

Cross-Border Live Streaming by Dalian's Cross-Border E-Commerce Enterprises under the DTC Model: Challenges and Countermeasures

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Abstract: Against the backdrop of deepening integration between the digital economy and global trade, the direct-to-consumer (DTC) model—characterized by disintermediation, direct consumer engagement, and independent brand operation—has gradually become an important pathway for cross-border e-commerce brands seeking to go global. Cross-border live streaming, as a digital marketing approach featuring high interactivity, strong trust, and short-chain conversion, is reshaping the traditional cross-border e-commerce landscape. Dalian, a key foreign trade port in Northeast China and a cross-border e-commerce comprehensive pilot zone, enjoys advantages in port logistics, geographic proximity to Japan and South Korea, and industrial belt foundations. Yet when it comes to conducting cross-border live streaming under the DTC model, the city still faces challenges such as limited reach, relatively high costs, insufficient localization, and weak talent and technological support. Based on a review of the current state of cross-border e-commerce and cross-border live streaming in Dalian, this paper analyzes the practical dilemmas involved and proposes recommendations for improvement from the perspectives of digital technology empowerment, policy support, platform collaboration, and talent cultivation, with the aim of providing a reference for Dalian's cross-border e-commerce enterprises to enhance their international market competitiveness and the effectiveness of their brand globalization efforts.

Keywords: DTC model; Cross-border e-commerce; Cross-border live streaming; Dalian; Brand going global

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1. Introduction

The accelerating digitalization of global trade has gradually shifted cross-border e-commerce away from its early reliance on third-party platform exports toward refined operations centered on brands, users, and data. The DTC (direct-to-consumer) model emphasizes bypassing intermediaries such as wholesalers and retailers, enabling brands to reach overseas consumers directly through independent websites, social platforms, and

digital channels^[1]. This approach allows enterprises to capture end-user demand more promptly, shorten product feedback cycles, and expand profit margins through independent pricing and user operations. For Dalian's cross-border e-commerce enterprises—long accustomed to relying on platforms such as Amazon and eBay—DTC represents not merely a shift in sales channels but a restructuring of brand equity, customer relationships, and data capabilities^[2]. In parallel, overseas social platforms including TikTok, YouTube Live, and Facebook Live have propelled the rapid growth of cross-border live streaming. Compared with conventional graphic and short-video content, live streaming can showcase product details, usage scenarios, and service capabilities in real time, while building interactive trust through bullet comments, comments, and co-streaming^[3]. For DTC brands, cross-border live streaming serves not only as a tool for traffic acquisition and conversion but also as a means of user education, brand expression, and market demand testing^[4]. Research on the challenges and countermeasures of cross-border live streaming among Dalian's cross-border e-commerce enterprises under the DTC model is therefore of practical relevance and applied value.

2. Analysis of DTC development and cross-border live streaming among Dalian's cross-border e-commerce enterprises

Dalian is located at the southern tip of the Liaodong Peninsula, bordering the Yellow Sea to the east and the Bohai Sea to the west. Situated at the intersection of the Northeast Asian economic circle and the Pacific Rim economic circle, the city enjoys proximity to Japan and South Korea and adjacency to the Russian Far East, making it a major foreign trade port in Northeast China and an international shipping center in Northeast Asia. Backed by port logistics, bonded warehousing, and cross-border e-commerce comprehensive pilot zone policies, Dalian's cross-border e-commerce industry has gradually taken shape, with High-tech Zone, Ganjingzi District, and Xigang District serving as primary host areas. Its business scope encompasses overseas warehouses, cross-border logistics, B2B platforms, B2C platforms, and O2O operations.

In terms of DTC practice, Dalian has seen the emergence of a cohort of enterprises exploring independent brand globalization, spanning categories such as apparel, cosmetics, furniture and home appliances, and home textiles. Some have established independent websites or leveraged Facebook, Instagram, and TikTok for advertising and account operations; others continue to rely on platforms such as Amazon, eBay, Wish, Lazada, and Shopee to pursue a second growth curve. Among them, the Dalian Dalunte fragrance brand has advanced independent brand building and digital business model innovation in the fragrance sector, serving as a demonstrative example within the industry. On the whole, however, DTC in Dalian remains at an early stage of development, with insufficient enterprise awareness, supply chain integration, and interdisciplinary talent reserves.

