

Integration of Cross-border E-commerce Network Marketing Channels under the Background of Digital Economy

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Abstract: With the rapid popularization of information technology and the Internet around the world, network marketing emerged at the historic moment, but this development also triggered new conflicts with cross-border e-commerce (CBEC) channels. CBEC needs to establish a multi-channel three-dimensional cooperation communication framework that combines the network with traditional intermediary channels. Only by introducing advanced concepts into the traditional marketing channel model, combining traditional marketing channels with network marketing channels, and coordinating the economic interests of channel members, can common development, long-term cooperation, and mutual benefit be achieved. However, there are many contradictions and conflicts in the current network marketing channels, which cannot effectively integrate the channels. Therefore, this paper studied the role and obstacles of network marketing to CBEC, and then studied the types and uniqueness of network marketing channels. Finally, the influencing factors of network marketing channels were analyzed and studied, and corresponding optimization strategies were proposed. Through comparison, it can be seen that the effect of channel integration after marketing channel integration was 21.1% higher than that before marketing channel integration, and the economic benefit of CBEC was 19.5% higher than that before marketing channel integration. In short, the channel integration of network marketing has played a role in promoting the economic benefits of CBEC.

1. Introduction

In the digital economy, network marketing has become an important means of modern product marketing after rapid development. Many CBECs recognize the importance of network marketing, but fail to realize the importance of combining network marketing channels with traditional marketing channels, resulting in frequent conflicts between sales channels, which poses a serious threat to the normal operation of the sales channel system. How to successfully overcome new

channel conflicts through proper management and network marketing has become an urgent issue for enterprises to improve channel integration.

Network marketing plays an important role in promoting the development of CBEC. Bala Madhu put forward his views on some current and future trends in marketing, and found that consumers were looking for and searching more marketing channels on the Internet to find the most favorable price [1]. Katsikeas Constantine discussed the opportunities and challenges faced by enterprises in this new digital era regarding their international marketing strategies, and studied how to re-examine international marketing practices according to these developments [2]. Petit Olivia adopted the latest tool technology to provide future consumers with richer network experience and help interested readers better understand what sensory marketing can provide in the digital environment, which was expected to open the way for further research and development in this field [3]. Boateng Sheena Lovia studied the signaling role of online relationship marketing activities in generating online trust and customer loyalty from the perspective of signal theory, and emphasized the signaling role of online participation and interaction in influencing the results of bank relationship marketing, so as to positively affect customers' online trust and loyalty [4]. Wongkitrungrueng Apiradee used a mixed quantitative and qualitative method to analyze the data of live sellers to evaluate the nature and degree of participation indicators, and described a dynamic and interactive live sales process [5]. Punyatoya Plavini studied the various factors that affected the development of each form of customer network trust, and the subsequent impact on customer satisfaction and loyalty. He studied the relationship between different apriori and affective and cognitive-based trust in online retail situations [6]. Childers Courtney Carpenter provided insights on the experience and views of advertising company staff on online red marketing. The results showed that the online red marketing industry greatly affected strategic decisions, and needed to change the agency process to effectively implement [7]. The above studies have described the role of network marketing, but have not described the methods of channel integration.

The integration of network marketing channels can improve the transaction mode of CBEC. Shafiei Mahdi designed a balanced distribution and pricing system to motivate all distributors and retailers in network marketing, and developed a method to determine all elements of the system. He applied the game model to optimize pricing and determine the layers of commission and network marketing structure [8]. Modarres Mohammad developed an appropriate commissioned payment system for higher-level distributors of network marketing to maintain their enthusiasm. He also studied two situations of dual distribution system, namely centralized and decentralized operation of network marketing [9]. Cao Lanlan provided a cohesive theoretical model from the perspective of innovation diffusion, including not only technology-related factors, but also organizational and environmental factors. When the industry concentration was high, it might affect the cross-channel integration of retailers [10]. Wang Ronghui considered the pricing strategy of competitive dual-channel retailers, focused on whether and when they should adopt the online purchase strategy, and discussed the impact of market factors on the equilibrium results. The increase in the probability of product return or the cost for retailers to handle returned products might be beneficial to retailers [11]. The above studies have described the role of network marketing channel integration, but have not described the optimization methods.

