



# Analysis of Cross-Border E-Commerce Customer Information of Chinese Jewelry Enterprises Based on Cross-Border E-Commerce TMCIE Model—Taking Dongguan BD Company as an Example

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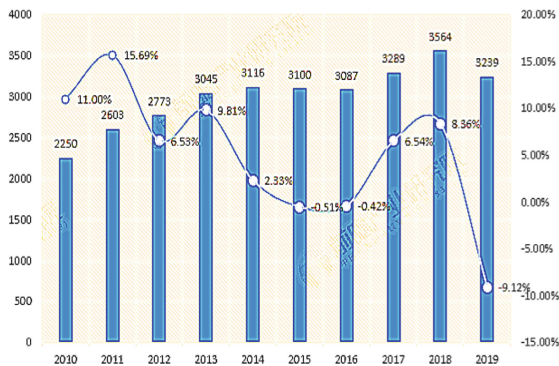
**Abstract.** In the post-epidemic era, although the cross-border e-commerce sales performance of Chinese jewelry companies has increased to a certain extent, challenges and opportunities coexist. Although there are a large number of Chinese jewelry companies doing cross-border e-commerce, most of them have low information technology capabilities and are not accurate in the management of existing and potential customer information in cross-border e-commerce, which makes it difficult to develop customers in the cross-border e-commerce market. The market share is relatively small. Under the fierce competition of foreign jewelry enterprises with strong information technology processing capabilities, they have encountered development bottlenecks and faced enormous pressure to survive. This paper takes the representative e-commerce center of Dongguan BD Company as the research object, based on the perspective of information technology, analyzes and processes the data of the global jewelry customer market, sets the evaluation standard of customer information in the target market of cross-border e-commerce, and analyzes it. Cross-border e-commerce target market risk information and path analysis, build cross-border e-commerce TMCIE (target market customer information evaluation) model, effectively and quantitatively make a comprehensive evaluation of cross-border e-commerce target market customer information, according to the comprehensive evaluation information, through Accurate analysis of existing and potential cross-border e-commerce customer information, in order to use the accurate cross-border e-commerce customer information processed by information technology to help BD company find suitable cross-border e-commerce target market customers and effectively develop cross-border e-commerce Market, find a set of cross-border e-commerce customer development strategies for Dongguan BD Company to adapt to the changing situation in the post-epidemic era, get rid of the pressure of survival, and try to develop the cross-border e-commerce business

in the jewelry industry, which has the same confusion. Come for some inspiration and reference.

**Keywords:** Cross-border e-commerce · target market customer information evaluation · TMCIE model · information technology perspective · multi-dimensional data information

# 1 Introduction

In the post-epidemic era, Dongguan BD’s cross-border e-commerce market distribution is basically the same as the global jewelry market, but due to different product positioning, it also has its own particularities. By analyzing the three information elements that have a greater impact on the cross-border e-commerce marketing of jewelry, the differences in consumption environment, economic conditions and consumption habits in different countries determine the differences in consumption structure information in different regions, as well as the differences in consumption preference information. This makes the production and consumption of jewelry have obvious differences. From the perspective of regional characteristics and global product structure, Asian countries and regions are accustomed to wedding products, but the consumption preferences of different regions in each country are not the same, and the concentration of product consumption is also different. Therefore, in order to select the target market of a certain jewelry variety, it is first necessary to determine its main demand market information. The demand information scale of the global jewelry market for its products from 2010 to 2019 is shown in Fig. 1. The blue bar chart in the figure shows the global jewelry market size in billions of dollars, and the blue curve is the year-on-year growth (%).



**Fig. 1.** 2010–2019 Global Jewelry Market Scale and Growth Rate (Unit: US\$100 million, %). Source: Compiled by Euromonitor Prospective Industry Research Institute.

## 2 Literature Review

International Market Segmentation refers to the division of the entire international market into several sub-markets with different needs according to certain sub-division standards. Consumers in any sub-market have the same or similar demand characteristics.

Scholars from different countries have made multi-dimensional research on international marketing from different perspectives. Lei et al. (2019) explored the influencing factors of the high-quality development of the commerce and trade circulation industry by building a panel data model. Li (2016) researched that Chinese enterprises should establish the concept of global marketing and network marketing, and realize the internal and external integration of enterprise marketing system. Liu et al. (2019) considered the establishment and improvement of an early warning system, the cultivation and creation of independent brands with market influence. Konstantinos (2020) took the overseas marketing strategy of Byte Dance's application "Douyin" as the research object, research using the 4P theory of promotion strategy. Noelia and Diana (2019) research argues that firm size variables have a significant impact on the development and control of the marketing mix, as well as access to relational networks (Constantine et al. 2019). In the use of Internet technology for international marketing strategies, international marketing strategies need to be redesigned.

