

Value chain analysis of cross border e-commerce foreign trade driven by networked manufacturing mechanism

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Abstract. With the rapid rise of the Internet and the rapid development of e-commerce industry, the concept and research of cross-border e-commerce foreign trade oriented to networked manufacturing mechanism are deepening. Based on the continuous progress of modern information technology and the corresponding network sharing technology, it is inevitable to analyze the value chain of cross-border e-commerce foreign trade under networked manufacturing mechanism. This paper will model the corresponding foreign trade value chain of cross-border e-commerce based on the networked manufacturing mechanism, and based on the current economic environment of small and medium-sized cross-border e-commerce, analyze the internal advantages, external advantages, external opportunities and internal opportunities and challenges of current small and medium-sized enterprises' foreign trade e-commerce based on SWOT analysis method, and give the corresponding cross-border e-commerce value chain of small and medium-sized enterprises The corresponding value chain relationship and social status of e-commerce. In the end, this paper gives the development strategy of cross-border e-commerce of SMEs and the corresponding development model.

Keywords: Cross border e-commerce of SMEs; networked manufacturing mechanism; value chain analysis; foreign trade; matrix analysis algorithm.

1. Introduction

With the rapid development of Internet technology and e-commerce foreign trade, small and medium-sized enterprises, as an important window for the country's foreign trade and development, are expanding with the continuous excavation of the country's foreign trade market [1-3]. At present, the foreign trade e-commerce of small and medium-sized enterprises presents disadvantages such as small scale, relatively weak strength, serious capital risk, weak risk awareness, lack of core competitiveness and fuzzy strategic vision [4]. At the same time, the internationalization of large-scale e-commerce trading companies has also brought great challenges to the development of small and medium-sized cross-border e-commerce. Based on this, how to sort out and analyze the value chain structure of cross-border e-commerce of small and medium-sized enterprises in such a severe and harsh environment, and at the same time, it is very necessary and meaningful to do a good job in the long-term development strategy of small and medium-sized enterprises with the help of corresponding organization, routine operation, system reform and other corresponding competitive elements [5-6].

In the research on cross-border e-commerce of small and medium-sized foreign trade, the main theories include periphery theory, system serialization theory and corresponding gap wheel [7]. The corresponding periphery theory mainly emphasizes that the small and medium-sized cross-border e-commerce centers around the supply chain of the large-scale cross-border e-commerce with monopoly as the core, thus forming the corresponding satellite enterprise effect and forming a strong subordinate and dependent relationship [8]; the corresponding system serialization theory is mainly born in Japan and other Asian countries, which holds that the small and medium-sized foreign trade e-commerce should focus on the large enterprises On the other hand, the gap theory appears in the theoretical system of European and American countries headed by the United States, which holds that the market and the corresponding technology are constantly changing, and at the same time interact and restrict each other, despite a large number of resources and resources Economic resources are concentrated around large enterprises, but large enterprises need to make up for the gap between

large-scale production and large-scale circulation, which requires a large number of small and medium-sized enterprises to fill the gap, so that a large number of small and medium-sized enterprises get rapid development [11-12]; relevant Chinese scholars believe that the corresponding development and growth of small and medium-sized foreign trade e-commerce enterprises is related to a country's economy. It advocates the use of value chain analysis tools to analyze the composition of the value chain of foreign trade industry, decompose and integrate the corresponding activities of the value chain, and reposition the corresponding strategic links of the value chain, so as to promote the rapid development and progress of small and medium-sized foreign trade e-commerce enterprises. This way reveals the connotation of value creation of small and medium-sized cross-border e-commerce at the same time, the successful use of the law to achieve the development and progress of the enterprise [13-16].

Based on the current difficulties faced by the small and medium-sized cross-border e-commerce in foreign trade, this paper will model the corresponding foreign trade value chain of the corresponding cross-border e-commerce based on the networked manufacturing mechanism, and analyze the internal advantages, external advantages and related factors of the current small and medium-sized cross-border e-commerce based on the SWOT matrix analysis algorithm. At the same time, the corresponding value chain relationship and the corresponding social status of SMEs cross-border e-commerce are given. In the end, this paper gives the development strategy of cross-border e-commerce of SMEs and the corresponding development model.

The corresponding arrangement of this article is as follows: the second section of this article will model the corresponding cross-border e-commerce foreign trade value chain based on the network manufacturing mechanism, and analyze the current development situation of SMEs' foreign trade e-commerce based on the SWOT analysis method; the third section of this article will give the development strategy of SMEs' cross-border e-commerce and give the corresponding development mode; the last section will give some suggestions. After that, we will summarize this paper.

