

Analysis on the Reverse Logistics Model of Cross-border E-commerce under The Belt and Road Initiative, Sharing and Development

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Abstract: The rise of e-commerce industry speeds up the development of the logistics industry. With the "The Belt and Road" initiative, the community focuses more on the circular economy and cross-border e-commerce, which prompted the emergence of new logistics services model. On the basis of reading much relevant information, this paper mainly studies the choice of cross-border e-commerce reverse logistics mode. First of all, this paper summarizes the purpose and significance of the study, and combs the theoretical basis of reverse logistics under the circular economy model. Then this paper describes the cross-border e-commerce reverse logistics operation mode and the operation of the existing problems. Finally, based on the actual operation of a cross-border electric business enterprises in the background of large logistics, the empirical research is carried out by using the analytic hierarchy process to construct the model.

1. INTRODUCTION

At present, domestic scholars for cross-border e-commerce reverse logistics research is still relatively small, only some simple preliminary study. Reverse logistics management has become a very important part of enterprise logistics management, especially for e-commerce enterprises. As a new way of trading, e-commerce has been accepted by many and more consumers as part of its life. With the development of "one way" strategy, cross-border e-commerce has a very big development prospect (Zhao Guanhua, 2014). Therefore, the study of cross-border e-commerce reverse logistics this issue has far-reaching significance

2. A BRIEF INTRODUCTION TO REVERSE LOGISTICS OF CROSS-BORDER E-COMMERCE

In October 1997, at the Global Information Society Standards Conference in Belgium, Belgium, the economic commissioners presented a more rigorous and complete definition of e-commerce: electronic commerce was conducted electronically rather than physically or indirectly direct physical contact to complete any form of business transactions. And cross-border e-commerce can be defined as through the computer network, through cross-border logistics services, to complete the transaction business activities (Yu Ying, 2017).

In addition to the characteristics of basic business, cross-border e-commerce also has the following outstanding features shown in Figure 1.

Reverse logistics refers to the process by which an e-commerce enterprise or other form of supplier entrusts a third party logistics company or a self-logistics enterprise to deliver the goods from the location specified by the user to the location of the merchant's

customer. Reverse logistics process is a business and customers to promote logistics activities (Ji Fang, 2015). Although China's e-commerce reverse logistics in the continuous development, but cross-border e-commerce reverse logistics is still in the initial stage, both from the laws and regulations or product information, competitors and logistics itself is not perfect.

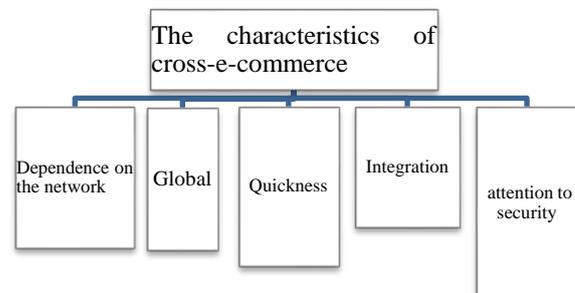


Figure 1 The characteristics of cross-e-commerce

3. ANALYSIS AND DECISION - MAKING OF REVERSE LOGISTICS OPERATION MODE OF CROSS - BORDER E - COMMERCE

The specificity of e-commerce determines the return of electricity and traditional business, cross-border e-commerce with the traditional e-commerce, the main factors affecting the reverse logistics: from the customer's reasons, from the supply chain reasons, from the production enterprises the reason comes from environmental protection requirements.

3.1 Analysis on the Operation Mode of Cross - border E - commerce Reverse Logistics

Compared with the traditional e-commerce reverse logistics, cross-border e-commerce reverse logistics also has three main modes of operation: self-mode, joint

venture model and third-party model. Three modes of operation mechanism. their own advantages and disadvantages.