In the realm of cross-border live streaming, the dividends of the Belt and Road Initiative and RCEP policies have encouraged Dalian's cross-border e-commerce enterprises to begin experimenting with live streaming. In 2023, more than 120 enterprises in Dalian engaged in cross-border live streaming, with markets concentrated primarily in Japan, South Korea, and Southeast Asia. The platforms used are predominantly TikTok and Alibaba.com, and the product mix features electromechanical products, agricultural and aquatic products, and apparel and accessories. Some enterprises, drawing on industrial belts such as Zhuanghe sea cucumber and Pulandian apparel, have explored a cluster-based “industrial belt + live streaming” model for going global; others have experimented with new scenarios such as “overseas warehouse live streaming” and “VR cloud showrooms.” Yet overall, Dalian's cross-border live streaming still suffers from insufficient

localization experience, a shortage of high-quality streamers, and limited content innovation capacity, and has yet to achieve a stable scale effect.

3. Major challenges facing cross-border live streaming among Dalian's cross-border e-commerce enterprises

3.1. Limited reach and unpredictable live streaming outcomes

Dalian's cross-border e-commerce enterprises currently concentrate their live streaming efforts on a relatively narrow set of markets, primarily Northeast Asia including Japan and South Korea, with insufficient coverage of key RCEP regions such as Southeast Asia and Central and Eastern Europe. One reason for this lies in the inadequate reserve of talent capable of streaming in less commonly taught languages. Take electromechanical products and agricultural and aquatic products as examples: to reach emerging markets like Vietnam and Indonesia, enterprises require streamers or operations teams equipped with local language proficiency, an understanding of consumer habits, and after-sales communication capabilities^[5]. In Dalian, however, speakers of these languages tend to cluster in traditional roles such as translation and foreign trade. Those who combine live streaming operations with both language skills and overseas market knowledge remain scarce, making it difficult for live content to genuinely resonate with target markets.

At the same time, the traffic distribution mechanisms of international social platforms compound the difficulty of achieving reach. Platforms such as TikTok and Facebook tend to favor localized content and local creators, which means live content produced by Dalian enterprises faces an uphill battle in securing organic traffic in overseas markets. Without a local account matrix, influencer partnerships, and paid promotion, live streaming rooms easily fall into a state of “content without scale”—broadcasts go out, but meaningful reach fails to materialize^[6]. Regulatory requirements also vary considerably across countries in areas such as live commerce, advertising, food imports, and data privacy^[7]. If specialty products such as sea cucumber are described inaccurately in terms of efficacy, origin, or standards during a broadcast, enterprises may face product removal, penalties, or consumer complaints. Furthermore, the difficulty of predicting live streaming outcomes is tied to the limited effectiveness of data analytics tools. Although international platforms provide data on user profiles, viewing duration, and interaction rates, these metrics often fail to align with the actual operational needs of Dalian's enterprises. Firms struggle to accurately determine viewing times, content preferences, price sensitivity, and purchasing paths of consumers in different markets, leaving live streaming schedules, product selections, and marketing rhythms without a reliable evidentiary basis. As a result, many enterprises adopt a wait-and-see attitude toward expanding their cross-border live streaming investments^[8].

3.2. Prominent cost pressures of cross-border live streaming under the DTC model

The DTC model requires enterprises to independently shoulder brand building, traffic acquisition, transaction conversion, and customer service—an arrangement that enhances autonomy but also imposes substantial time and operational costs. First, the time zone challenge is significant. Dalian falls within the UTC+8 time zone, creating a considerable gap with major markets in Europe and North America. To cover the active hours of target markets, enterprises often need to broadcast at night or even in the early morning, and some resort to round-the-clock rotating broadcasts to accommodate customers across multiple time zones. This not only complicates staff scheduling but also raises management costs for streamers, operations personnel, customer

service, and technical support^[9].

