Research Article

The Export Operation Mode and Optimization Strategy of Crossborder e-Commerce Enterprises Integrating Data Mining Algorithms

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With the advent of the crossborder e-commerce (CE) boom, more and more traditional enterprises have transformed into the field of crossborder e-commerce. It has become a new outlet for enterprises in the international trade environment, and at the same time, it has some problems in the utilization of resources and the maximization of benefits. In response to this problem, it is very important to optimize the export operation model of crossborder e-commerce enterprises (CEE). With the development of intelligent algorithms, research on the application of intelligent algorithms to the economic field has gradually been carried out. Its characteristics and advantages are of great significance to the optimization of CEE export operation mode. The purpose of this paper is to study the CEE export operation mode and optimization strategy based on data mining algorithm (DMA). Through the analysis and research of DMA, it can be applied to the optimization of CEE export operation mode to cope with the world trade in the new environment. This paper explains the basic theory of DMA and CEE export operation mode. Its effect is experimentally analyzed, and the relevant theoretical formulas are used to explain. The results show that the comprehensive trade quality index of the CEE export operation mode integrating DMA is higher, and the adaptability is stronger. Compared with the traditional operating model, the difference between the two indices is 3.175 index points. It has guiding significance in terms of CEE export operation mode and optimization strategy.

1. Introduction

With the rapid economic development, a new situation of international trade has been formed. More and more enterprises are integrated into the process of world economic integration. At the same time, due to the impact of new environmental factors, the traditional economic state is sluggish. In order to get out of the downturn, a large number of enterprises actively explore new ways and join the ranks of e-commerce. E-commerce usually refers to a wide range of commercial and trade activities around the world; in the open network environment of the Internet, based on client/server application methods, buyers and sellers conduct various business activities without meeting each other. It is a new type of business operation mode that realizes online shopping for consumers, online transactions, and online electronic payments between merchants, as well as various business activities, transaction activities, financial activities, and related comprehensive service activities. The intelligent algorithm is the product of the rapid development of science and technology. Intelligent algorithms have successfully solved a series of problems in various fields, such as quadratic allocation, and achieved good optimization results.

In today’s crossborder e-commerce boom, under the impact of overseas markets, how to effectively allocate resources and use the CE platform to obtain maximum economic benefits has far-reaching significance for the development and growth of CEE. A data mining algorithm is a set of heuristics and calculations that create a data mining model from data. However, DMA has few restrictions on the problem to be solved; so, its application range is very wide. In recent years, some scholars have used intelligent optimization
algorithms to solve the resource combination problem of export operation mode, but the application and research of DMA in this area are relatively few. Therefore, this paper applies the improved DMA to the research on solving the problem of CEE export operation mode and optimization strategy, which has both theoretical and practical significance.

This paper studies the CEE export operation mode and optimization strategy integrating digital mining algorithm and makes some innovations: (1) it introduces the relevant theoretical knowledge of DMA and enterprise export operation mode. This paper also uses the principles and methods of DMA and enterprise export operation mode to analyze the role of fusion DMA in the study of CEE export operation mode and optimization strategy. (2) It expounds the role and advantages of the CEE export operation mode that integrates DMA. It is found through experiments that the CEE export business model integrating DMA is effective and plays an important role.

