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Research on the Mechanism of Cross border E-commerce on Enterprise Competitiveness

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Abstract: On the basis of analyzing the current research status of the impact of cross-border e-commerce on the competitiveness of cross-border e-commerce retail export enterprises, this article uses structural equation modeling to study the strength of the effect of cross-border e-commerce applications on enterprise competitiveness and its various sub variables. Research direction: The research findings of this article include: (1) The impact of cross-border e-commerce applications on different aspects of enterprise competitiveness varies. Cross border e-commerce has the greatest impact on enterprise process costs and service levels, and the smallest impact on information sharing. (2) The impact intensity of different cross-border e-commerce application factors on enterprise competitiveness varies. Human resources and technological environment are the two factors that have the greatest impact on the competitiveness of cross-border e-commerce enterprises, while laws and regulations and organizational structure have the least impact. (3) Cross border e-commerce has a significant impact on the competitiveness of enterprises.

Keywords: Cross border e-commerce, Enterprise competitiveness, Retail export enterprises, Structural equation.

1. Introduction

With the acceleration of globalization, the integration of economies in various countries, and the development of e-commerce in different countries, more and more export enterprises are beginning to directly provide products and services to overseas consumers through online shopping platforms. Enterprises engaged in cross-border e-commerce retail are mainly small and medium-sized enterprises, which have the characteristics of short order cycles, multiple batches, small batch sizes, and small single ticket amounts. In the context of the continuous decline in foreign trade prosperity, global cross-border e-commerce has experienced explosive growth, and a group of cross-border e-commerce enterprises focusing on import and export have emerged with high growth rates in the industry, such as Aoji E-commerce, Youkeshu, Lanting Jishi, etc. Benefiting from the global demand for e-commerce development, policies in various countries continue to support the development of cross-border e-commerce, providing a breeding ground for the growth of cross-border e-commerce enterprises. In the process of development, cross-border e-commerce has encountered a series of drawbacks at the export end: export retail enterprises lack a complete supply chain, similar to the early stage of domestic e-commerce development; There is significant room for improvement in the logistics, payment, and precision marketing aspects of exports; The low cost of traffic in the early stage conceals the advantages of e-commerce enterprises' development[1].

In summary, the development prospects of cross-border e-commerce retail are promising, but the application level of cross-border e-commerce in retail export enterprises needs to be improved. At present, some enterprises have gained great benefits through cross-border e-commerce retail exports, while some retail export enterprises have not achieved results after applying cross-border e-commerce, and some have even fallen into crisis after investing a large amount of funds. Therefore, retail export enterprises are facing the dilemma of using cross-border e-commerce, that is, what kind of connection exists between cross-border e-commerce applications and the competitiveness of retail export enterprises? Can increasing investment in cross-border e-commerce technology yield returns? Are there other key factors between cross-border e-commerce investment and the competitiveness of retail export enterprises? To address the challenges faced by retail export enterprises, there is an urgent need for theoretical exploration and research.

2. Sample Definition and Literature Review

2.1. Sample definition

Considering the actual operational status of cross-border e-commerce in China, the feasibility and representativeness of sample research, this article only focuses on export enterprises under the B2C cross-border e-commerce model, which can be enterprises that only rely on third-party cross-border e-commerce platforms for operation, or enterprises that have their own independent channels in addition to third-party cross-border e-commerce platforms. Because retail export-oriented cross-border e-commerce companies rely mainly on related B2C cross-border e-commerce platforms, their internal management and external customers have similarities, so retail export-oriented cross-border e-commerce enterprises are the focus of this study.

2.2. Literature review

2.2.1. The impact of cross-border e-commerce application on enterprise competitiveness

Scholars mainly analyze the impact of cross-border e-commerce on enterprise competitiveness from the perspectives of human resources, organizational structure, fund management, laws and regulations, and technological environment.