Second, live streaming operations are costly. To present products effectively, enterprises must purchase professional equipment—cameras, lighting, audio gear, backdrop screens—and build streaming rooms that match their brand identity. If they engage influencers or professional streamers, they must also pay slot fees, commissions, and service charges. While larger enterprises can dilute costs through scale, SMEs are often constrained by budgets, forced to rely on basic equipment or rent smaller venues, making it difficult to guarantee streaming quality and conversion outcomes. The DTC model further requires enterprises to integrate live streaming with independent websites, payment systems, logistics, and after-sales service. The initial system development and team coordination involved generate additional hidden costs^[10].

3.3. Difficulties in localized marketing integration

Cross-border live streaming is not a simple translation of domestic live streaming; rather, it entails systematic adaptation across cultural psychology, consumption habits, modes of expression, and regulatory environments. Many of Dalian's cross-border e-commerce enterprises have transitioned from traditional foreign trade firms. Their understanding of overseas markets tends to remain at the level of product specifications and orders, and they still lack experience in how live content can resonate with local consumers. Consumers in different markets, for instance, vary in their acceptance of humor, promotions, bargaining, product reviews, and influencer recommendations; religious beliefs, festivals, and social etiquette also shape live streaming scripts and visual presentation. If live content merely translates domestic scripts verbatim, it easily results in weak interactivity and insufficient immersion^[11].

Legal compliance also constitutes a major barrier to localization. The EU's GDPR imposes strict requirements on data privacy; Japan's Advertising Act and similar regulations place explicit limits on promotional claims; and different platforms have their own rules regarding sweepstakes, price comparisons, and efficacy claims. Without a systematic understanding of target market regulations, Dalian enterprises may inadvertently violate rules during live broadcasts, subsequently facing account restrictions, product removal, or administrative fines. At present, channels for enterprises to obtain relevant regulatory information are relatively fragmented, and there is a lack of compliance guidelines and case libraries tailored to cross-border live streaming, resulting in elevated risks in localized operations^[12].

3.4. Insufficient talent and technological support

The shortage of interdisciplinary cross-border live streaming talent is a key factor constraining the development of Dalian's enterprises. Qualified personnel must not only master skills such as live streaming planning, on-site moderation, paid traffic management, and data analysis, but also possess foreign language communication abilities, cross-cultural understanding, and overseas sales experience. Taking the Dalian Dalunte fragrance brand as an example, although it has made some explorations in cross-border live streaming, the proportion of interdisciplinary talent truly capable of simultaneously handling live streaming operations, foreign language communication, and overseas market development remains low, limiting the brand's ability to further expand its market share^[13].

On the technological front, AI digital virtual streamers are not yet mature. Existing virtual streamers still fall short in language naturalness, emotional expression, real-time interaction, and personalized responses, making it difficult for them to handle unexpected questions and complex after-sales scenarios as human streamers do. If the user experience is poor, it may instead undermine brand trust^[14]. Meanwhile,

local universities and training institutions in Dalian offer few systematic courses in areas such as AI virtual streamers, cross-border live streaming data analytics, and intelligent translation. Enterprises face difficulties in recruiting and cultivating relevant talent, and a virtuous cycle between technology application and talent supply has yet to take shape^[15].

4. Optimization strategies for cross-border live streaming among Dalian's cross-border e-commerce enterprises under the DTC model

4.1. Empowering cross-border live streaming operations through digital technology

First, the research, development, and application of AI virtual streamer technology should be advanced. Dalian could establish a science and technology innovation fund to support joint development of AI virtual streamer systems tailored to cross-border live streaming by enterprises, universities, and research institutions, with a focus on enhancing multilingual speech synthesis, emotion recognition, real-time question answering, and intelligent recommendation capabilities. Virtual streamers can be deployed for off-peak rotating broadcasts, standardized product explanations, and basic multilingual customer service, thereby easing the pressure on human streamers. Their role, however, should be clearly defined as auxiliary: complex interactions and brand emotional expression should remain the domain of human streamers^[16].