2. Related Work

With the development of economic world integration, the status quo of enterprises in the traditional economic model is sluggish. As a result, more and more people began to study CE. Hsiao et al. provided new ideas for the development of CBLS [1]. Although studying a good CBLS can benefit CE activities, the supply chain problem for CE has not been resolved. Based on this, Zhang and Liu proposed the mechanism and model of the crossborder e-commerce green supply chain based on customer behavior [2]. Although this research has a certain effect on the problem solving of CE supply chain, the problems related to the formulation and implementation of crossborder e-commerce tax policy have not been well solved. Therefore, Ye and Huang discussed the impact of crossborder e-commerce tax reform policies on microeconomic entities such as consumers and practitioners [3]. Although research on the impact of e-commerce reform policies can be helpful in solving CE-related tax policies, there are still problems to be solved about B2C crossborder e-commerce supply chain finance (SCF). Therefore, Zheng and Zhang analyzed the coordination mechanism of B2C crossborder e-commerce supply chain finance (SCF) [4]. To solve this problem, they proposed to adopt a reputation mechanism, which is beneficial to the development of supply chain finance. However, it has yet to solve a series of problems such as high transportation costs and insufficient publicity in CE. Based on this, Yan et al. used the Shapley value method and the full cooperation income incremental sharing mechanism to redistribute the profits under different cooperation modes [5]. Although this provides a scientific decision-making reference for CEE to reasonably choose a partnership, there are still some unresolved problems in the multiobjective optimization process of the supply chain. Based on this, Xia and Liu used IoT tracking technology and multiobjective decision-making to formulate an optimal management and coordination method to improve the performance of crossborder e-commerce supply chains [6]. The research has played an important role in the multiobjective optimization process of the supply chain, but the credit risk problem of CE remains to be solved. Therefore, Deng et al. proposed a crossborder e-commerce credit risk early warning model, which provided a solution to the credit risk problem of crossborder e-commerce [7].

With the continuous development of artificial intelligence in recent years, new problems have also emerged. People gradually see that the special advantages of intelligent algorithms can be applied to solving problems in various fields. Zhao et al. proposed an efficient method based on image segmentation and swarm intelligence (SI) algorithm [8]. The algorithm addresses the difficulty of detecting small or smooth clonal regions in CMF detection, but there are still problems to be solved in analyzing and controlling dynamic swarms. Therefore, Yang et al. proposed a new intelligent algorithm to support the theoretical extension of E-SVDD [9]. Although the algorithm achieves macro- and microbehavior prediction in automotive collision avoidance systems, the problem of applying the algorithm to medical diagnosis remains unsolved. Based on this, Nabih-Ali et al. proposed an intelligent algorithm for heart disease diagnosis using PCG [10]. The research greatly improves the accuracy of heart disease and diagnosis and promotes the development of intelligent algorithms for medical diagnosis, but the problem of bridging the time during GNSS outages still needs to be solved. Therefore, Zhang and Wang proposed a new hybrid intelligence algorithm combining DGP and MLP neural network [11]. This algorithm plays an important role in solving the problem that the performance of GNSS and MEMS-based INS integrated navigation may be degraded during GNSS outage. The relationship between SCM and IC, although intrinsically correlated, is not well studied mathematically. Therefore, Kayvanfar et al. proposed a dual-objective multiechelon supply allocation model to optimize the collaboration of different echelons [12]. This research bridges this gap, but despite the many existing handover algorithms, the problem of seamless handover has never been solved. Based on this, Aibinu et al. developed a new hybrid artificial intelligence switching decision algorithm [13]. Although the algorithm provides an idea for solving the problem of seamless handover, the adjustment of system parameters remains to be solved. Based on this, Balasaheb and Uttam proposed a novel SIEP algorithm based on FAPID controller to adjust the parameters of the system [14]. This research provides ideas for solving the problem of runway fatigue risk prediction. However, the shortcomings of these studies are that they have not properly dealt with the problem of using intelligent algorithms to optimize the export operation mode of CEE and have not summarized the optimization strategies of CEE export operation mode using DMA.

3. Integrating DMA’s CEE Export Operation Mode and Optimization Strategy

3.1. Data Mining. Today’s data volume is increasing exponentially every day. How to find the information one want in the huge information group? How to distinguish the authenticity of information? How to ensure privacy and security? How to solve the lack of useful information? These
become real problems that need to be solved [15]. The simple way of processing data can no longer meet a series of complex needs of people. Data mining is an advanced information processing process to solve this need. The type of data can be structured, semistructured, or even heterogeneous. Methods of discovering knowledge can be mathematical, nonmathematical, or inductive. The knowledge that is finally discovered can be used for information management, query optimization, decision support, and maintenance of the data itself. Data mining is applied to solve data problems in various industries. Its application scenario is shown in Figure 1.

As shown in Figure 1, data mining has been applied to various industries due to its universally applicable characteristics, such as infrastructure, stock securities, mobile communications, and institutions.

Data mining is the process of analyzing a large amount of data to form the unique properties of some data and the relationship between the data [16]. The data mining process is shown in Figure 2.