To sum up, the above scholars have conducted research on international marketing strategies from panel data construction, exploring the influencing factors for the realization of high-quality development of the commercial and trade circulation industry, and establishing the concept of global marketing. This paper constructs two models of international market target selection, uses quantitative analysis to select the evaluation and results of the international target market, and finally draws the conclusion that it is expected to serve as a reference for the Chinese jewelry industry. The innovation of this paper.

## 3 Cross-Border E-Commerce TMCIE Model Construction

### 3.1 TMCIE Model Selection and Construction

In order to construct a comprehensive score of customer information evaluation in the target market of cross-border e-commerce, and the evaluation results of customer information in the target market of cross-border e-commerce, the following assumptions are made:

**Assumption I:** The comprehensive score of customer information evaluation in the target market of cross-border e-commerce is A; the evaluation result of customer information in the target market of cross-border e-commerce is B;

**Hypothesis II:** The scale of customer demand information in the target market of cross-border e-commerce is X, the market demand and potential information are arranged in descending order, X1, X2, X3, X4, X5, respectively, and the scores are 100, 80, 60, 40, 20;

**Hypothesis III:** The maximum control difficulty information for cross-border e-commerce target market customers is Y, from easy to highest: Y1, Y2, Y3, and the scores are 100, 60, and 20; the national market risk level information is Z, from high to

high. The low points are Z1, Z2, Z3, Z4, Z5, respectively, and the scores are 100, 80, 60, 40, 20;

**Hypothesis IV:** Global Jewelry Cross-border E-commerce Market Standards by Country Risk Information are shown in Table 1.

The construction model of the comprehensive score A of the cross-border e-commerce target market customer information evaluation is as follows:

$$A = X(X1, X2, X3, X4, X5) + Y(Y1, Y2, Y3) + Z(Z1, Z2, Z3, Z4, Z5) \quad (1)$$

The construction model of customer information evaluation result B of cross-border e-commerce target market is as follows:

$$B = X(X1, X2, X3, X4, X5) \times Y(Y1, Y2, Y3) \times Z(Z1, Z2, Z3, Z4, Z5) \quad (2)$$

It is assumed that the target market evaluation criteria are shown in Table 1. The major global jewelry markets are divided by country risk information, which can be summarized as Table 2. The general risk of a country or region is assumed to be at the Z4 level, while countries such as Iran, and Ukraine are assumed to be high risk due to unstable regimes and are classified as Z5.

**Table 1.** Global Jewelry Cross-border E-commerce Market Standards by Country Risk Information.

Risk level	Representative country	Main features
Z1	EU countries, the United States, Canada, Japan, South Korea, Australia, New Zealand, etc.	Developed countries, political stability, economic prosperity, all belong to the high-end market.
Z2	Some Asian countries such as Malaysia, etc., Most Central and Eastern European countries such as Turkey, etc., most Central and Eastern European countries such as Poland, Czech Republic, etc.	Most of them are sub-developed countries, with stable political and economic development, and most of them are in the mid-end market.
Z3	Most Asian countries such as Vietnam, India and Southeast Asian countries, etc., most Latin American countries such as Brazil, etc., African countries South Africa, and Eastern European countries such as Turkey, Bulgaria, etc.	Developing countries has development potential, but most of them have certain credit risks, such as chargebacks, delays, etc., and most of them are in the mid-end market.
Z4	Some Asian countries such as Pakistan, most African countries, some Latin American countries such as Argentina, Venezuela, etc., and Eastern European countries such as Russia.	Most of them are less developed countries, and there are certain economic risks, such as exchange rate, bank risks, etc., and most of them are in the low-end market.
Z5	Afghanistan, Iraq, Iran, Ukraine and other countries and some African countries.	With greater political or economic risks, most of them are in the low-end market.

**Table 2.** Cross-border E-commerce Target Market Customer Information Evaluation Criteria

Classification	Evaluation Criteria	Score
Demand scale	The market demand is huge or large, and there is still a large potential.	100
	The current demand is huge or large, and the market potential is average.	40
	The current demand is average or small, but there is a large potential.	60
	Current needs and potential are average	40
	Little or no current need and potential	20
Difficulty of control	Easy	100
	Be medium	60
	Highest	20
Country risk level	Z1	100
	Z2	80
	Z3	60
	Z4	40
	Z5	20

### 3.2 Evaluate Cross-Border E-Commerce Customer Market Information by Country and Region Using the TMCIE Model

In order to more accurately comprehensively evaluate the market information of each country, combined with the division results of the previous section, the following Table 3 is specially designed to quantify the division standards of market target information of different customers, and compare the evaluation standards with the market demand of Dongguan BD Company. The information is combined with Table 4, so as to select the preliminary target market of cross-border e-commerce marketing of Dongguan BD Company according to the comprehensive score. Because some markets, such as all very few countries, have basically no or no demand for Dongguan BD company's products, it is meaningless to select these market information as the target market, so the market potential score is first excluded. 1 countries and regions. In addition, according to the above analysis, all the countries and regions involved in BD's cross-border e-commerce market customer information can be summarized into Table 4 according to the comprehensive customer information scores.

