Packaging Act come into force intensively, overseas warehouses must move compliance management forward to the inbound stage instead of scrambling after products are delisted. A one-stop compliance-service platform can be built, integrating authorized representative (AR) registration in the EU and UK, WEEE registration, GDPR data assessments and other modules. Enterprises only need to input material and functional descriptions, and the system automatically generates label templates and declarations of conformity that meet local regulations, with hashes stored on a blockchain to ensure data are tamper-proof. The platform interfaces with back ends of e-commerce marketplaces such as Amazon and Noon, allowing sellers to call up compliance certificates at the listing stage and reducing delisting risks caused by missing information. Compliance services must also be combined with talent reserves. It is recommended to create a professional qualification of “overseas warehouse compliance officer”, with examination content covering product safety, environmental and data-protection regulations in major markets such as the EU, the Middle East and ASEAN. A batch of certified professionals could be trained annually and seconded to overseas warehouses, law firms and certification bodies. Government could subsidize enterprises that employ certified staff, solving the talent shortage and raising overall compliance levels. Through the dual-wheel drive of “platform + talent”, overseas

warehouses can achieve a shift from “after-the-fact remedy” to “ex-ante embedding”, providing a safe passage for Chinese goods to go global.

3.5 Financial Innovation

The heavy-asset and long-cycle nature of overseas warehouses makes traditional credit ill-suited to the flexible needs of small and medium-sized sellers. “Warehouse receipt + blockchain” pledge financing can be promoted: inventory flow, inbound and outbound records and platform sales data are written into the block chain in real time; banks dynamically monitor the value of pledged goods through smart contracts. Once inventory falls below a warning line, the system immediately reminds the borrower to replenish stock or repay in advance, reducing the risk of bad debts. Thanks to transparent and tamper-proof data, banks’ willingness to extend credit rises significantly, and enterprises can obtain loan limits matching the value of goods, which can be used for peak-season stocking or market expansion, easing the long-standing cash-flow dilemma of “goods overseas, money at home”.

On the basis of warehouse-receipt pledging, the secularization of inventory assets can be explored. Leading overseas warehouse operators could bundle high-turnover, standardized 3C or home-textile inventories into asset-backed notes and issue them on the inter-bank market or on comprehensive pilot-zone trading platforms for cross-border e-commerce. Investors receive future sales proceeds via the notes, while operators obtain upfront cash for warehouse expansion. Secularization not only disperses credit risk but also provides a new channel for domestic and overseas capital to participate in Belt and Road construction, creating a “build—lend—secularize—rebuild” rolling expansion model that shifts overseas warehouses from a “heavy-asset trap” to a “light-asset cycle” and better supports the continuous global expansion of Chinese brands.

4. Conclusion

Overseas warehouses are no longer mere logistics facilities; they have become strategic pivots that link Chinese manufacturing with overseas consumer markets under the Belt and Road framework. Future studies should draw on

firm-level micro-data to examine how these warehouses affect brand premiums, inventory turnover and carbon emissions on the margin, while also paying close attention to new challenges arising from geopolitical shifts and the evolving rules of digital trade.

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