Self-employed model, the customer on the Internet to the seller to return the application, the seller informed the manufacturer, by the manufacturer home recycling products, returned to their return processing center acceptance. Joint venture model, the customer to the customer service to return the application, customer service received the application to notify the joint recycling center home recycling products (Liu Jiaguo,2015). Third party model, the customer to the seller to return the application, and then the seller informed the third party logistics company in the designated location inspection and recovery of products.

3.2 New Mode of Reverse Logistics of Cross - border E - commerce - Common Strategy Model

Cross-border e-commerce environment reverse logistics common strategic model refers to the production enterprises and e-commerce operators to form strategic partners, and cross-border e-commerce operators to join enterprises to form a strategic partnership group, together to establish a comprehensive coverage of the reverse Logistics network, share the risk, share the benefits together and together to complete the reverse logistics (Zhang Qun, 2016). The specific process is shown in Figure 2.

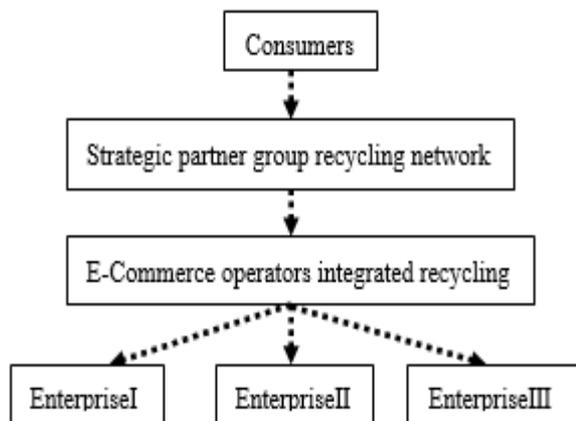


Figure 2 Common strategy model

3.3 The Operational Mechanism of the Joint Strategic Model of Cross - border E - commerce Reverse Logistics

The mode of operation of the mechanism: the customer online to the customer service to return the application, customer service received a notice to the common recycling network center, the Common Recycling Network Center will be selected from the customer return address of the nearest processing center, and then by the processing center staff inspection While the return of goods. Commodities in the acceptance will be through a special return information system will return the goods information to the operator and join the enterprise, to determine the return of goods re-distribution(Fan Jing,2016). Electric dealer after receiving the return information through Alipay, online banking and other online trading software will refund the refund to consumers.

Cross - border E - commerce Reverse Logistics Common Strategy Model is conducive to reducing the reverse logistics investment costs and risks, improving customer satisfaction, for enterprises to create more potential value and conducive to the integration of reverse logistics resources, to achieve intensive, to the realization of modern enterprise information, to popularization and application and cross-border e-commerce reverse logistics development and improvement.

4. REVERSE LOGISTICS MODEL EVALUATION SYSTEM OF CROSS - BORDER E – COMMERCE

On the choice of reverse logistics model, this paper uses the analytic hierarchy process to make the best choice.

4.1 Analytic Hierarchy Process

Analytic hierarchy process is the decision-making method of qualitative and quantitative analysis on the basis of decomposing the elements related to decision-making into the target, criterion, scheme and so on. Analytic Hierarchy Process (AHP) is a powerful tool for analyzing complex systems with multi-objective and multi-criteria (Zhang Bingjiang, 2014). For the AHP first we have to clearly solve the problem is what, and set it as the overall goal, and then set the evaluation criteria, and finally choose the best solution. As shown in Figure 3 is a hierarchical analysis to solve the problem of the flow chart.

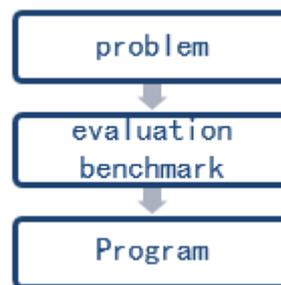


Figure 3 Analytical flow chart

4.2 Establish an evaluation system

There are many aspects that affect the choice of reverse logistics mode, including the economic benefits, the financial capacity of the enterprise itself, the pressure from the outside world, the response from the customer. According to the analytic hierarchy process can be established as shown in Figure 4.