In order to study the integration effect of CBEC network marketing channels in the digital economy, this paper analyzed the information gain rate and expected information of CBEC channel integration through decision tree algorithm, and then analyzed the information security and information exchange before and after CBEC channel integration through experiments. Finally, the channel integration effect was compared and analyzed. Through experimental analysis, it was found that the channel integration of network marketing could improve the economic benefits of CBEC. Compared with other documents, this paper mainly compared and analyzed the information security

and channel integration effect before and after the network channel integration.

2. Role and Obstacles of Network Marketing for Enterprises

2.1 Role of Network Marketing for CBEC

Network marketing is a way to achieve marketing objectives through network technology. It connects different organizations and individuals, and uses the Internet for accessible communication to reduce communication barriers. Its role for CBEC is mainly as shown in Figure 1.

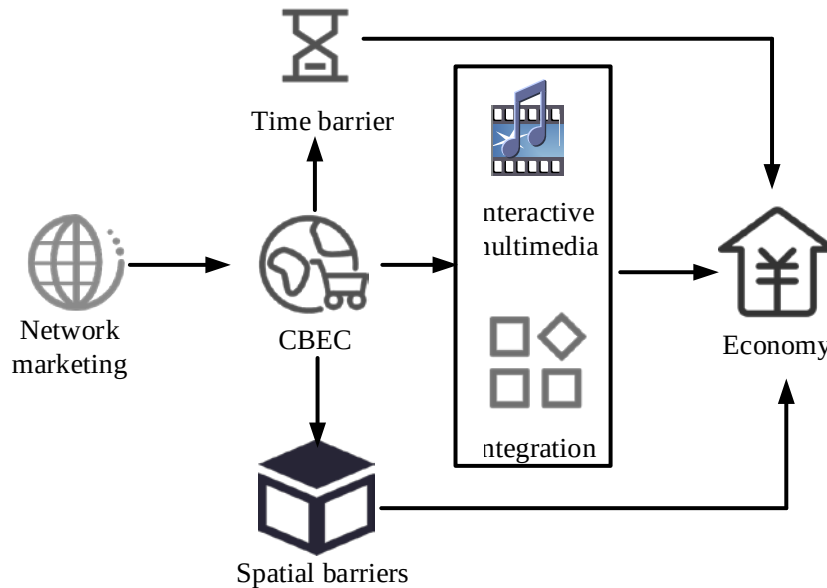


Figure 1. The role of network marketing for CBEC

The first is to eliminate the constraints of time and space. Online transactions through the Internet, where buyers and sellers eliminate time and space constraints and exchange information to meet their respective needs, is a breakthrough in the time-space problem of traditional marketing in the past. Now, sellers can use computers to provide customers with their own information or services anytime and anywhere, and sell products worldwide. Therefore, CBEC has enough marketing time and broader marketing space to make marketing time and space more useful, thus increasing market share. In order to increase income and profits, the government can implement measures related to CBEC to promote the development of small and medium-sized enterprises [12].

The second is interactive multimedia. The online transaction mode is two-way, that is, interactive. The transactions of all parties can provide media information in the form of text, image, voice, etc. By sending it to the other party through the Internet, entrepreneurs can use the Internet to conduct market research and view the directory on the website. Other product search systems can be configured, and customers can also be communicated before, during and after sales, which can maximize the motivation and creativity of marketing personnel and enable customers to raise questions, discussions, complaints and suggestions to the company.

The third is economy. Internet marketing, which uses the Internet to carry out transactions, replaces the traditional personal face-to-face transactions to reduce the number of procedures provided by intermediaries and effectively save the cost of mail delivery. Virtual online stores have replaced offline stores, truly realizing zero rent for enterprises, and effectively saving wages, utilities and other costs. At the same time, low-loss trading has significantly improved trading

efficiency. The fourth is integration. The marketing channel of online transaction is the whole process from the release of commodity information to the conclusion of the transaction between both parties, including after-sales service. Among them, CBEC first plans and coordinates various marketing activities, and then transmits the information to consumers through the Internet, so that different communication channels can disseminate information and avoid differences between different communication channels.

