Research and Application of Operational Model in Cross-border E-commerce Based on Big Data Technology

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Abstract: Compared with traditional e-commerce data, big data has 4V characteristics, distributed data processing and business intelligence analysis capabilities, which can improve cross-border e-commerce marketing, customer experience, commodity fidelity traceability and operational efficiency in many aspects. These are the business values of big data for cross-border e-commerce. Firstly, this paper analyses the import and export quota of cross-border e-commerce and its characteristics. Then, it analyzes the three modes of cross-border export e-commerce, such as B2B, B2C and B2B2C. Finally, this paper provides relevant Suggestions on the big data application in cross-border e-commerce enterprises.

1. Introduction

Cross-border e-commerce is where domestic sellers sell goods directly to overseas buyers. Usually, foreign buyers visit the online stores (websites) of domestic sellers, place purchase orders and complete payment, which are delivered to foreign buyers through cross-border logistics by domestic sellers. Cross-border e-commerce is a "free, open, competitive and inclusive" way of global trade. In this way, consumers in different countries are free to buy goods from different countries in the world. In the same way, businesses in each country can sell their goods all over the world. Under the influence of the "One Belt And One Road" initiative and the "Internet plus" strategy, China has introduced policies to promote the development of cross-border e-commerce. The transaction scale and industrial clusters of cross-border e-commerce are developing rapidly. The national development and reform commission and the general administration of customs have established 10 national pilot cities for cross-border e-commerce trade services, such as Ningbo, Shanghai, Chongqing, Hangzhou, Zhengzhou, Suzhou, Shenzhen, Tianjin, Fuzhou and Pingtan. And then, the local governments are building cross-border e-commerce industrial parks based on regional advantages and their own characteristics.

With the rapid development of computer and network technology, global logistics and distribution services are gradually improved.The advantages of cross-border e-commerce, such as speed, convenience and cost saving, are rising rapidly, and the transaction volume has achieved a good "record". In 2018, the total transaction volume of cross-border e-commerce exceeded 9.0 trillion yuan. By 2020, the total volume in China is expected to exceed 12 trillion yuan, accounting for 37.6 percent of China's total imports and exports. As a result, many small and medium-sized enterprises engaged in traditional foreign trade began to transform into cross-border e-commerce businesses.

2. Characteristics of cross-border e-commerce transactions

2.1. The increasing and rapid growing trade volume

The scale of cross-border e-commerce in China is growing with a fast growth rate and a good development trend. According to relevant statistics, in 2010, China's export cross-border e-commerce trade volume was 1.1 trillion yuan. And in 2017, it reached 6.9 trillion yuan with an average annual growth rate of 30%. The import and export structure is unbalanced. The proportion exports is high. The total volume of cross-border e-commerce trade is shown in figure 1.
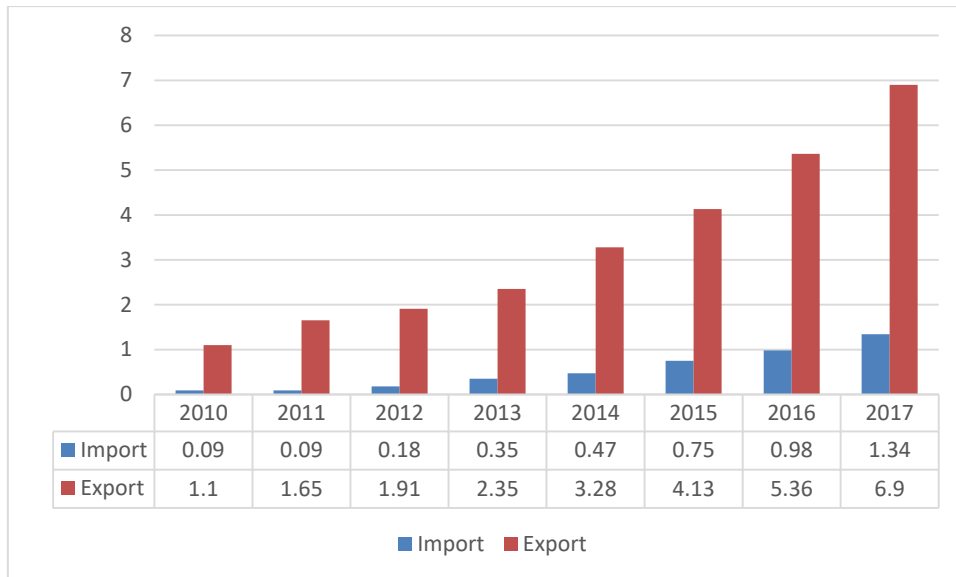
Figure 1: The total volume of cross-border e-commerce trade (Trillion RMB)

2.2. Global cross-border e-commerce product sales

China's cross-border export e-commerce enterprises are mostly distributed in the eastern coastal areas, and the sellers are mainly concentrated in Guangdong, Zhejiang, Jiangsu and Fujian. Export commodities mainly include clothing, ornaments, small household appliances, digital products and so on.Cross-border e-commerce exporters are spread all over the world, mainly in the United States, the European Union, ASEAN, Russia, South Korea, Japan, India and other countries. The product distribution of export is shown in figure 2, and the percentage of exporting country is shown in figure 3.