1) In terms of human resources research. Lee (2023) proposed that every aspect of e-commerce development cannot be separated from relevant talents. In other words, e-commerce talents have become an important means for a

company to maintain a competitive advantage in the e-commerce arena[2]. Zhang Xiahen (2017) proposed that the impact of cross-border e-commerce development is reflected in international marketing, cross-border payments, international logistics, and other aspects. It is necessary to absorb relevant human resources and apply them to various links, which has a positive effect on improving the soft power of enterprises[3].

2) Research on organizational structure. William (2024) believes that the transformation of logistics industry has changed the original organizational structure of enterprises, promoted the improvement of products and services, and made enterprises more adaptable to the transaction habits of contemporary consumers[4]. Liu Hung(2021) pointed out that e-commerce has achieved internal communication and knowledge sharing of companies through the internet, and completed the collection of external information. It also enables enterprises to rely on this to establish and improve organizational structures with learning capabilities, enhancing their competitiveness[5].

3) In terms of fund management research. Sung (2023) proposed that by efficiently obtaining information, communicating with customers in a timely and convenient manner, and effectively integrating enterprise funds, it can help enterprises reduce operating costs and improve the efficiency of fund utilization to a certain extent[6]. Hung(2021) pointed out that applying e-commerce applications to the financing system has certain potential, which is beneficial for enterprises to obtain further efficient opportunities for the use of funds[5].

4) In terms of legal and regulatory research. The development of cross-border e-commerce poses challenges to traditional international trade regulations. Wu Eikeabrokk (2019) suggested that countries make corresponding adjustments and changes in trade legislation to better protect the legitimate rights and interests of trade parties and promote the operation of international trade in accordance with unified international treaties and practices, in response to legal issues such as electronic contracts, network security, and cross-border network transaction tariffs[7].

5) In the research on cross-border e-commerce technology environment. Zhang Lijuan (2015) conducted a comparative analysis between large enterprises and small and medium-sized enterprises to study the role of e-commerce technology in cultivating their competitiveness. They pointed out that electronic commerce technology standards and service standards that are not compatible with the international market will inevitably restrict and hinder the country's enterprises from entering the international market [8].

2.2.2. The impact of cross-border e-commerce transactions on enterprise competitiveness

The transaction process of cross-border e-commerce involves multiple links, among which cross-border payments, international logistics, and cross-border platforms are the focus of scholars' research, analyzing and proposing their impact on enterprise competitiveness.

1) In the field of cross-border payments. Zhang Lijuan (2015) proposed that electronic payments can shorten the days of sales realization, improve the speed of enterprise capital turnover and the efficiency of enterprise operating capital utilization. Transactions between enterprises are no longer delayed due to funds in transit or not yet received[8]. Wang fang (2014) pointed out that cross-border payments, as an upstream process chain of international logistics, have a significant impact on the speed of international logistics. At the same time, some economies' crackdown on smuggling policies that evade tariffs will also affect cross-border payments[9].

2) Research in international logistics. Eikeabrokk (2019) pointed out that international logistics is the foundation for the implementation of international trade. Advanced international logistics methods can reduce logistics costs, improve the efficiency of international trade business, and promote the development of foreign trade[7]. Shi Liangping(2014) stated that a higher degree of collaboration in international logistics can significantly improve production capacity utilization and order satisfaction, as well as significantly increase customer satisfaction, product qualification rate, and product innovation rate[10].

3) Research in platform selection. Shi Liangping(2014) pointed out that cross-border e-commerce trading platforms are at the core, and trading platforms are the platforms where both parties and transaction information gather, playing a dominant role in e-commerce transactions. The trade activities between the supply and demand sides can adopt standardized and electronic contracts, bills of lading, invoices, and vouchers, enabling various related documents to be instantly transmitted online, increasing the transparency of trade information, and reducing trade risks caused by information asymmetry[10].

3. Research Models and Hypotheses

3.1. Variable structure

Research dimensions of cross-border e-commerce: Starting from the theory of dynamic mechanisms and combining with the application dimensions of cross-border e-commerce defined by other scholars, this paper proposes measurement factors for cross-border e-commerce applications from both internal and external perspectives of enterprises. Among them, the internal factors of the enterprise include human resources, organizational structure, and fund management; The external factors of the enterprise include laws and regulations, as well as the technological environment[7].