2.2 Obstacles to the Development of Network Marketing

The obstacles in the development of network marketing mainly come from three aspects, as shown in Figure 2. First, information exchange is too illusory. The Internet has many advantages, but it cannot offset the sense of virtual reality. In information exchange, the effectiveness of communication between the two sides depends on the degree of trust between the two sides. The Internet provides a fast and convenient communication space for both sides, but also provides open and virtual space for communication. Therefore, people do not trust the information provided on the Internet, which seriously hinders the development of network marketing. Second, the security of trade information is threatened. Safety is the most worried problem for consumers when shopping online. The reasons that make consumers feel insecure mainly come from two aspects. Personal information security includes important financial information such as bank accounts and consumer passwords. Many consumers are very careful that these information is leaked or stolen. Network viruses may forge and lose important customer information, which brings great inconvenience to consumers who do not want to buy online. Because their rights are not well protected. Third, the interconnection of capital flows has not yet been realized. At present, electronic payment cannot be widely used. In the absence of unified planning and universal electronic payment means, the use of electronic payment means is actually very cumbersome. In addition, the level of capital flow connectivity within CBEC is quite low. This is mainly because CBEC does not pay enough attention to capital flow, or because of the uncertainty on the Internet, it does not want to use more electronic capital management methods.

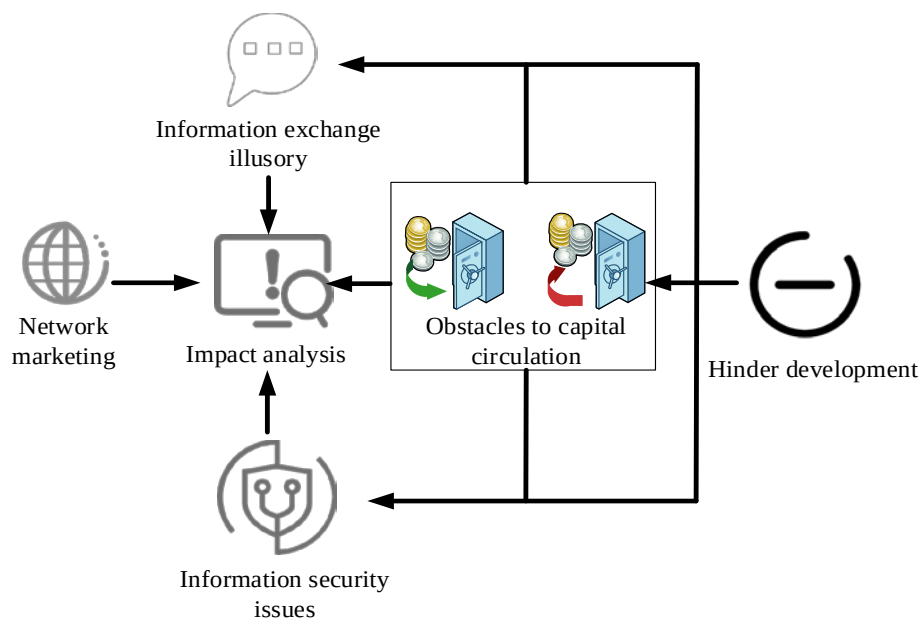


Figure 2. Obstacles to the development of network marketing

3. Elements of CBEC Network Marketing Channel Integration

3.1 Uniqueness of Network Marketing Channels

The emergence of the Internet provides a good platform for information flow. Compared with other marketing channels, Internet-based network marketing has the following characteristics, as shown in Figure 3.