2. Based on the network manufacturing mechanism of small and medium-sized foreign trade cross-border e-commerce value chain analysis

The foreign trade value chain of small and medium-sized cross-border e-commerce studied in this paper is mainly based on the e-commerce value chain model, and the corresponding value chain model framework under the networked manufacturing mechanism is shown in Figure 1. From the overall framework of Figure 1, it can be seen that the value chain corresponding to small and medium-sized foreign trade enterprises is mainly composed of virtual value chain, and its main means of survival depends on low cost, cheap labor and a large amount of investment in natural resources. Among them, the corresponding value chain warehousing and goods preparation link is mainly to place orders to the corresponding manufacturers according to the contract; the corresponding commodity storage and transportation link is mainly the logistics management link including customs declaration, transportation, warehousing and corresponding international freight; the corresponding foreign trade marketing level is mainly to participate in various international trade fairs, exhibitions and customer visits. The corresponding closed-loop information feedback link is mainly to collect the relevant international market, sort out and summarize the corresponding decision-making basis; the corresponding auxiliary value chain link of small and medium-sized foreign trade cross-border e-commerce includes the setting of enterprise organization structure, human resource organization structure, financial management and fund management structure, and enterprise information system structure.

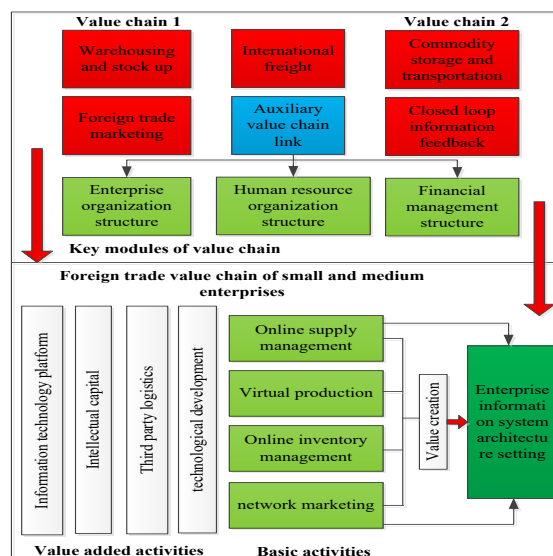


Figure 1. Framework diagram of corresponding value chain model under networked manufacturing mechanism

In the value chain of small and medium-sized foreign trade cross-border e-commerce, the corresponding network manufacturing constraints should be added, and the corresponding enterprise organization and management structure of each link should be changed, so as to support the economic activities of the whole foreign trade cross-border e-commerce, and make the corresponding advanced production management concepts cover all links of the whole life cycle, so as to realize the rapid response to the market. Should. The penetration details of networked manufacturing of the corresponding small and medium-sized cross-border e-commerce in each link are shown in Figure 2. As can be seen from Figure 2, networked manufacturing has transformed the value chain of cross-border e-commerce in seven levels by using the Internet and the internal network of enterprises. In the level of enterprise innovation, three levels of innovation mechanism are added, namely market innovation, management innovation and product innovation; in the corresponding level of enterprise digital management, information highly integrated, market operation digital innovation and corresponding product display and marketing digital innovation are added; in the corresponding level of cross-border enterprise integration, enterprise integration is introduced, and the enterprise matches the environment. At the same time, it emphasizes the organic integration of enterprise management and technology; at the corresponding enterprise operation management network level, network manufacturing introduces the concepts of design network, marketing network and procurement network; at the corresponding cross-border e-commerce level, it introduces the concept of modularization, which requires product modularization, enterprise modularization and process modularization. At the corresponding level of intelligence, network manufacturing introduces dynamic adaptive integration intelligence, self-coordination intelligence and self-learning intelligence into the value chain of small and medium-sized foreign trade cross-border e-commerce. Driven by the whole network manufacturing mechanism, small and medium-sized foreign trade cross-border e-commerce needs to focus on international concurrent engineering control, global distributed manufacturing management control, global flexible production system control and life cycle management control in the process of value chain operation.