As shown in Figure 2, the entire process of data mining is actually a process of filtering and analyzing a series of data to obtain results. It first determines the target data objects to be mined, and the object data groups are screened. It then extracts the data according to the feature requirements and then analyzes the extracted data to obtain the result. The basic process of data mining mainly goes through five steps. It firstly needs to screen the determined target data objects to be mined and then preprocess the data to obtain the processed data. It then performs data conversion on the processed data to obtain converted data. After that, it performs data mining on the converted data, obtains the extracted data, and analyzes the result to obtain the result.

3.1.1. ID3 Algorithm. The ID3 algorithm is one of the decision tree algorithms. Decision trees are a common class of machine learning methods. It is a very commonly used classification method, and it is a type of supervised learning. Its core is to select features according to IG as the nodes of decision tree splitting [17]. The principle is shown in formula (1):

$$G(Q, E) = R(Q) - R(Q|E).$$  \hfill (1)

$R(Q)$ is the conditional entropy of the set $Q$; $R(Q|E)$ is the conditional entropy of the feature $E$ given the conditions. The information gain of a feature on the training dataset is defined as the difference between the two. The process is shown in formula (2):

$$R(Q|E) = \sum_{i=1}^{w} \frac{|Q_i|}{Q} R(Q), \quad R(Q) = \sum_{i=1}^{w} \frac{|Q_i|}{Q} \sum_{y=1}^{y} \frac{|Q_{iy}|}{|Q_i|} \log_2 \frac{|Q_{iy}|}{|Q_i|}.$$  \hfill (2)

$R(Q|E)$ is the conditional entropy based on the feature $E$, $Q_i$ is the subset of the set $Q$ based on the feature $E$, $w$ represents how many Qs it consists of, $Q_{iy}$ represents the subset after the target classification, and $y$ represents how many Qtys there are.

3.1.2. C4.5 Algorithm. The C4.5 algorithm is an improved version of the ID3 algorithm. C4.5 is a decision tree algorithm. It
is an improved algorithm in the core algorithm ID3 of a decision tree (a decision tree is a tree-like organization between nodes that make decisions, which is actually an inverted tree). So, basically knowing half of the decision tree construction method can construct it. The information gain ratio is introduced because if the information gain is taken as a criterion, it is easy to tend to select the feature with a larger value. Balancing items with denominators of specific attributes can thus solve this problem [18]. As shown in formulas (3) and (4):

\[ G - r(Q, E) = \frac{G(Q, E)}{S - I(Q, E)}, \quad (3) \]

\[ S - I(Q, E) = -\sum_{r=1}^{w} \frac{|Q_r|}{Q} \log_2 \frac{|Q_r|}{Q}. \quad (4) \]

\( G - r(Q, E) \) is the gain rate based on \( E \); \( S - I(Q, E) \) is the balance term for the feature \( E \).

From the above, we can see that the gain rate is the basis for the selection of the C4.5 algorithm. The gain rate likes data with a small value. The larger the \( E \), the smaller the gain rate.

3.1.3. CATR Generation Algorithm. The classification and regression tree CART have two usages of classification and regression [19], as shown in formula (5).

\[ \text{Meet Work} \]

\[ \text{Connect} \quad \text{Product development} \quad \text{Negotiate} \quad \text{Trade} \quad \text{Financial logistics} \quad \text{Customs declaration, tax refund} \]

Figure 3: B2B basic flow chart.
The definition of the Gini index in the specified sample set \( Q \) is shown in formula (6):

\[
G(Q) = 1 - \sum_{u=1}^{U} \left( \frac{|I_u|}{|Q|} \right)^2 .
\]  

(6)

Among them, \( I_u \) is a subset of \( u \) in \( Q \).

It divides the sample set \( Q \) into two sets: \( Q_1 \) and \( Q_2 \). Then, under the condition of feature \( E \), the Gini index of set \( Q \) is defined as shown in formula (7):

\[
G\left( Q \left| E \right. \right) = \frac{|Q_1|}{|Q|} G(Q_1) + \frac{|Q_2|}{|Q|} G(Q_2) .
\]  

(7)

Among them, \( G\left( Q \right) \) represents the uncertainty degree of the sample set \( Q \); \( G\left( Q \left| E \right. \right) \) represents the uncertainty degree under the feature \( E \). Therefore, the feature with the smallest

\[
G(\partial) = \sum_{u=1}^{U} \partial_u (1 - \partial_u) = 1 - \sum_{u=1}^{U} \partial_u^2 .
\]  

(5)

Among them, \( S_p \) to \( S_p \) are \( p \) sample subsets formed by dividing \( S \) by attribute \( E \) of \( p \) values.