The research dimensions of enterprise competitiveness: Drawing on the results of relevant scholars' research on the dimensions of enterprise competitiveness, this article believes that the competitiveness of enterprises can be measured from two aspects: apparent competitiveness and potential competitiveness. Among them, competitiveness includes market demand, process costs, capital efficiency, etc; Potential competitiveness includes information sharing, service level, customer satisfaction, etc[1].

3.2. Conceptual model derivation

This paper analyzes the application of cross-border e-commerce from the perspectives of endogenous variables (human resources, organizational structure, fund management) and exogenous variables (laws and regulations, technological environment), and examines the competitiveness of enterprises from the perspectives of apparent competitiveness (market demand, process costs, capital efficiency) and potential competitiveness (information sharing, service level, customer satisfaction). Based on this, a conceptual model is constructed in this article to study the impact of cross-border e-commerce on the competitiveness of retail export enterprises.

In this model, there are three groups of research objects that

require empirical analysis:

Firstly, take the sub item of enterprise competitiveness as the dependent variable and the sub item of cross-border e-commerce application as the independent variable. Study the impact of various applications of cross-border e-commerce on the competitiveness of enterprises in various aspects.

Secondly, with enterprise competitiveness as the dependent variable and cross-border e-commerce application sub items as the independent variables. Study the impact of various aspects of cross-border e-commerce applications on the overall competitiveness of enterprises.

Thirdly, with enterprise competitiveness as the dependent variable and cross-border e-commerce applications as the independent variable. Study the impact of cross-border e-commerce applications on enterprise competitiveness.

3.3. Research hypothesis

(1) Legal and regulatory factors

The development of cross-border e-commerce poses challenges to traditional international trade regulations. Firstly, countries make corresponding adjustments and changes in trade legislation to better safeguard the legitimate rights and interests of trade parties in various transaction links and promote the smooth progress of the transaction process, in response to legal issues such as electronic contracts, network security, and cross-border network transaction tariffs. Seconldly, increasingly perfect laws and regulations are conducive to reducing logistics costs and improving the efficiency of international trade business[4]. Thirdly, the laws and regulations related to cross-border e-commerce in various countries affect the transaction process of cross-border e-commerce, and to a certain extent, can also regulate the cross-border e-commerce service sector and safeguard the rights and interests of market entities. Finally, the legal regulations brought about by cross-border e-commerce have revolutionized traditional trade processes and provided better legal services. Therefore, it can be assumed that:

H1: Laws and regulations have a positive correlation with the competitiveness of enterprises;

H1a: Laws and regulations have a positive correlation with market demand;

H1b: Laws and regulations have a positive correlation with process costs;

H1c: Laws and regulations have a positive correlation with fund efficiency;

H1d: Laws and regulations have a positive correlation with information sharing;

H1e: The impact of laws and regulations on service level has a positive correlation;

H1f: Laws and regulations have a positive correlation with customer satisfaction.

(2) Technical environmental factors

Firstly, every step of the development of e-commerce, from information release to information exchange, to online transactions, from initial implementation to continuous improvement, is inseparable from relevant technical service systems and lacks corresponding network technical support. Secondly, e-commerce technology can shorten the days of sales monetization, improve the speed of enterprise capital turnover and the efficiency of enterprise operating capital utilization. Transactions between enterprises are no longer delayed due to funds in transit or not yet received[5]. Thirdly, the Internet, as the main application mode of information technology, has promoted technological innovation, promoted the improvement of products and services, and changed the traditional trading habits of consumers, the most important of which is the transformation of logistics formats. Fourthly, e-commerce technology has a potential impact on the development of financing systems. Finally, e-commerce technology standards and service standards that are not compatible with the international market will inevitably restrict and hinder the country's enterprises from entering the international market through e-commerce platforms[6]. Therefore, it can be assumed that:

H2: The technological environment has a positive correlation with the competitiveness of enterprises;

H2a: The technological environment has a positive correlation with market demand;

H2b: The technological environment has a positive correlation with process costs;

H2c: The technological environment has a positive correlation with funding efficiency;

H2d: The technological environment has a positive correlation with information sharing;

H2e: The impact of technological environment on service level has a positive correlation;

H2f: The technological environment has a positive correlation with customer satisfaction.