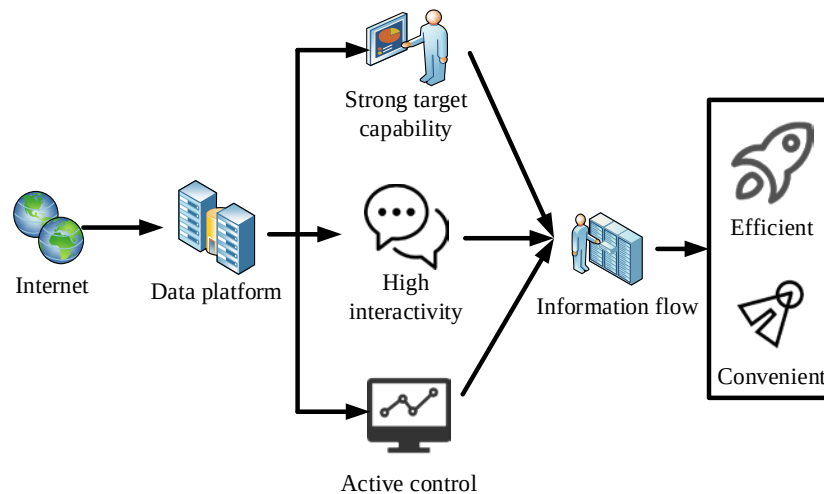


Figure 3. The uniqueness of network marketing channels

First, the goal ability is very strong. Marketers can use customer activity records based on these records to record customer needs, interests, hobbies and other information. The computer can obtain a large amount of information, which is not only very low in storage and exchange costs, but also very fast and accurate. Therefore, CBEC is increasingly easy to collect this information. Network marketing channels can help customers from different countries directly purchase products in different languages and currencies [13]. Therefore, the marketing information that can be transmitted to consumers according to the received data is relevant, efficient, personalized and purposeful.

Second, it is highly interactive. In traditional marketing channels, the high cost of complaint and the low response rate are also part of the reasons why most consumers are suffering but unwilling to complain. The highly interactive network makes the communication between customers and CBEC easier, and consumers can quickly and actively put forward questions and suggestions to CBEC. At the same time, the network makes it easier for CBEC to understand customers' needs and psychology, communicate with them, manage and train customers. Third, customers have active control. The emergence of the network has changed this situation, and customers have active control. Customers can not only decide whether to receive information, but also decide the content, time, method, quantity and order. From this point of view, as a pull media, a large amount of network information first attracts customers' attention.

3.2 Types of Network Marketing Channels

CBEC's participation in online sales can be divided into three modes according to the status and degree of participation in the business process. One is the direct marketing mode of manufacturers. This model uses the website created by the product manufacturer itself or the online shopping center created by a third-party platform to deliver products directly to consumers. The second is the

middleman model. CBEC sells products to agents or wholesalers through traditional distribution channels or network marketing channels. These agents or wholesalers directly sell or deliver products to vertical purchasing platforms through online shopping centers based on online platforms, and distributors provide products to consumers. The third is the third-party platform model. As a manufacturer, CBEC accepts orders from online stores or large online stores and produces products for customers.

3.3 Inevitability of Network Marketing Channel Integration

As consumers become more personalized and channels become richer, CBEC can alleviate channel conflicts to some extent through channel separation strategies [14]. A three-dimensional and coordinated multi-channel interconnection structure can be built to integrate network intermediaries and traditional intermediaries. According to the characteristics of each channel and user, professional division of labor, integration and construction of appropriate operating system is the trend of future development and promote common development. First of all, network marketing is one of the main modes of CBEC's future development. The rapid development of network channels has brought threats and challenges to traditional distributors. However, from the perspective of future channel trends, online channel should be one of the main models of CBEC in the future. Due to the advantages of online channels, CBEC is inevitably adopted in many aspects. If the channel conflict between online channels and traditional offline intermediaries cannot be resolved, the market certainly eliminates this marketing method. Secondly, traditional channels cannot be replaced. In the context of network marketing, the relationship between CBEC marketing channels has become increasingly complex and subtle. As a new marketing model, network marketing inevitably destroys traditional marketing. Traditional channels are inevitably hostile to online channels. Network marketing and existing marketing have coexisted for a long time. As this has become an undeniable fact, the natural conflict between them is inevitable. The integration and coordination between them is one of the feasible means to achieve the channel integration strategy.

3.4 Factors Affecting the Integration of Network Marketing Channels

The main factors affecting the integration of CBEC's network marketing channels are as follows, as shown in Figure 4.

