

The Digital-Intelligent Empowerment and Transnational Marketing in the Prepared Dishes Industry: A Case Study of Quick-Frozen Dumplings

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Abstract: Taking into account the digital economy and the search for new quality productive forces, digital intelligent empowerment has become one of the most important driving forces in the prepared dishes sector in China to counteract the issue of cross-border marketing and enhance its competitive status in the international market. Quick-frozen dumplings are offered as the best export item because they are an indicator of all the export results of the industrial sector in the state due to the developed production process and the existence of a specific market segment. Case study and literature review, industry induction and case analysis of the approach to participation of prepared dishes industry in cross-border marketing by means of digital-intelligent empowerment form the basis of the current paper. It also encompasses four major weaknesses, including bad performance of digital marketing, absence of localization, failure to create a brand, and inability to reach professionals owing to the low degree of digitalization, fragmentation of information, lack of proper training, and poor relationship with the industry. The proposed five-dimensional solutions, i.e., adoption of deep tech, talent development, localization, building of a brand, and industry coordination, are rather realistic. The results offer valuable recommendations to the industry in order to operate in the world markets, develop new quality productive forces, and contribute to high-quality international development.

Keywords: Digital-intelligent empowerment; Prepared dishes; Cross-border marketing; Differentiated development; Quick-frozen dumpling

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1. Introduction

1.1. Domestic and foreign policy guidelines

In the internal environment, it has been established that national and regional authorities have come up with a policy framework in which the high-level design and site-specific implementation are integrated to enhance the export of ready meals outside the borders. There is also the support of the top-level design by

the *Opinions on Accelerating the Development of the Digital Economy*, which supports the incorporation of digital and intelligent technologies into the real economy and exporting of the showcased consumer goods to other countries. Export of prepared dishes is listed as one of the main goals of agricultural modernization in the 14th Five-Year Plan on the Promotion of Agricultural and Rural Modernization^[1]. It was facilitated by the implementation of a new AEO certification policy by the General Administration of Customs, which facilitates the export of prepared dishes through customs. The policies in Guangdong are selective so as to assist companies in creating digital and intelligent export platforms. The annual growth rate of prepared dishes in Guangdong grew by 21.7 percent in 2024^[2]. Joint regulations adopted by the Commerce Ministry and the Agriculture and Rural Affairs Ministry also play their role in establishing standards in logistics and export across borders^[3].

In the global context, big trade partners have established regulations that establish the rules regarding imported prepared dishes. The EU Regulation No. 1169/2011 is a common legislation related to the labeling of products and stating of allergens and also stipulates that the relevant companies should be certified with the HACCP certificate^[4]. According to the Food Sanitation Law of Japan, prepared dishes ought to follow the regulations of the BRC and IFS^[4]. According to the American Innovation and Manufacturing Act of 2020, the temperature of frozen prepared dishes must not exceed -18 degrees Celsius^[5]. Besides, Thailand and the Philippines have particular requirements about the registration of goods and the inspection of product quality^[4]. Digital and intelligent empowerment can help standardize prepared food in the entire process and may also be applied to ensure international guidelines on supervision are adhered to. Quick-frozen dumplings are one of the biggest export items in China, and their percentage in the Chinese domestic market is estimated at 94 percent as of January to October 2025, and most of them are exported to North America and Australia. These kinds of cross-border marketing issues are typical of the entire industry^[6], and it is exactly why the provided case study is especially important.

1.2. Literature review

The ideas about digital and intelligent empowerment, the preparation of dishes, and cross-border marketing have been investigated by both domestic researchers and those working abroad. Nonetheless, there are no significant studies on the combination of all three topics and specific types of prepared dishes, and there is an information gap in the scientific literature on the topic. This paper has its theoretical basis in foreign research. As stated by relevant research, the implementation of digital marketing may enhance the effectiveness of cross-border e-commerce, but their study did not discuss the issue of prepared dishes^[2]. Relevant literature investigated the function of intelligent logistics in cross-border e-commerce performance, and it might be used as a guideline to optimize the logistics of prepared dishes^[4]. Other scholars talked about determinants of selling frozen dumplings without considering digital and intelligent empowerment^[7].

There are practical experiences in domestic studies that can be utilized. The European Union publications make clear the control principles of the international standards of prepared meals^[8]. Domestic research provides practical experience to refer to. Relevant papers discussed the advantages and disadvantages of exported dishes in the province of Shandong^[1,3]. One scholar took Sanquan Food as a case study to affirm digital and intelligent empowerment practices^[9]. Another researcher gave several suggestions about the cold-chain management of frozen food^[10].

2. The challenges of cross-border marketing of prepared dishes industry through the lens of development and digital and intelligent empowerment

It is clear that China has already experienced a stable increase in foreign sales of pre-cooked foods. The export volume of domestic frozen dumplings increased by 61.4 percent up to 2025 over the last year, and one-third of the orders were purchased by non-Chinese clients^[6]. However, there are four major challenges that this industry is still struggling with, which are especially evident in the quick-frozen dumpling sector.