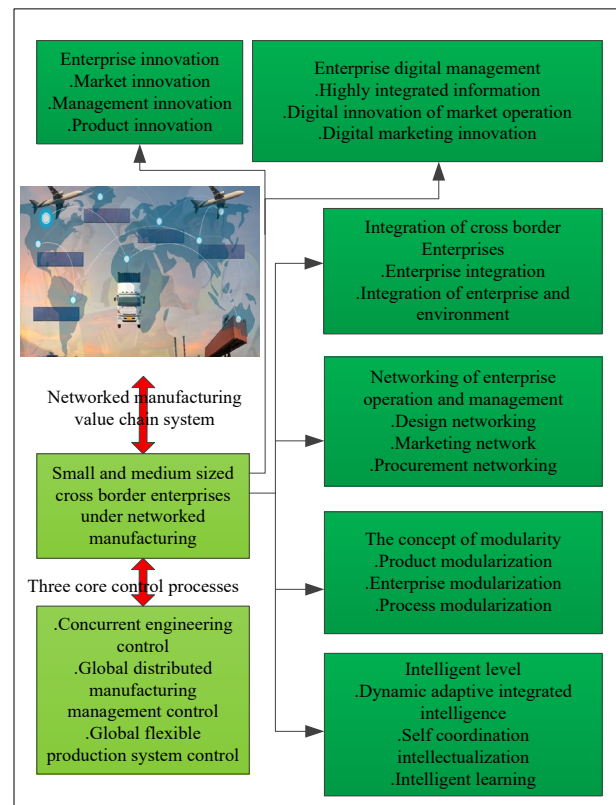


Figure 2. Details of network manufacturing penetration in each link of small cross border e-commerce value chain

Based on the above analysis of the value chain of cross-border e-commerce under the network manufacturing mechanism, it can be concluded that: in the development and management of small and medium-sized foreign trade cross-border e-commerce enterprises, we need to pay attention to the corresponding intelligence, networking and integration of enterprises, consider the development of enterprise value chain from the internal and industrial environment of enterprises, and constantly integrate advantageous resources, and focus on the development of enterprises in order to realize the value-added development of the value chain. At the same time, based on the above analysis of small and medium-sized foreign trade e-commerce under network manufacturing, the corresponding value chain constraint formula can be obtained. The corresponding core formula is shown in Formula 1, where the corresponding M represents the country's output vector, the corresponding B is a constant dimensional matrix, and the corresponding N is the international consumption vector. The expression of the corresponding vector x is shown in formula 2, and the expression of the corresponding vector y is shown in Formula 3.

$$M = BM + N \quad (1)$$

$$M = \begin{bmatrix} M_{11} & \dots & M_{1j} \\ \dots & \dots & \dots \\ M_{i1} & \dots & M_{ij} \end{bmatrix} \quad (2)$$

$$N = \begin{bmatrix} N_{11} & \dots & N_{1j} \\ \dots & \dots & \dots \\ N_{i1} & \dots & N_{ij} \end{bmatrix} \quad (3)$$

3. Development strategy of cross-border e-commerce

After analyzing the value chain of cross-border e-commerce of foreign trade of small and medium-sized enterprises, this section will analyze the internal advantages, external advantages, corresponding external opportunities and internal opportunities and challenges of current e-commerce of foreign trade of small and medium-sized enterprises based on SWOT analysis method, and give the development strategy of cross-border e-commerce based on the analysis.

Taking the e-commerce of a developing country in an Asian region mainly engaged in rubber foreign trade industry as the analysis object, the corresponding income and profit situation of the company in recent years are shown in Figure 3 and Figure 4. According to figure 3 and Figure 4, and considering the actual production and operation situation of the company, it can be seen that the corresponding environment has natural advantages, and the corresponding international environment of rubber industry is relatively good in recent years. At the same time, because the management of the company has higher education background and better entrepreneurial background, its corresponding company management concept is advanced, and the business ability of relevant personnel is relatively low at the same time, in the corresponding actual operation, the company's employees' market development awareness, service awareness and market competition awareness are relatively good. However, the industry that the company is engaged in is raw material industry, and its corresponding customers are basically international customers. It is subject to the influence of local production, environmental protection policy and origin protection policy, and its corresponding profit margin is relatively low. At the same time, the company's corresponding cooperation is relatively poor, its products are relatively single, and the corresponding enterprises in the regional industrial value chain are homogeneous More serious, facing price, market and talent competition. Based on the above actual situation, SWOT analysis is carried out for the company in the region, and the corresponding analysis results are shown in Table 1.