Analysis of the evaluation results based on the above target customer market information. Although countries and regions with a comprehensive score of  $\leq 140$  are easy to develop, they basically do not have development potential, so they are not considered as the target market of Dongguan AE Company. For countries and regions with a

**Table 3.** Comprehensive assessment of customer information in cross-border e-commerce target markets.

National market	Demand Size Score (X)	Control Difficulty Score (Y)	Risk Rating Score (Z)	Overall ratings (A)
USA/Canada	100	20	100	220
Britain and other EU countries	80	20	100	200
other western European countries	20	20	80	120
Russia	60	60	40	160
Ukraine	60	60	20	140
Other Central and Eastern European Countries	20	60	40	120
Australia New Zealand	100	60	100	260
Korea, Japan, Taiwan, etc.	40	20	100	160
Mongolia, North Korea	20	60	40	120
India	40	60	60	160
Country Pakistan	60	60	40	60
Other countries in South Asia	40	60	40	140
Malaysia, Vietnam, Thailand, etc.	40	60	80	180
Egypt, Nigeria and many other countries	20	100	20–40	140–160
Africa Kenya	20	60	40	120
South Africa	20	60	60	140

comprehensive score between 160 and 260 points, they all have certain or greater development potential in the long run. Dongguan AE Company should consider different market scores and characteristics.

The country, Australia and New Zealand are far ahead of other markets with a total score of 260 points. These two big countries have great market potential. In addition, the economy is prosperous, most import enterprises have high reputation and low credit

**Table 4.** Cross-border e-commerce target market customer information evaluation results.

Score (B)	Country region	Main feature ( $X \times Y \times Z$ )
$\geq 240$ points	China, Australia new Zealand.	The cross-border e-commerce mid-end market has huge demand potential and is easy to control and develop.
200–220 points	North America, Western Europe and other developed countries and regions.	The high-end market of cross-border e-commerce has huge demand potential, but it is difficult to control and develop.
	South American countries Brazil, Argentina, etc. East Asia, South Korea, Japan and other developed countries.	The high-end cross-border e-commerce market in South America has a large demand, is difficult to develop, and has certain economic risks. The high-end market of cross-border e-commerce in East Asia has small demand and is not easy to develop.
160–180 points	Southeast Asian countries Malaysia, Vietnam, Thailand, etc.	The low-end market of cross-border e-commerce is easy to develop and has certain needs, but the competition is fierce.
$\leq 140$ points	South Asia, other Latin American countries and Ukraine.	Cross-border e-commerce low-end market, easy to develop, limited demand, fierce competition and relatively high risk Big.

risk, it can be said that it is an ideal market for national jewelry export enterprises to cooperate.

Developed countries in Europe and the United States, which are absolutely high-end markets, are the main markets for AE's product demand. For these countries, companies should continue to pay attention, increase investment, and gradually develop.

With the gradual increase in the difficulty of control in Brazil, Argentina and other countries in South America, the threshold for entering these countries will become higher and higher. Therefore, Dongguan AE Company must seize the opportunity to develop these markets as soon as possible, but must pay attention to the customer's credit rating, Choose a company with a high reputation as a partner Southeast Asian countries, such as Malaysia, Vietnam, Thailand, etc., are mostly geographically adjacent to the country, with similar cultural habits and moderate development difficulty. However, due to the influx of enterprises from many countries.

India and Southeast Asian countries, the market has become fiercely competitive and prices have fallen., the potential is limited, so to develop these markets, we should focus on how to win through differentiated sales models and avoid price wars. India, Southeast Asian countries, Pakistan, Russia, etc. are all regional major countries in the jewelry industry. Like Malaysia, Vietnam and other countries, they should also Be wary of its country risks. Developed countries such as East Asia, South Korea, Japan, etc., in the current or foreseeable future, although there is a certain demand for Dongguan

AE Company's series products in these areas, the total amount is small, coupled with the high difficulty of management and control, and the large investment in development, which is not considered for the time being. Investment and development, and then choose the right opportunity to enter in the future.