To begin with, it may be noted that the implementation of digital and intelligent marketing is also shallow. Many organizations do not switch to new business models, but continue to follow old business models and are unable to utilize digital and intelligent technologies. They do not create cross-border data platforms and depend on a limited number of marketing channels. One of them is quick-frozen dumplings exporters who only have simple stores in cross-border e-commerce without promoting the products, leading to no exposure of the products and no sales conversion rate^[2,6,11]. Finally, the internationalization of business operations cannot be regarded as the most effective option. The enterprises fail to examine the market properly, with the help of online solutions. The formulas and flavors of the produced goods do not match the taste preferences of the local population, and the labeling of the product does not comply with the rules of the importing country. Marketing programs are not adapted to local customs, and that leads to low penetration into markets^[4,6,8]. The third issue is that independent brands are not developing. More than 70 percent of quick-frozen dumpling exporters have their own OEMs, whereas independent brands do not account for over 30 percent of them. The main strategy used by these enterprises is low costs, and they spend very little on the digital branding of their products, meaning that their products are not famous in foreign markets^[3,6,12].

Also, the lack of interdisciplinary talent represents a burning problem. There are no individuals in the industry with experience in digital technologies, cross-border marketing, and international markets. Higher education institutions cannot provide the necessary training for the talents that are needed in the industry, and the competence level of the current workforce is not high enough to enable such a digital and intelligent empowerment to be implemented.

3. Three contexts of the cross-border marketing problems of the prepared dishes industry in the context of digitalization and smart empowerment

Prepared meals have cross-border marketing issues due to the cumulative effect of various aspects, and there are four significant factors that could be used to explain the reason behind these issues.

However, first of all, the industrial revolution of digitalization and intelligence is slow-moving. It is common to find companies that are not prioritizing digitalization and lack proper digital operating systems. A few quick-frozen dumpling producers are still using conventional methods of export. At the same time, the small cross-border logistics digitization also has some indirect impact on the development of marketing^[4,6,9,13].

Additionally, there is no strong system of data integration in the industry. There is no single industrial data system, and the current data sources are fragmented. Besides, a lack of data analysts, poor data security, and compliance controls are some of the reasons that inhibit the effective marketing process^[2,7,11,13].

The next element is that the system of training talent malfunctions. The majors that are available at universities do not meet the requirements of industries, and the technical education and stimulation of talents are not enough. Due to this, the lack of interdisciplinary experience has become acute, and it is particularly prevalent in the companies that produce frozen dumplings^[6,13,14,16].

The fifth one is the lack of effective coordination in the sector. Firm competition causes the waste of resources and unhealthy relationships in the industrial chain. Also, university, research center, and business relations should be enhanced. The gap between the digital technology development and implementation has also made it difficult to come up with a uniform catalyst of industrialization ^[2–4,16].

4. Industry strategies on the development of cross-border marketing of the prepared dishes industry with digital and intelligent empowerment

Given the background of digital and intelligent empowerment, the paper combines the benefits of industries and one practical example of quick-frozen dumplings in order to suggest five concrete and implementable steps that could be undertaken to address the stated dilemma and its reasons.

Then, extend the adoption of both digital and smart technologies even more. Your goal must be to develop an industrial data platform that can help determine the precise position of the customers and develop proper marketing strategies. Use of digital technology along with cross-border logistics could enhance the ability to preserve freshness and traceability of products in the form of quick-frozen dumplings as per the findings of the present study ^[17]. It would be necessary to establish innovative digital marketing channels that would promote product visibility in foreign markets and its presence there ^[8,10,11].

Finally, improve the training system of the talent in the industry. Such cooperation in the educational process between a university and an industrial company needs to be encouraged because it can help modify the professional curriculum and conduct training focusing on the industry. Better policies concerning the motivation of talents could also help to reduce the severe shortage of interdisciplinary specialists with the ability to use digital technologies and operate across borders in the long term ^[3,13,14,16].

To sum up, speed up the process of independent branding. Companies can also choose to use various types of digital communication to increase the awareness of their brands internationally and develop different brand images depending on the adoption of traditional Chinese cuisine culture. Ensuring that international brand growth is sustainable is possible through reducing reliance on OEM production and using digital technologies to control online reputation ^[3,5,6,15].

The sixth suggestion is coordinated industrial development. It should be noted that inter-enterprise resource sharing and effective operation of industrial chains should be encouraged. The university-enterprise-research cooperation could inform the industry about the experience of the prepared dish industries that have been developed overseas in Shandong and Guangdong provinces to establish industrial competitiveness in the high-quality cross-border environment ^[2,16–18].

5. Conclusion

The paper discussed the main points and factors behind these points in cross-border marketing in the Chinese prepared dishes industry, with special emphasis on the concept of digital empowerment and intelligent empowerment of quick-frozen dumplings as the topic of research, and suggested proper optimization measures. To sum up the analysis, the prepared dishes sector in China has extensive opportunities in the international market, and the quick-frozen dumplings have significant potential in the export market. However, the industry also has four common marketing problems caused by the low degree of digitalization and poor integration of information. The stated five propositions in this paper are likely to help in alleviating the current bottlenecks,

provide the basis of the operational orientation of the prepared dishes sector in cross-border marketing, and steer the sector towards developing more advanced forms of productive forces. Subsequent research may be done to determine particular features of foreign markets and how to implement some of the strategies.

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