2.3. Diversified operation modes of cross-border e-commerce

In recent years, Chinese governments at all levels have incorporated cross-border e-commerce into their urban development plans. Relevant enterprises also actively participate in the wave of cross-border e-commerce development, which forming a variety of cross-border e-commerce operation modes, such as the B2B, the B2C and the B2B2C. At present, China's cross-border export e-commerce is dominated by B2B and decentralized by B2C. This trend is forcing traditional factories and wholesale markets to transform and further integrate online and offline. Cross-border e-commerce from Internet consumption will become the trend.
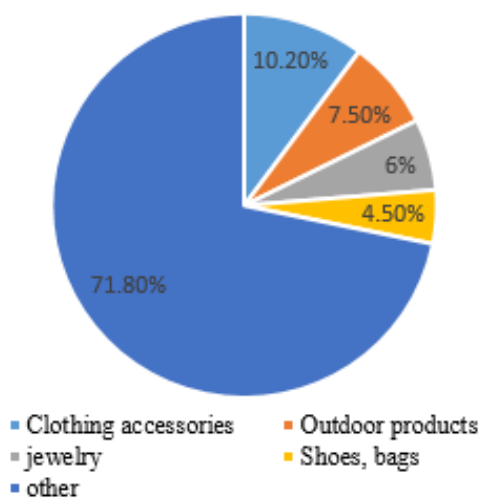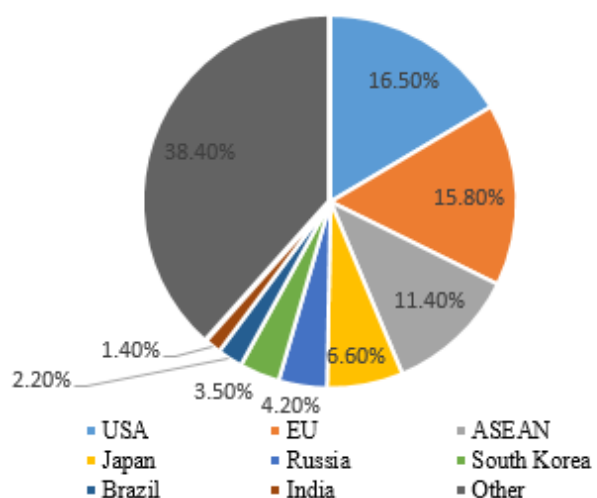

Figure 2: The product distribution of export

Figure 3: The percentage of exporting country

3. Cross-border e-commerce operation mode

3.1. B2C mode

The B2C is the Cross-border Electronic Commerce Business-to-Customer. It is based on domestic and global export retail model. The ultimate customers of B2C are individual consumers.For the end customers, the products are sold to individual consumers through online retail. Such e-commerce enterprises contact foreign trade enterprises at home and abroad as suppliers, and firstly purchase goods directly from foreign trade enterprises.Second, by building their own B2C platforms, they sell their products overseas. The success of this operation model lies in the perfect function of the B2C cross-border e-commerce ecosystem, which including the logistics, payment and customer service systems. At present, there are mainly JD Worldwide, Tmall international, jingdong global shopping, Globalegrow E-Commerce and so on. The overview of B2C operation mode is shown in table 1.

Table 1: The overview of B2C operation mode

Electricity	Business Scope	Profit model	marketing
JD Worldwide	3C product	Net price difference	SEM, Ads, Email
Tmall	Department	advertising fee	Ads
Globalegrow E	Clothing	Net price difference	SEM, Ads, Email

3.2. B2B mode

Cross-border Electronic Commerce business-to-business services in many small and medium-sized suppliers.It is a third-party service platform that USES the Internet to introduce products to buyers around the world. The overview of B2B operation mode is shown in table 2.

Table 2: The overview of B2B operation mode

Electricity	Profit model	Logistics mode	marketing
DHgate	Commission system	epacket	SEM, SEO,SNS,BBS
Alibaba	The service fee	Logistics lines	SEM, SEO,
Eastmachinery	The service fee	Overseas warehouse	Overseas pavilions

3.3. B2B2C mode

B2B2C mode covers both B2B and B2C.It combines these two modes of operation, and B2B2C is a more large-scale cross-border e-commerce mode. The overview of B2B operation mode is shown in table 3.

Table 3: The overview of B2B operation mode

Electricity	Profit model	Logistics mode	marketing
LeXtreme	Sales profit	Parcel post	BBS
OSELL	Net price difference	Overseas warehouse	O2O
Beitone	The service fee	UPS/DHI	SEM

4. Conclusion

With the application of big data technology, e-commerce sellers have higher requirements for user segmentation. Big data can record transaction data in detail. More detailed personalized data is available through both structured and unstructured data analysis. At the same time, product designers and consumers can communicate directly. Before a new product hits the shelves, the designer will show the product and collect feedback from consumers. We can improve the application of big data in the following three ways. First, through the analysis of big data technology, consumers' consumption trajectory can be timely tracked and their consumption habits can be timely recorded. According to the needs of different users, we can carry out marketing push

service to improve customer satisfaction. Second, we should establish O2O online and offline marketing model to bring better customer experience. The O2O model encourages consumers to choose merchants online, feel the service in offline physical stores, and then decide to buy after they are satisfied. Third, cross-border e-commerce enterprises can rent third-party overseas warehouses and integrate multi-party logistics resources. Big data technology is used to optimize the warehousing, transportation and distribution links. When arranging storage, we can use big data to optimize the warehouse layout and picking route. In the distribution, we can optimize the transportation and distribution routes through big data.

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