#### 4 Market Positioning of Target Customers in Cross-Border E-Commerce

Using the TMCIE model to quantitatively analyze the cross-border e-commerce customer information of global jewelry companies, from the perspective of customer information market positioning, it can be divided into high-end, mid-end and low-end markets, as shown in Table 5. Obviously, companies in the high-end market are clearly positioned as high-end, and it is difficult for companies in the second and third highest and mid-end markets to surpass them in a short period of time. The vast majority of the market share of similar products; by purchasing jewelry from companies in the third-highest and mid-end markets, it has occupied most of the world's market regions and countries.

A certain market share; while companies in the third-highest and mid-end markets have a big gap in scale, technology, and comprehensive strength with those of imitation companies in the mid-end market. Most of them achieve international marketing by providing OEM services for companies in the first and mid-end markets.

**Table 5.** Global jewelry market cross-border e-commerce customer positioning classification.

Market type	Market characteristics
High-end market	Product innovation enterprises, enterprises with strong product research and development capabilities, and excellent performance in cross-border e-commerce, most of them have multi-product lines such as jewelry, multi-platform operation of cross-border e-commerce, and a complete industrial chain of high-end cross-border e-commerce and high-end e-commerce. Cross-border e-commerce customer market.
Mid-market	Product imitation enterprises have average product research and development capabilities, average cross-border e-commerce performance, have an integrated product chain, and have no more than three cross-border e-commerce platforms to operate, and have more cost advantages than innovative enterprises. The imitation enterprise has certain product research and development capabilities, but the scale and actual The power cannot be compared with the innovative enterprises in the high-end cross-border e-commerce market. It has a low-end cross-border e-commerce customer market.
Low-end market	Product imitation enterprises have basically no research and development capabilities, and have poor cross-border e-commerce performance. They have a single cross-border e-commerce platform to operate, providing low-cost products for cross-border e-commerce jewelry giants, or other forms of OEM products and services. It mainly provides products and technical services within the country, and is at the lowest end of the cross-border e-commerce industry chain.



## 5 Conclusion

In the post-epidemic era, this paper uses the perspective of information technology to process the customer market data of the global jewelry cross-border e-commerce market, set the evaluation criteria for the customer information of the cross-border e-commerce target market, and construct the TMCIE model for the selection of customer information in the cross-border e-commerce target market. Based on the comprehensive assessment information, the following conclusions are drawn:

Construction From the perspective of cross-border e-commerce customer demand information, the market for cross-border e-commerce customer demand information for jewelry in various countries can basically be divided into two categories. One is in the high-end market and the middle-end market. Various demand subjects, including the subsidiaries, branches, agents and other forms of partners of these two high-end and mid-market enterprises in various market regions and countries; the other is related to high-end and mid-end markets. There are many high-end, mid-market customers and end-customers in various markets with no direct interest in the distribution of jewelry products. Dongguan BD company has been mainly engaged in the research and development, production and operation of love and wedding series jewelry products for many years. It has formed a certain competitive advantage in this market segment. Focusing on the two cores of innovation and brand, by providing customers with the most cost-effective products and comprehensive professional services, increasing the added value of export products and cross-border e-commerce market awareness, and gradually changing in the jewelry cross-border e-commerce manufacturing chain.

The status quo at the low end. For the cross-border e-commerce business of Dongguan BD Company and national jewelry enterprises, it should first aim at the second-class cross-border e-commerce customer demand information, give full play to their advantages, seek breakthroughs, and increase the added value of export products and cross-border e-commerce. Market recognition, gradually build well-known cross-border e-commerce enterprises and well-known brands, and promote the sustainable, stable and healthy development of the company and China's jewelry industry.

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## References

- Constantine K, Leonidas L, Athina Z (2019, ahead-of-print) Revisiting international marketing strategy in a digital era. *Int Market Rev*, 405–424
- Konstantinos P (2020) Punctuated epistemology in international marketing strategy: a Whiteheadian remedy. *Market Theory* 20(3):363–384
- Lei F, Huang MX, Liu J (2019) Influencing factors and strategic choices for the high-quality development of my country's commercial and trade circulation industry under the new situation. *Bus Econ Res* 21:20–22
- Liu J, Lei F, Huo L (2019) The influence and countermeasures of China's export of mechanical and electrical product. *Pract Foreign Trade Econ Coop* 04:57–60
- Li J (2016) Analysis of international marketing strategy from the perspective of economic globalization. *Bus Econ Res* 19(46–48):2016
- Noelia A, Diana AF (2019) Cheers in China! International marketing strategies of Spanish wine exporters. *Int Bus Rev* 28(4):647–659

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