The definition of the gain ratio metric is the same as the previous gain metric and the split information metric here, as shown in formula (9):

\[
G - R(S, E) = \frac{G(S, E)}{S - I(S, E)} .
\]  

(9)

Although it is proved by experiments that the problem of biased value in the ID3 algorithm has been solved in the C4.5 algorithm, it still has other problems. For example, it is easy to select attributes with low values but little significance. Experiments show that it may be 0.

3.1.4. Distance Function Based on Information Entropy. The distance defined by DM is also based on information entropy [20]. Information entropy describes the uncertainty of random variables. The smaller the information entropy, the higher the purity of the information, and the less the amount of information. The greater the information entropy, the smaller the purity of the information, and the greater the amount of information. It sets \( A = \{ A_1, A_2, \ldots, A_s \} \) to represent a certain division of \( D \), and then the information entropy is shown in formula (10):

\[
F(D, A) = - \sum_{i=1}^{s} \partial(A_i, D) \log \partial(A_i, D) .
\]  

(10)

It sets another division of \( D_g = \{ g_1, g_2, \ldots, g_h \} \), and the information entropy is shown in formula (11):

\[
F(D, g) = - \sum_{i=1}^{h} \partial(g_i, D) \log \partial(g_i, D) .
\]  

(11)
It then double-divides $D$ to obtain formula (12):

$$F(D, A) = F(D, A \cap g) - F(D, A)$$

$$= \sum_{i=1}^{h} \sum_{j=1}^{h} \delta(A_i \cap g_j, D) \log \left( A_i \cap g_j, D \right).$$  \hspace{1cm} (12)$$

It associates the double partition with the conditional entropy of information theory, and the relationship between them is shown in formula (13):

$$F\left( \frac{D, g}{A} \right) = \sum_{i=1}^{h} \sum_{j=1}^{h} \delta(A_i \cap g_j, D) \log \left( \frac{A \cap g_j, D}{\delta} \right).$$ \hspace{1cm} (13)$$

DM defines the distance between two divisions as formula (14):
After simplification, formula (15) is obtained:

\[ J(A, g, D) = \partial \left( \frac{D, g}{A} \right) + \partial \left( \frac{A, g}{g} \right). \]  \hfill (14)

After simplification, formula (15) is obtained:

\[ J'(A, g) = F' \left( \frac{g}{A} \right) + F' \left( \frac{A, g}{g} \right). \]  \hfill (15)

It can thus be seen that there are many advantages when the information metric is the differentiation distance. The numerator and denominator are not zero and tend to take values.

3.2. CEE Export Operation Mode. The two aspects of operation process plays an important role in the traditional enterprise operation model. Among them, the operation process is a labor or value-added process. The operation process is the means of realization [21].

Nowadays, CE export operation modes mainly include B2B and B2C modes. In the B2B model, the company mainly focuses on information services, and other processes are basically completed offline, which is essentially similar to the traditional model. The B2C model is to allow enterprises to use Internet technology to directly face consumers through the platform. It achieves point-to-point links through a variety of logistics methods [22].

3.2.1. B2B Operation Mode. Both parties to the transaction in the B2B model are enterprises using the Internet. Its main purpose is to ensure that the business is carried out in accordance with the contract. It communicates and negotiates, implements transaction details, and exports procedures [23]. The basic process is shown in Figure 3.
As can be seen from Figure 3, the company mainly focuses on two issues in the process. One is “Meet,” which is mainly for the two parties to negotiate to solve the problems in the early stage. It is divided into three parts: contact, product display, and negotiation. The other is “Work,” which is mainly to complete the transaction process according to the contract after the negotiation is completed. It is divided into three parts: transaction, customs declaration and tax rebate, and financial logistics.