The future development potential is mainly to include the pressure of competitors and their own feedback on the ability and speed of information, the choice of the model is long-term, whether it has a higher level of strategy which affects the reverse logistics mode of operation choice.

In addition to the above factors, there are many other factors that may affect the choice of reverse logistics mode of operation, such as cross-border electric business enterprises in their own size and strength of the size of the differences, as well as their own reverse logistics

business in the enterprise business Strategic position, the characteristics of self-employed logistics and logistics advantages and disadvantages.

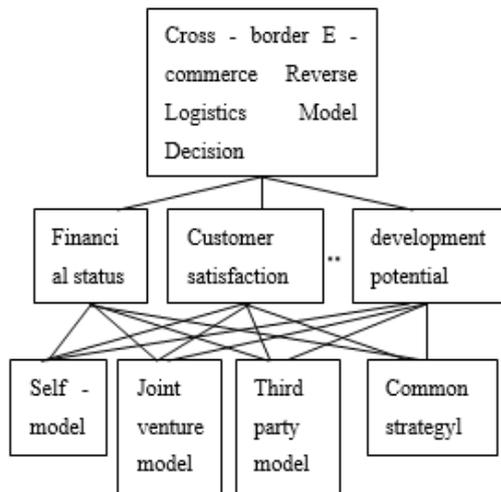


Figure 4 Structure hierarchy diagram

4.3 The establishment of the model

The goal: A choose the appropriate business reverse logistics mode of operation Influencing factors include: B1, B2, B3 Bn

Enterprise options: P1, P2 ... Pn

Suppose there are m experts after considering the various factors given after the judgment matrix, and each weight is the same, and the business of the views of the same experts, no preference.

Create the following model Figure 5:

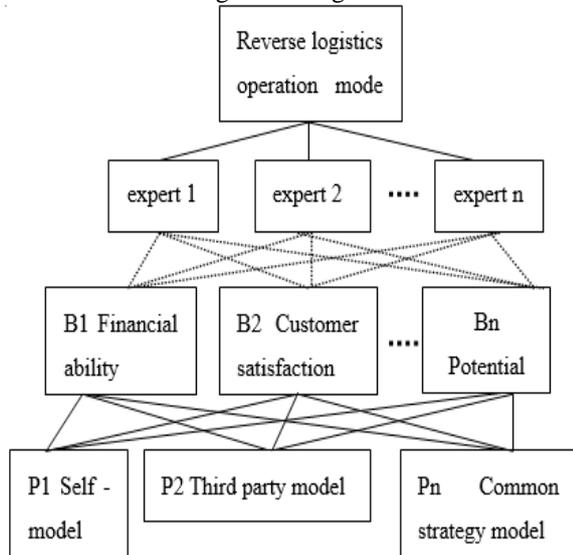


Figure 5 Expert participation of the hierarchy analysis model

Step1: to determine the factors the affect the choice of e-commerce reverse logistics operation mode.

Step2: give the judgment matrix $A = (a_{ij})_{m \times n}$ The experts give their respective judgment matrix, a_{ij} represents the ratio of the relative importance of the element "i to the element j, and has the following relation $a_{ij} = 1/a_{ji}$; $a_{ii} = 1$; $i, j = 1, 2, \dots, n$

Step 3: Construct the judgment matrix

Step 4: Calculate the eigenvalues, eigenvectors and consistency tests of each judgment matrix

Step 5: Calculate the total ranking of the hierarchy, after obtaining the relative weight between the same levels of elements. you can calculate the overall weight of the elements at all levels. And then make decisions based on the total order.