(3) Human resource factors

Firstly, pointed out that talent, as operators of cross-border e-commerce, has a significant impact on the development of cross-border e-commerce and plays an important role in improving customer satisfaction[8]. Secondly, e-commerce enterprises urgently need e-commerce talents, especially those responsible for store promotion, customer service, and data marketing. Talents who can use e-commerce platforms for online promotion are currently the most urgently needed by enterprises. Thirdly, cross-border e-commerce practitioners not only need to have certain foreign trade business capabilities, but also need to understand the international logistics channels for small package entry and exit[2]. Fourthly, a higher degree of collaboration among cross-border e-commerce talents can significantly improve capacity utilization and order fulfillment rates, significantly increase customer satisfaction, product qualification rates, and product innovation rates, while also helping to enhance the overall competitiveness of cross-border e-commerce enterprises. Fourthly, e-commerce enterprises need comprehensive talents who can balance technology and business. They can not only carry out platform construction, backend maintenance, and database development, but also promote products and increase traffic. Therefore, it can be assumed that:

H3: Human resources have a positive correlation with the competitiveness of enterprises;

H3a: Human resources have a positive correlation with market demand;

H3b: Human resources have a positive correlation with process costs;

H3c: There is a positive correlation between human resources and financial efficiency;

H3d: Human resources have a positive correlation with information sharing;

H3e: There is a positive correlation between human resources and service level;

H3f: Human resources have a positive correlation with customer satisfaction.

(4) Organizational structural factors

Firstly, after the informatization transformation of organizational management processes in e-commerce enterprises, the efficiency of important functional areas such as logistics and marketing has been significantly improved. Secondly, in the e-commerce environment, the organizational structure of enterprises is gradually shifting towards a networked structure, emphasizing the interdependence between individuals, groups, and departments within the organization, as well as between them and key links in the organizational environment, in order to quickly adapt to the external environment. Thirdly, through comparative analysis with traditional supply chain financing models, a good organizational structure is conducive to the transaction of cultural products and services, which can effectively reduce transaction costs and broaden business channels. Unlike traditional organizational structures, the network organizational structure of e-commerce enterprises is more efficient, flat, and open, accelerating logistics speed, order response speed, and customer feedback speed[9]. Therefore, it can be assumed that:

H4: The organizational structure has a positive correlation with the competitiveness of enterprises;

H4a: Organizational structure has a positive correlation with market demand;

H4b: Organizational structure has a positive correlation with process costs;

H4c: Organizational structure has a positive correlation with funding efficiency;

H4d: Organizational structure has a positive correlation with information sharing;

H4e: Organizational structure has a positive correlation with service level;

H4f: Organizational structure has a positive correlation with customer satisfaction.

(5) Financial management factors

Firstly, the cross-border e-commerce fund management model can shorten the sales monetization days, improve the turnover speed of enterprise funds and the efficiency of enterprise operating capital utilization. Transactions between enterprises are no longer delayed due to funds in transit or not yet received[5]. Secondly, the convenience and timeliness of online payments have shortened the settlement period for accounts payable and bills payable through online channels, avoiding the time lag between large amount transfers and normal limit transfers for enterprises. The inventory quantity of goods is jointly influenced by market demand and customer order volume. The inventory management of cross-border e-commerce retail export enterprises tends to be real-time, reducing warehousing and management costs. Thirdly, as cross-border e-commerce revenue gradually increases, funds can be invested to establish overseas warehouses in target markets with good sales performance, achieving a logistics model of "shipping first, selling later" to shorten the delivery cycle of goods and improve customer experience[6]. Therefore, it can be assumed that:

H5: Fund management has a positive correlation with the competitiveness of enterprises;

H5a: Fund management has a positive correlation with market demand;

H5b: Fund management has a positive correlation with process costs;

H5c: There is a positive correlation between fund management and fund efficiency;

H5d: There is a positive correlation between fund management and information sharing;

H5e: There is a positive correlation between fund management and service level;

H5f: Fund management has a positive correlation with customer satisfaction.