3.2.2. B2C Operation Mode. Simply put, the B2C model is the call for products and services to be directly linked between enterprises and consumers through the Internet. The B2C model is actually a kind of refinement and flexibility of the complex information of the business. At present, B2C has two choices in choosing different commercial information publishing platforms. One is the open platform model, and the other is the self-operated platform model [24]. Its structural flow is shown in Figure 4.

As can be seen from Figure 4, this is a process in which an enterprise provides products and services directly to consumers through the Internet platform. Consumers can exchange accurate information with enterprises by placing orders on the platform and get the products or services they need after logistics and distribution. It can be said that compared with the traditional marketing model, its cost efficiency and service accuracy have great advantages [25].

The following summarizes the basic operation mode of CE export, as shown in Table 1:

From Table 1, we can learn that the basic operation mode of CE is divided into two categories, which can be divided into more detail. In the B2B mode, it can be further subdivided into vertical B2B mode, horizontal B2B mode, B2 small B mode, and self-built B2B mode. In B2C mode, it can be divided into open platform mode and self-operated platform mode.

3.3. The Method of Integrating DMA’s CEE Export Business Model. According to the functional requirements, this paper
selects the DMA controller to instantiate, realizes the interconnection circuit of the data transmission line, the upstream data processing circuit, the instruction processing circuit, and the downstream data processing circuit, and conducts the simulation test.

There are two approaches when segmenting a DMA driver using the memory-mapped approach. One is a consistent DMA map, and the other is a streaming DMA map. The DMA designed in this paper uses streaming DMA mapping. Streaming DMA maps and unmaps before and after transfers to ensure cache coherency.

By combining numerical reduction and decision trees, an algorithm for computing attribute value kernels based on recognition matrices can be obtained. It proposes a decision basis for the reduction of the rules. It then imports the numerical kernel into the pruning process of the decision tree, generating new minimization algorithms, and the resulting rules will maximize.

It improves attribute dependency definitions:
In decision tree algorithm theory, the degree of dependence is defined as formula (16):

$$\varepsilon(Z, X) = \frac{C(P(X))}{C(V)}.$$  \hspace{1cm} (16)

Among them, $X$ is the decision attribute set; $Z$ is the condition attribute set; $C(n)$ is the set cardinality.

But $\varepsilon(Z, X)$ sometimes, it cannot judge the dependency of conditional attributes well; so, it defines a new degree of dependency as shown in formula (17):

$$B = (Z, X) = \max \frac{C\{N_i : N_i \subseteq M_j, X_j\}}{C(V)}.$$  \hspace{1cm} (17)

Among them, $V/I(Z) = \{N, N_1, \cdots, N_n\}$, $V/I(X) = \{M, M_1, \cdots, M_m\}$, $i = 1, 2, \cdots, n$, and $j = 1, 2, \cdots, m$.

The combination of DMA and CEE export operation mode can effectively improve the export information communication rate and optimize the export operation mode.

4. Experiment and Analysis of CEE Export Operation Mode and Optimization Strategy Integrating DMA

4.1. Current Situation of CEE in China

4.1.1. China’s CEE Scale Trend. At present, China has a large number of foreign trade enterprises, of which CEE accounts for a considerable part. In the past ten years, its scale has continued to expand, with an overall upward trend, as shown in Figure 5.

As shown in Figure 5, China’s trade as a whole has shown a relatively volatile state in recent years. It suffered a decline in trade before 2010 due to the financial crisis but has started to pick up in recent years, posting modest gains for several years, but there was a slowdown as competitiveness began to dwindle. Then, it began to pick up in 2016 through factors such as policy support, and in 2019, the foreign trade transaction volume reached 31.4 trillion yuan. The overall scale of CE is on the rise, from 14,100 yuan in 2010 to 880 million yuan in ten years. Although growth has slowed recently, it is still growing. It has become an important part of China’s trading business.

4.1.2. CE Import and Export Structure. The CE structure consists of imports and exports. The structure of China’s CE import and export is shown in Figure 6.