5. ANALYSIS ON THE OPERATION MODE OF REVERSE LOGISTICS IN CROSS - BORDER ELECTRIC BUSINESS ENTERPRISES

Cross-border electricity business is a typical B2C mall and has 3C online shopping platform. Customers in the business mall for online shopping, if there is a return intention, can be within the specified time online registration, after the customer service audit, the mall will return customers to provide free self-distribution within the door pick-up service. After the goods arrive at the storehouse, the return system returns the refund to the customer and returns the goods to the supplier. In the original reverse logistics to improve customer satisfaction and improve the level of the entire supply chain will be completed. I am through the establishment of AHP model analysis of four types of electricity reverse logistics operation mode, and for the selection of a most appropriate mode of operation.

5.1 Build the model with the current logistics background

People are usually used to qualify the distinction between things used to use five standard attributes to express its importance, the qualitative problem gradually quantified, the specific judgments as follows Table 1.

Table 1 Factor judgment table

Pairs of comparative standards	of content
1	i、 j are equal importance
3	i、 j One of the elements is slightly more important than the other
5	According to experience and judgment, strongly tend to a certain factor
7	In fact, tend to one factor
9	There is evidence that a factor is significantly stronger than another factor can control the maximum possible
2、 4、 6、 8	The median value between the above values
The reciprocal of the above values	When the i and j elements are given when compared to a scale value, then j and i elements when compared to its reciprocal

Note: a_{ij} represents the ratio of element i to element j relative weight, and has the following relationship:

$$a_{ij} = 1/a_{ji} : a_{ii} = 1: i, j = 1, 2, \dots, n$$

Obviously, the greater the ratio, the higher the weight of the element i

According to the relevant data, large logistics background and the current state of the enterprise consultation and understanding, make the following judgment matrix.

Table 2 Judgment matrix A-B

A	B1	B2	B3
B1	1	1/3	1/5
B2	3	1	1/4
B3	5	4	1

Table 3 Judgment matrix B1-P

B1	P1	P2	P3	P4
P1	1	1/2	1/3	1/4
P2	2	1	1/3	1/3
P3	3	3	1	1/2
P4	4	3	2	1

Table 4 Judgment matrix B2-P

B2	P1	P2	P3	P4
P1	1	1/3	1/4	1/4
P2	3	1	2/3	2/3
P3	4	3/2	1	1
P4	4	3/2	1	1

Table5 Judgment matrix B3-P

B3	P1	P2	P3	P4
P1	1	1/3	1/5	1/4
P2	3	1	1/3	1/2
P3	5	3	1	2/3
P4	7	2	3/2	1

Calculate the eigenvalue with summation. The conclusion is shown in table6:

Table6 Level total sort table

	B1	B2	B3	Total sort weight
level	0.104	0.231	0.665	
P1	0.095	0.083	0.061	0.07
P2	0.146	0.235	0.168	0.181
P3	0.303	0.341	0.351	0.344
P4	0.456	0.341	0.42	0.405

6. PROGRAM EVALUATION AND IMPROVEMENT

Cross-border electricity business returns reverse logistics program, enterprises and suppliers should be the depth of strategic cooperation to take into account. Therefore, the new e-commerce platform should also improve the information system construction. Cross-border enterprises not only to form an alliance

with suppliers, and third-party logistics enterprises should also establish a strategic alliance, the effective realization of customer relationship management information sharing (Luo Xiaofang, 2014). The sharing of information between enterprises may involve the issue of trade secrets, although this is a great test of the trust between affiliated enterprises, but the rapid development of science and technology to solve such problems are more and more programs. From the social point of view, ecological civilization construction is now more and more attention, and reverse logistics is the logistics industry in the construction of ecological civilization and low-carbon concept of practice in the most prominent one side. Do reverse logistics, reduce unnecessary waste. Electric business development has brought more jobs, attracting more electric business talent, which is better to promote the development of this industry.

7. CONCLUSIONS

It can be seen from the hierarchical table that the ranking of the four schemes is P4> P3> P2> P1. Therefore, for the cross-border electricity business enterprises, the four modes of operation are the common strategy model.

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