(6) Cross border e-commerce application factors and enterprise competitiveness factors

Based on the analysis of the relevant literature mentioned above, hypotheses have been proposed regarding the relationship between cross-border e-commerce applications and enterprise competitiveness. We can see that scholars often focus on the various sub items of enterprise competitiveness when studying the impact of cross-border e-commerce applications on enterprise competitiveness. Therefore, it can be assumed that:

H6: Cross border e-commerce applications have a positive correlation with the competitiveness of enterprises.

4. Empirical Analysis

4.1. Variable representation

Cross border e-commerce variable representation: Based on relevant literature, the measurement indicators used in this article for cross-border e-commerce include: selecting education level, training costs, labor management situation, and performance evaluation as representative human resource indicators, selecting operational performance, operating speed, external adaptability, and internal matching as representative organizational structure indicators, selecting fund turnover, operating costs, fund security, and inventory cycle as representative fund management indicators, selecting platform rules, dispute resolution, cross-border taxation, and inspection and quarantine as representative laws and regulations, selecting payment technology, logistics technology, database technology, and website maintenance as representative technical environment[3].

Enterprise competitiveness variable representation: Based on relevant literature, the measurement indicators used in cross-border e-commerce in this article include: selecting customer growth, search ranking, website views, and consultation quantity to represent market demand, selecting management expenses, travel expenses, promotion expenses, and infrastructure costs to represent process costs, selecting profit income, operational capacity, development capacity, and cash flow to represent capital efficiency, selecting content accuracy, update frequency, sharing channels, and feedback speed to represent information sharing, selecting product quality, product packaging, response speed, and after-sales service to represent service level, selecting positive review rate, repeat customer proportion, complaint rate, and customer feedback to represent customer service level[1].

4.2. Data collection method and sample size setting

The survey questionnaire is mainly distributed to management personnel such as operation supervisors or general managers of cross-border e-commerce retail export-oriented enterprises.

The paper will use structural equation modeling to analyze the data, but there is no clear requirement for sample size in structural equation modeling. To ensure the rationality and scientificity of data analysis as much as possible, the sample size needs to exceed 130.

4.3. Structural Equation Modeling Analysis

4.3.1. Measurement model analysis

The first-order fit test results of the two measurement models are shown in Table 1. Comparing the results of the fit test with the reasonable range of fit, it can be found that the confirmatory factor analysis of two sets of measurement models can be divided into two categories: first, if a measurement model has multiple first-order latent factors, and there is a parallel correlation between the latent factors, it is called first-order confirmatory factor analysis (CFA)[11]; Secondly, if there are common and higher-order latent variables in the latent factor system, it is called hierarchical confirmatory factor analysis (HCFA). In this study, cross-border e-commerce application, cross-border e-commerce transaction process, and enterprise competitiveness were taken as primary variables, and three sets of measurement models were constructed for initial confirmatory factor analysis and hierarchical confirmatory factor analysis, respectively[11]. The initial fitting indicators meet the standards. Using LISREL8.7 to analyze the first-order measurement models of each group, estimate the fitting parameters of each first-order measurement model.

The first-order fit test results of the two measurement models are shown in Table 1. Comparing the fitting test results with the reasonable range of fitting, it can be found that the initial fitting indicators of the two sets of measurement models meet the standards. Using LISREL8.7 to analyze the first-order measurement models of each group, estimate the fitting parameters of each first-order measurement model.