As can be seen from Figure 6, export CE dominates the market, but import CE has been developing rapidly. As the demand for imported goods has gradually expanded in recent years, imported crossborder e-commerce has developed rapidly in recent years. Its export proportion gradually decreased from 93.4% in 2010 to 84.3% in 2019, and its import proportion increased rapidly from 6.6% in 2010 to 15.7% in 2019. The proportion of exports gradually decreased from 93.4% in 2010 to 84.3% in 2019. The proportion of imports increased rapidly from 6.6% in 2010 to 15.7% in 2019. Although the proportion of imports has gradually increased and maintained a growing trend in recent years, it is difficult to shake the dominant position of exports in a short period of time.

4.1.3. Business Model Structure. At the beginning of CE, there was only one operation mode of B2B, and later, a new B2C mode was developed. The business model structure of CEE in China in recent years is shown in Figure 7.

As can be seen from Figure 7, the operation mode of China’s CE market is mainly the B2B mode, showing an almost overwhelming trend. However, with the development of the B2C model, more and more enterprises have chosen the new model, and its proportion has increased year by year. Although the proportion of B2B model has begun to
table 2: analysis of main modes of crossborder payment.

<table>
<thead>
<tr>
<th>Project</th>
<th>Advantage</th>
<th>Disadvantage</th>
<th>Scope of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit card</td>
<td>Universal</td>
<td>High handling fee</td>
<td>Large platform</td>
</tr>
<tr>
<td>PayPal</td>
<td>Well-known and easy to operate</td>
<td>Freeze risk</td>
<td>Small transaction</td>
</tr>
<tr>
<td>CashPay</td>
<td>Currency diversification and high security</td>
<td>China market is not perfect</td>
<td>Small transaction</td>
</tr>
<tr>
<td>Monkeybookers</td>
<td>Privacy protection</td>
<td>Single account</td>
<td>Small business</td>
</tr>
<tr>
<td>Payoneer</td>
<td>Wide range and convenient</td>
<td>High handling fee</td>
<td>Customers are widely distributed</td>
</tr>
<tr>
<td>Paysafcard</td>
<td>High security</td>
<td>Business license required</td>
<td>Large enterprise</td>
</tr>
</tbody>
</table>

4.1.4. Regional Distribution Structure. In recent years, China’s CE export target countries have gradually increased and are distributed all over the world. The main export targets are shown in Figure 8.

From the distribution of exporting countries in Figure 8, it can be seen that the export targets are mainly developed countries such as Europe, America, Japan, and South Korea, and they have always been CE mature export targets. Among them, the United States, the European Union, and ASEAN are the three major countries and regions with the largest proportion, accounting for 17.2%, 16.4%, and 12.5%, respectively. Japan and Russia are also major exporting countries, accounting for 6.9% and 5.3%, respectively. In addition to these major countries and regions, there are some nonmajor emerging other countries and regions. With the development of emerging markets, many countries have gradually increased or started trade with China.

According to different regions, crossborder payment methods are also diverse. The main crossborder payment mode analysis is shown in Table 2.

4.2. CEE Export Operation Mode

4.2.1. Transaction Process. The components of an ecommerce system include suppliers, electronic malls, consumers, information network technology, logistics technology, financial technology, and management and operation technology that support the operation of the e-commerce system. It mainly includes the main elements of product suppliers, CE platforms, consumers, and corresponding service support systems. Its transaction process is shown in Figure 9.

As can be seen from Figure 9, the supplier first gives the products to the CE platform, and then these products are sold through the platform and finally purchased and used by consumers. There are also many service items between this process, such as crossborder marketing and crossborder payment.

4.2.2. CE Platform. CE platform is the core link, it is between suppliers and consumers, and all resources are integrated on it. The functionality of the operating model is also mainly reflected in this link. The B2B and B2C mode platforms commonly used in the market can be further subdivided, as shown in Table 3.

Among them, China is dominated by the B2B model. In the current part of the B2C model, it is mainly based on the department store model and the comprehensive mall model.

4.2.3. Comparative Analysis of CE Platform Models. With the rapid development of CE in China, many CE trading platforms have been developed whether in B2B or B2C mode. Among them, B2B platform can be divided into two categories: information service platform and transaction service platform. B2C platforms can be divided into two categories: open platforms and self-operated platforms. The mode characteristics of various platforms are shown in Table 4.
of the two modes are analyzed in detail below.