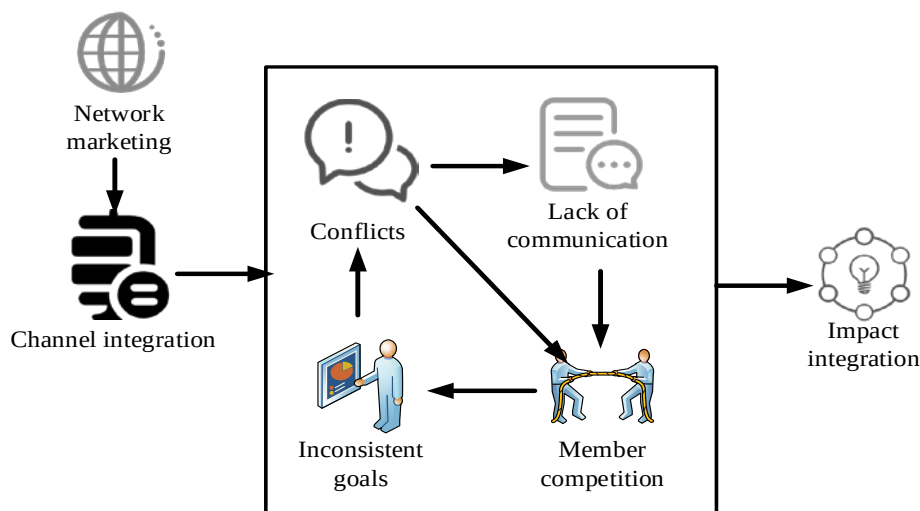


Figure 4. Factors affecting the integration of network marketing channels

(1) Contradictions and Conflicts in Marketing Channels

The relationship between manufacturers and CBEC is affected by imbalances and conflicts due to their respective economic interests. Each member of the marketing channel has its own code of conduct. If some of the members' behaviors exceed their role limits, the interests of other members are affected. Moreover, if they are the leaders of channel marketing, the interests of participants cannot be well balanced. If their interests cannot be satisfied, each channel participant must also make different decisions passively, which inevitably leads to conflicts and contradictions among channel members, and affects all members.

(2) Lack of Information Communication in Marketing Channels

The information exchange between marketing channel members is neither timely nor accurate. The product manufacturer must withdraw the product or stop selling for special reasons. CBEC cannot obtain accurate information from the product manufacturer. However, consumers have received relevant information, which is also one of the reasons for the conflict and contradiction of interests between participants in the communication channel. As marketing channel members, there is almost no communication and cooperation between them, and the conflicts and contradictions between marketing participants intensify.

(3) Inconsistent Marketing Development Objectives

As a product manufacturer, the main goal of business development is to build corporate brands while increasing market share, and attract consumers' loyalty to corporate brands. The main goal of CBEC business development is to obtain the maximum economic benefits. Therefore, CBEC can manage the product business of many manufacturing enterprises to maximize its advantages and obtain the maximum benefits. The manufacturer also said that CBEC did not make every effort to sell its products, but relied excessively on suppliers, resulting in very slow growth of product sales.

(4) Competition among Marketing Channel Members

CBEC provides logistics, promotion, feedback and other means to increase product sales to continuously increase the sales amount and speed up the financial recovery, so as to effectively improve the operational efficiency of marketing channels. CBEC returns the sales information to the product manufacturer, laying the foundation for the long-term cooperation between the manufacturer and CBEC [15]. In addition, CBEC has signed a formal contract with the product manufacturer, which clearly stipulates the responsibilities and obligations of both parties. If one party violates the contract without justifiable reasons and cannot continue to cooperate, the person who violates the contract is subject to legal sanctions, and the person who violates the contract is also liable for major economic compensation. The key for all marketing channel participants to choose whether to cooperate is whether the cooperation between the two sides brings win-win situation and bears the cost of non-cooperation.

4. Application of Decision Tree Algorithm in Network Marketing Channel Integration

In order to study the specific effect of CBEC network marketing channel integration under the digital economy, this paper analyzes and studies the channels in network marketing through decision tree algorithm. Then, the information entropy and expected information of marketing channel integration are analyzed. Finally, the channel integration information gain rate of network marketing is obtained. First of all, this paper investigates the channels of network marketing in the digital economy as follows:

$$X = \{x_1, x_2, \dots, x_m\} \quad (1)$$

Among them, x_m is the value of the channel of network marketing, and m is the type of channel. Then, the information entropy of network marketing channels is analyzed as follows:

$$A\{B_1, B_2, \dots, B_m\} = -\sum_{i=1}^m \frac{B_m}{C} \log_2 \frac{B_m}{C} \quad (2)$$