Table 1. Fit test of three measurement models (first-order)

	X^2	df	X^2/df	GFI	CFI	NNFI	RMSEA
Cross border e-commerce application	342.82	160	2.14	0.91	0.96	0.96	0.056
Enterprise competitiveness	473.72	237	2.00	0.90	0.98	0.97	0.053

In the measurement model used in cross-border e-commerce, although the standardized factor loadings of the observed variables "payment technology", "logistics technology", and "data technology" on the latent variable "technology environment" are greater than 0.6, the coefficients are relatively low compared to other factor loadings. Because the technological environment is an external variable of the enterprise, and the enterprise itself is only an adapter and user of the technological environment, there is a lack of detailed understanding of the overall technological environment.

In the measurement model of enterprise competitiveness, the latent variables "market demand" and "service level" have lower factor loadings compared to the observed variables, while other factor loadings are higher. It reflects that enterprises attach great importance to the measurement of competitiveness, and both potential and apparent competitiveness can be reasonably represented through observation variables.

The second-order factor analysis results of the two measurement models are shown in Table 2. Except for the path coefficients of cross-border e-commerce application and legal regulations, as well as cross-border e-commerce application and technological environment, which are greater than 0.5, the path coefficients of other second-order and first-order factors are greater than 0.7. So, these three sets of second-order factors are sufficient to reflect the relationship between their corresponding first-order factors. Using LISREL8.7 to analyze the second-order measurement models of each group, estimate the fitting parameters of each second-order measurement model.

Table 2. Fit test of three measurement models (second-order)

	X^2	df	X^2/df	GFI	CFI	NNFI	RMSEA
Cross border e-commerce application	407.24	165	2.48	0.90	0.95	0.94	0.064
Enterprise competitiveness	539.64	246	2.19	0.89	0.97	0.97	0.057

In the second-order measurement model of cross-border e-commerce application, the first-order factors "human resources", "organizational structure", "fund management", "laws and regulations", and "technological environment" have a strong relationship with the second-order factor "cross-border e-commerce application" (with a minimum coefficient of 0.67). Therefore, the second-order factor is sufficient to reflect the relationship between the first-order factors of cross-border e-commerce application.

In the second-order measurement model of enterprise competitiveness, the coefficients of the first-order factors "market demand", "process cost", "capital efficiency", "information sharing", "service level" and "customer satisfaction" with the second-order factor "enterprise competitiveness" are 0.59, 0.72, 0.82, 0.81 and 0.79, respectively, indicating that the second-order factor "enterprise competitiveness" can reflect the relationship between the relevant first-order factors.

4.3.2. Structural model analysis

The structural equation analysis of the sub items of cross-border e-commerce application on transaction links shows that the impact of cross-border e-commerce application of laws and regulations on capital efficiency and information sharing is not significant, but has a significant positive impact on other aspects of enterprise competitiveness; The application of cross-border e-commerce in the technological environment has a significant positive impact on various aspects of enterprise competitiveness; The cross-border e-commerce application of human resources has a relatively insignificant impact on capital efficiency, but has a significant positive impact on other aspects of enterprise competitiveness; The application of cross-border e-commerce in organizational structure has a relatively insignificant impact on market demand, information sharing, and customer service, but has a significant positive impact on other aspects; The impact of cross-border e-commerce application of fund management on service level is not significant, but has a significant positive

effect on other aspects. The specific analysis results are shown in Table 3, based on which the sub hypotheses H1~H5 are confirmed.