Compared with the traditional trade model, the B2B model has obvious advantages in both cost and profit. It has a relatively strong ability to obtain transaction information and can also effectively shorten the supply chain, thereby reducing costs and improving profits. For B2C, its large-scale is a big advantage. Of course, there are also some shortcomings, such as difficulties in industrial upgrading and transformation, backward supporting services, and unclear industry standards.

The B2C model compresses international trade procedures; so, it saves some costs. It can meet the needs of consumers online; so, it improves transaction efficiency. It is direct-to-consumer, which improves profit margins and transaction efficiency, as well as increases the visibility of producers. And it can accurately obtain the needs of users, provide accurate services, and get feedback. It can also be combined with Internet technology to allow enterprises to gain more opportunities. Although the B2C model has developed rapidly in recent years, its proportion in the market is still very small. This is mainly because there are still some problems, such as the lack of intellectual property rights and brand awareness, the price war caused by the homogenization of marketing, and the imperfect cross-border logistics system.

4.3. Example Comparative Test Analysis. According to the above analysis, it can be seen that both B2B and B2C have their own advantages and disadvantages. So, in today's new market environment of fast-paced consumption, which model is more suitable for exporting CEE? The following is a comparative analysis of the trade situation of two companies G and K using different models in the four quarters of 2019. It uses DMA and other means to quantitatively analyze its trade situation, trade scale, sales situation, payment situation, service situation, sales volume, and cost links to obtain a comprehensive trade quality index $Z$. The higher the index, the better the trade status of the company. It uses the index to make a general judgment. The specific results obtained are shown in Table 5.

It uses DMA technology to perform a series of operations such as extraction, screening, analysis, and processing of the transaction status of the two companies and quantifies it to obtain the result of the trade quality index $Z$ as shown in the figure.

As can be seen from Figure 10, in a special year of 2019, the two modes have completely different responses to this situation. Due to the sudden outbreak, both companies have been affected to a certain extent. The index fell in the first quarter. However, it can be clearly seen that the B2C model K enterprises in the Internet environment are less affected. After the epidemic was brought under control, trade began to pick up faster than traditional B2B large companies. Its overall index is in a dominant position, with an average of 3.175 index points higher than that of traditional companies in the B2B model.

From the above analysis, it can be seen that in the new economic environment of the current global epidemic, the
B2C model integrating DMA is more suitable for CE export enterprises. Its overall trade quality index is 3.175 index points higher than the traditional B2B large enterprise model. This CEE export operation model incorporating DMA is in line with the contemporary global economic and trade environment and consumer demand. Of course, due to some differences, the results of this experiment are not completely accurate and reliable.

5. Conclusions

With the changes in the global trade environment, enterprises have higher and higher requirements for business operation models. The development of business operation models is inseparable from the contribution of intelligent algorithms. DMA has been widely used in many fields because of its special functional advantages. This article first gives a general introduction to DMA and operating modes. This gives people an idea of how both function and work. It then analyzes their function using the relevant principle formulas. Finally, it is found that the combination of the two can produce better results. In the experimental part, this paper compares the B2C mode and B2B mode that incorporate DMA. Through the analysis of China’s CEE structure, it is found that the overall scale of CE has shown an increasing trend, rising to 880 million yuan in ten years, but it is still growing and has become an important part of China’s trade business, through the comparison of import and export structure. The analysis found that although the proportion of imports has gradually increased and maintained a growing trend in recent years, it is difficult to shake the main position of exports in a short period of time; by using DMA technology, a series of operations such as extraction, screening, analysis, and processing of the transaction status...
of the two companies are carried out, and the results are analyzed. The trade quality index $Z$ is obtained by quantification, and the average B2C model is 3.175 index points higher than that of traditional B2B companies; in general, the comprehensive trade quality index of the CEE export operation model integrated with DMA is higher than that of the traditional operation model, which is more suitable for the current trading environment. Of course, there are some deficiencies in the experimental design and data in this paper, and the results are not completely reliable. Therefore, it is very necessary to study the CEE export operation mode and optimization strategy integrating DMA.

**Data Availability**

No data were used to support this study.

**Conflicts of Interest**

The authors declare that they have no conflicts of interest.

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**References**