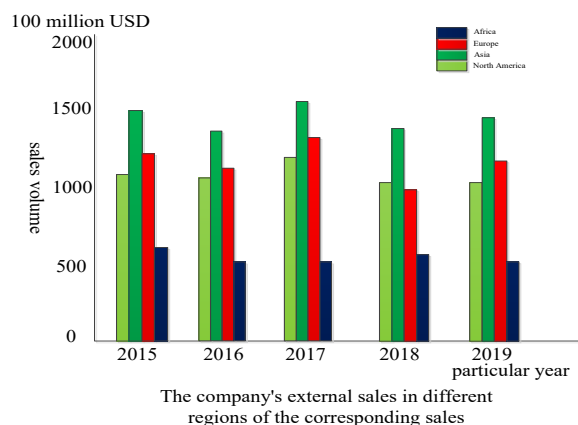


Figure 3. The company's external sales volume histogram of different regions

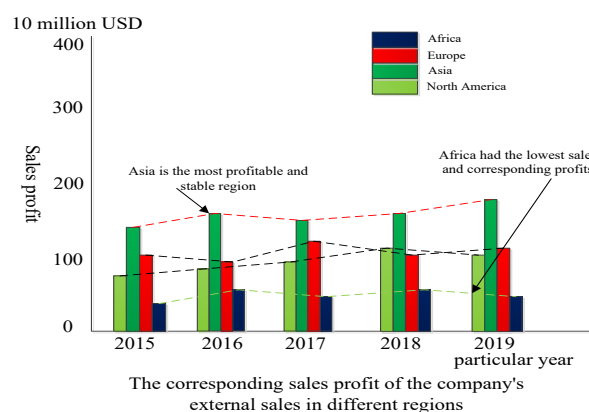


Figure 4. The corresponding profit distribution histogram of the company

Table 1. SWOT analysis of the company in the region

SWOT analysis index	Situation description
There are opportunities for the company	1. The quality of management personnel is high, the background is superior, the company is easy to accept new management concepts, dare to innovate. 2. The corresponding international market environment is good, the region encourages opening up, and the policy has certain advantages. 3. Labor is cheap and sufficient. 4. The international market demand is strong, the automobile industry, especially the new energy automobile industry, is developing rapidly, and the corresponding auto parts and tires are in great demand.
Threats to the company	1. The financing environment is relatively bad, and the corresponding capital reserve of the company is not enough. 2. There is fierce competition in the value chain of the company. 3. The price and quality competition in the same industry is fierce.
The company's current advantages	1. The quality of management personnel is high, the background is superior, the company is easy to accept new management concepts, dare to innovate. 2. The company's corresponding customer evaluation is high, and the company's staff have a strong sense of service, competition and market development. 3. There are many orders at present, and the company has core technology.
The company's current weaknesses	1. The employment cost of core personnel is increasing, and there is a problem of core personnel loss. 2. The product structure is single and the profit source is single. 3. The company has spent a lot of money and energy on policy issues in the region, resulting in the tension of the company's capital chain. 4. The slogans of corporate culture are relatively homogeneous and lack of specific strategic objectives and long-term strategic planning.
Objective policy problems faced by the company	1. At present, the region where the company is located encourages opening to the outside world, and the policy encourages the development of small and medium-sized foreign trade enterprises, especially e-commerce enterprises. 2. Financial policy is friendly to small and medium-sized enterprises, which is conducive to the development of small and medium-sized enterprises and the solution of financial problems. 3. The environmental protection policy is relatively severe, and the company is on the cusp of the storm. It needs to further improve its awareness of environmental protection and green means of production.
Conclusion: the company's relevant value chain needs further analysis and transformation	

Based on this analysis, the core factors supporting the company's corresponding development strategy are: policy opportunities, low cost, deep management background and relatively clear market objectives.

The suggestions for the later development strategy of the company are as follows:

1. Focus on the limited funds, technology and core talents, focus on the target market under the segmentation, make the enterprise develop in the direction of "specialized, refined, special, new" and other related directions, at the same time, continuously launch the corresponding derivative products in the corresponding refined field, shape the core force of product quality, so as to improve the economic scale of the whole enterprise.

2. Abandon the logistics link that the company is not good at, outsource it to the professional company team for operation, integrate the advantage link for development, fully investigate the international market customer demand, and fully investigate the core competitiveness of related industries in the value chain. Focus on their own areas of expertise, the establishment of a complete

information system, while strengthening the corresponding e-commerce capabilities, to enhance the corresponding professional training of existing personnel.

3. Strengthen the company's talent management concept, strengthen the construction of the company's organizational structure, and take the corresponding talent strategy as the basis and guarantee strategy of enterprise development.

4. Conclusion

This paper mainly analyzes the current small and medium-sized foreign trade cross-border e-commerce corresponding to the value chain research problems, and gives the corresponding advantages and disadvantages of various research methods. Based on the current development strategy of small and medium-sized foreign trade e-commerce, this paper accurately models the corresponding cross-border e-commerce foreign trade value chain based on the networked manufacturing mechanism, and analyzes the internal advantages, external advantages and related factors of the current small and medium-sized foreign trade e-commerce based on the corresponding economic environment and SWOT matrix analysis algorithm. At the same time, the corresponding value chain relationship and the corresponding social status of SMEs cross-border e-commerce are given. At the end of this paper, it gives the development strategy of cross-border e-commerce of SMEs and the corresponding development model. This paper will further study the application of the corresponding method in large-scale cross-border e-commerce.

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