Table 3. Parameter estimation and significance test of the impact of application sub items

Hypothesis	Path description	Path coefficient	T value
H1a	The positive correlation between laws and regulations and market demand	0.36	4.89
H1b	The positive correlation between laws and regulations and process costs	0.64	7.33
H1c	The positive correlation between laws and regulations and fund efficiency	0.07	0.97
H1d	The positive correlation between laws and regulations and information sharing	0.11	1.26
H1e	The positive correlation between laws and regulations and service level	0.79	7.83
H1f	The positive correlation between laws and regulations and customer satisfaction	0.73	7.57
H2a	The technological environment has a positive correlation with market demand	0.83	10.93
H2b	The impact of technological environment on process cost has a positive correlation	0.69	8.74
H2c	The impact of technological environment on financial efficiency has a positive correlation	0.84	11.06
H2d	The impact of technological environment on information sharing has a positive correlation	0.75	9.43
H2e	The impact of technological environment on service level has a positive correlation	0.72	8.67
H2f	The technological environment has a positive correlation with customer satisfaction	0.62	8.28
H3a	The positive correlation between human resources and market demand	0.82	10.69
H3b	The positive correlation between human resources and process costs	0.90	11.13
H3c	The positive correlation between human resources and financial efficiency	0.16	1.52
H3d	The positive correlation between human resources and information sharing	0.84	10.87
H3e	The positive correlation between human resources and service level	0.69	8.43
H3f	The positive correlation between human resources and customer satisfaction	0.93	11.21
H4a	The positive correlation between organizational structure and market demand	0.14	1.26
H4b	The positive correlation between organizational structure and process costs	0.75	7.25
H4c	The positive correlation between organizational structure and financial efficiency	0.82	7.92
H4d	The positive correlation between organizational structure and information sharing	0.03	0.82
H4e	The positive correlation between organizational structure and service level	0.63	8.15
H4f	The positive correlation between organizational structure and customer satisfaction	0.21	1.53
H5a	The positive correlation between fund management and market demand	0.58	5.64
H5b	The positive correlation between fund management and process costs	0.45	4.77
H5c	The positive correlation between fund management and fund efficiency	0.92	9.36
H5d	The positive correlation between fund management and information sharing	0.06	0.94
H5e	The positive correlation between fund management and service level	0.63	7.93
H5f	The positive correlation between fund management and customer satisfaction	0.72	8.35

The structural equation analysis of the impact of cross-border e-commerce application sub items on transaction processes shows that the t-values of cross-border e-commerce application sub items are all greater than 2.58, indicating that the relevant impact is significant within a 99% confidence interval. Among them, the path coefficients of laws, regulations, and organizational structure on the competitiveness of enterprises are both less than 0.5, which

are 0.32 and 0.36, respectively. On the one hand, it reflects the inadequacy of laws and regulations related to cross-border e-commerce, and its role in regulating transaction behavior still needs to be improved; On the other hand, the role of cross-border e-commerce in organizational structure is limited, and its impact on enterprise competitiveness is limited compared to traditional trade. The specific analysis results are shown in Table 4, based on which the hypotheses H1 to H5 are confirmed.

Table 4. Parameter estimation and significance test results of application sub items

Hypothesis	Path description	Path coefficient	T value
H1	The positive correlation between laws and regulations and the competitiveness of enterprises	0.32	4.77
H2	The positive correlation between technological environment and enterprise competitiveness	0.61	9.16
H3	The positive correlation between human resources and enterprise competitiveness	0.81	10.63
H4	The positive correlation between organizational structure and enterprise competitiveness	0.36	3.53
H5	The positive correlation between fund management and enterprise competitiveness	0.52	5.86

The structural equation modeling analysis of the impact of cross-border e-commerce applications on enterprise competitiveness shows that there is a significant positive correlation within a 99% confidence interval. In the process of using cross-border e-commerce, enterprises utilize their internal and external resources in a networked and data-driven manner, reflecting their new competitiveness under the cross-border e-commerce model. The specific analysis results are shown in Table 5, based on which H6 is confirmed.

Table 5. Parameter estimation and significance test results

Hypothesis	Path description	Path coefficient	T value
H6	The positive correlation between cross-border e-commerce applications and enterprise competitiveness	0.63	10.26

5. Research Conclusions and Recommended Measures

5.1. Research conclusions

This paper constructs a measurement scale for cross-border e-commerce applications and enterprise competitiveness, and verifies the specific impact of cross-border e-commerce applications on enterprise competitiveness in a targeted manner, thus obtaining more detailed conclusions.