Second, AI and big data should be leveraged to strengthen live streaming evaluation and regulatory capacity. Regulatory authorities could build a cross-border live streaming data monitoring platform, applying natural language processing and anomaly detection algorithms to identify false advertising, price fraud, and similar violations, while establishing a dynamic credit rating mechanism. Enterprises, for their part, should use big data analytics to examine viewing sources, interaction behaviors, conversion paths, and repurchase data, forming an evidentiary basis for product selection, scheduling, and advertising decisions. Government and enterprises may explore data sharing—subject to the protection of commercial privacy—to support policy formulation and industry early warning^[17].

4.2. Unleashing policy dividends to alleviate cost pressures

The Dalian municipal government could establish special support funds for cross-border e-commerce live streaming, with priority given to new trade enterprises and SMEs. Subsidies may target live streaming equipment procurement, streaming room construction, overseas social media promotion, platform event participation, and multilingual streamer training. For enterprises with innovative vitality and export potential, a “one enterprise, one policy” approach to targeted support could be adopted to reduce their trial-and-error costs.

In parallel, shared cross-border live streaming data centers and public streaming rooms should be developed, opening equipment, scenarios, networks, and basic operational services to SMEs so as to reduce duplicated investment. Leveraging Dalian's port and overseas warehouse resources, a local live streaming e-commerce supply chain system should be built, integrating specialty products, logistics, payment, customs declaration, and after-sales service to create a demonstrative ecosystem that combines digital-intelligent technology with industrial services. Through forward stocking in overseas warehouses and localized delivery, the fulfillment efficiency of cross-border orders can be improved, enhancing the delivery experience after live streaming conversion.

4.3. Technological innovation and platform collaboration: Addressing localization challenges

Enterprises should strengthen innovation in live streaming technologies, employing deep learning algorithms to analyze user behavior and enable personalized recommendations and precision marketing. They should also integrate 5G, AR, and VR with live streaming scenarios to create immersive product displays and virtual showrooms. The government, in collaboration with universities and research institutions, could establish a cross-border live streaming technology innovation center offering support for technology incubation, equipment testing, and talent training^[18].

At the industry level, a Dalian Cross-Border Live Streaming Industry Alliance could be formed, with regular thematic salons inviting enterprises that have successfully expanded into Southeast Asian, Japanese, and Korean markets to share their experience. The alliance could build a cross-border live streaming resource repository integrating multilingual streamers, overseas warehouses, digital marketing tools, and compliance service providers, thereby reducing search costs for enterprises. It could also promote a closed-loop model of “overseas warehouse + live streaming + private domain,” guiding enterprises to channel live streaming traffic toward independent websites and community groups, thereby building sustainable user assets. Through data-sharing mechanisms, member enterprises could access live streaming conversion rates, trending categories, and compliance cases from different markets, reducing blind trial and error.

4.4. Improving talent cultivation and employment mechanisms

On the one hand, the localized marketing training system should be optimized. Bureaus of commerce, working with universities, platform service agencies, and legal institutions, should hold regular intensive training camps on cross-border marketing localization, covering target market consumer psychology, RCEP compliance requirements, live streaming script design, holiday marketing, and localized visual packaging. A shared database of localization cases should be established, compiling successful live streaming scripts, visual templates, and crisis management experience from different countries to enhance enterprises’ practical capabilities.

On the other hand, government-university-enterprise collaborative talent cultivation should be advanced. Micro-majors in cross-border e-commerce live streaming could be established, integrating language training, live streaming skills, and e-commerce operations, with a focus on cultivating talent in English, Japanese, Korean, and Southeast Asian languages. Vocational colleges should be encouraged to co-build cross-border live streaming industry schools with enterprises, developing modular courses in “language + e-commerce + live streaming” and implementing a modern apprenticeship system that combines classroom learning with enterprise practice^[19]. The government could establish special scholarships and work with MCN agencies to build practical training bases, allowing students to participate in real cross-border live streaming projects. At the same time, a multilingual streamer certification system should be developed, with those who pass the assessment given priority recommendations to local cross-border e-commerce enterprises, thereby creating a mechanism that aligns talent supply with industry demand^[20].

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