Among them, B_m is the number of integrated marketing channels of network marketing channels, and C is the classification of channels with value. Next, the expected information of network marketing is analyzed as follows:

$$S(X) = \sum_{j=1}^m \frac{C_{1m} + \dots + C_{nm}}{C} A(C_{1m}, \dots, C_{nm}) \quad (3)$$

Among them, C_{nm} is classified samples of information channels in network marketing. Finally, the information gain rate of network marketing channel integration can be obtained as follows:

$$g(X) = A(B_1, B_2, \dots, B_m) - S(X) \quad (4)$$

3. Optimization Scheme of Network Marketing Channel Integration under the Digital Economy

In the digital economy, CBEC's network marketing channel integration can be optimized through the following schemes.

5.1 Vigorously Developing E-commerce Channels

It is necessary to increase investment in CBEC channel construction and actively promote CBEC channel construction. Many third-party CBEC platforms have been deployed by introducing high-quality CBEC channel managers. It is necessary to actively seize opportunities and actively develop CBEC channels. CBEC channels are used to make up for the deficiencies of traditional channels. Direct sales on e-commerce platforms are not conducted independently by the e-commerce platform that provides goods, but by the sales department. At the same time, when developing CBEC channels, it is also necessary to increase advertising efforts to provide more support for CBEC channels, and reduce the product sales price, which has an important positive role in promoting the development of CBEC channels and laying the foundation for the combination of CBEC channels and traditional channels.

5.2 Flexible Use of Various Network Marketing Methods

Flexible use of various marketing tools has also played an important role in promoting the integration of network marketing channels. In the integration of network marketing channels, internal integration is mainly achieved through channel management optimization. CBEC can unify channel planning and management. For external integration, consumers must accept the integration of network marketing channels. By adopting marketing channel integration, experience marketing can use multimedia and Internet technology to carry out network marketing activities on the CBEC platform. Offline marketing channels can be used to provide consumers with free use, and integrate online and offline marketing channels more organically through flexible use of various network marketing tools.

5.3 Controlling Channel Conflicts

The focus of CBEC channel reform is to adjust and optimize the supply chain to shorten the

intermediate links and optimize the marketing channel structure of enterprises as soon as possible. The importance of CBEC marketing channel plane structure is to better improve the product structure, increase profits, and reduce circulation costs, so as to better meet the needs of consumers. If the goal of CBEC channel reform is to make the channel structure more consistent, it inevitably leads to conflicts between product manufacturers and distributors. Only through the channel conflict resolution strategy can it be effectively resolved.

5.4 Effective Management of Customer Relationship

For CBEC, the cost of retaining existing customers is much lower than that of developing new customers. In the operation of CBEC, the maintenance of customer relationship and the effective management of customer relationship of channel members are important conditions for accelerating the transformation of CBEC channels. In the customer management of channel members, brands are established to improve loyalty. With the development of economic globalization and the popularization of information technology, appropriate operation management software can be used to produce documents for target customers and provide personalized marketing models for target customers. In addition, after-sales service also provides channel integration, especially for products closely related to after-sales service. Problems of both parties cause negative feedback from consumers.

5.5 Innovative Marketing Channel Relationship

Each participant in the existing marketing channel is relatively independent and can maximize their personal interests. The relationship between each member can be said to be channel relationship, just for trading. The relationship between network marketing channels and traditional channels is very different, mainly reflected in the synergy of strategic processes, the two-way nature of information exchange and the interaction of marketing activities. In specific marketing activities, channel participants use contracts, management and capital to form and develop network marketing relationships.

6. Conclusions

The establishment of appropriate network marketing channels and some innovations in the digital economy can significantly reduce the marketing costs of CBEC's products on the road of internationalization, and improve its market structure and market share. The development of network marketing makes more enterprises go to the international stage to actively expand their international advantages and meet the needs of the international market, so as to implement large-scale marketing. In order to ensure the healthy and sustainable development of the company, CBEC must seize the opportunity of integration of network marketing channels and actively explore effective strategies to scientifically combine network marketing channels with traditional marketing channels to achieve mutual benefit. Finally, it is necessary to adjust, reform and optimize the cooperation mode according to the actual work, so that CBEC can achieve its goal of healthy, orderly and long-term development and economic benefits, and make the best contribution to the enterprise through various marketing channels.

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