(1). The impact of cross-border e-commerce applications on the competitiveness of different enterprises varies. In the potential competitiveness of enterprises, cross-border e-commerce has a significant impact on process costs, indicating that the business process of cross-border e-commerce simplifies the business process of traditional trade, thereby greatly reducing process costs. In terms of competitiveness, cross-border e-commerce has the least impact on information sharing and the greatest impact on service levels, indicating that the convenience and networking of e-commerce not only provide high-quality services to the public, but also gradually highlight the high value of information. Cross border e-commerce participants do not significantly increase their own information disclosure efforts.

(2). The impact intensity of different cross-border e-commerce application factors on enterprise competitiveness varies. Human resources and technological environment are the two factors that have the greatest impact on the competitiveness of cross-border e-commerce enterprises, belonging to the internal and external resources of the enterprise, respectively. At the same time, the impact of laws and regulations is the smallest. It indicates that human resources are one of the determining factors for enterprises to efficiently utilize cross-border e-commerce in their internal environment, and enterprises need to attach importance to the absorption and cultivation of cross-border e-commerce talents; In the external environment of enterprises, e-commerce technology provides a material foundation for the development of cross-border e-commerce, but laws and regulations still need to be continuously improved.

(3). Cross border e-commerce has a significant impact on improving the competitiveness of enterprises. The results indicate that cross-border e-commerce will effectively enhance the potential and apparent competitiveness of enterprises through the application of internal and external resources. Enterprises should actively apply cross-border e-commerce to ensure the optimal allocation of internal and external resources and enhance their competitiveness.

5.2. Recommended measures

Based on the research findings of this article, the following suggestions are proposed to enhance the competitiveness of export enterprises under the B2C cross-border e-commerce model.

(1). Strengthen the organizational and management capabilities of enterprises. Firstly, the management of enterprises needs to strengthen their network thinking, integrate innovative consciousness into their management work, and attach importance to the role of network technology in organizational management. Secondly, enterprises need to develop relevant short-term and long-term plans in organizational management, optimize the organizational work of the human resources department, and strengthen the awareness of e-commerce organizational management among grassroots employees and management, in order to achieve an organizational management environment guided by management and dominated by grassroots employees.

(2). Emphasize the cultivation of employees' innovative consciousness. The potential customers of cross-border e-commerce come from the international market, and employees not only need to have relevant basic knowledge of cross-border e-commerce, but also need to maintain innovative awareness to adapt to the rapidly changing cross-border e-commerce environment. The characteristic of explosive information volume in cross-border e-commerce environment urgently requires practitioners to actively understand the rules of the platform and learn operational knowledge, in order to enhance their innovation awareness.

(3). The government should improve relevant laws and regulations. The speed of improving laws and regulations related to cross-border e-commerce is far behind the development speed of cross-border e-commerce itself. However, with the diversification of cross-border e-commerce products, internationalization of markets, and popularization of transactions, new problems have gradually emerged in the actual transaction process of cross-border e-commerce. The two parties involved in cross-border e-commerce transactions are located in different countries or regions, and there may be certain conflicts in their cross-border e-commerce regulations, which makes it difficult to protect the legitimate rights and interests of both parties in the transaction.

(4). The government should attach importance to the construction of cross-border e-commerce credit for the high-quality development of the service industry. The government department's credit construction for cross-border e-commerce is not only targeted at both parties involved in cross-border e-commerce transactions, but also at cross-border e-commerce trading platforms. In other words, the trading activities of cross-border e-commerce trading entities must comply with the regulations of both governments to ensure the establishment of a highly creditworthy cross-border e-commerce trading process. In the process of building cross-border e-commerce credit, the government needs to formulate relevant rules and regulations based on the current cross-border e-commerce transaction process, and strengthen communication between enterprises and relevant industry organizations, in order to gradually enhance the rationality and scientificity of cross-border e-commerce credit construction. Definition of connotation and promotion strategy.

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