

Research on Cross-border E-commerce Information Flow Model and Efficiency Based on Big Data

Zhitan Feng, Yanrong Lv

School of Commercial, Nantong Institute of Technology, Nantong 226002, Jiangsu Province, China

Keywords: big data; cross-border e-commerce; information flow; optimization

Abstract: As a major component of cross-border e-commerce, information flow plays a vital role in the development of cross-border e-commerce. As we all know, cross-border e-commerce is based on a high degree of information and digitalization, especially in cross-border e-commerce. Nowadays, cross-border e-commerce is getting better and better, and the amount of digital information is getting bigger and bigger. It is especially important to solve the information management and integration of cross-border e-commerce. This paper briefly introduces the cross-border e-commerce information flow concept, proposes cross-border e-commerce information flow model, and analyzes the strategies to improve cross-border e-commerce information flow, in order to promote the healthy development of cross-border e-commerce.

1. Introduction

In recent years, the rapid spread of the Internet and the convenience of the Internet have provided innate conditions for the development of cross-border e-commerce. Whether personal consumption or corporate trade is not limited to the domestic market, the rise, development and growing of cross-border e-commerce is understandable. At the same time, cross-border e-commerce will become a new driving force for the development of foreign trade under the environment of China's traditional foreign trade growth slowdown. In cross-border e-commerce, information flow is the core of business activities. Cross-border e-commerce is not only a technical issue, it is essentially a problem of information exchange and communication. Therefore, it is necessary to strengthen the research on the cross-border e-commerce information flow model and efficiency^[1].

2. Overview of cross-border e-commerce information flow

In the context of big data, the flow of information in cross-border e-commerce is increasing day by day. Better management and utilization of information flow play a role in promoting the development of cross-border e-commerce. According to the main body of cross-border e-commerce activities, the main types of information generation and flow are shown in Table 1.

Table 1 Main types of cross-border e-commerce information flow

| Main types of cross-border e-commerce information flow |
|--|
| ● Business to Business (B2B): the main information is mainly based on product information |
| ● Business to Customers (B2C): data information is mainly concentrated in the pre-sales and purchase process |
| ● Customers to Customers(C2C): the emergence of information is mainly the feedback of the purchase of goods |

According to the flow direction of information, it can be divided into orientation information and non-directional information. Directed information refers to the way an enterprise passes information to a designated recipient. For example, in B2B, companies will pass relevant information to clear users. Undirected information refers to the transfer of information by an enterprise to an unfixed user, such as information transfer in B2C. The combination of the above two forms

multi-directional active information, multi-directional passive information, one-way active information, and one-way passive information^[2].

3. Cross-border e-commerce information flow model

The internal and external functions of cross-border e-commerce are realized through internal information flow and external information flow, and the movement is based on the network.

3.1 External information flow

Information flow between enterprises implemented by electronic data interchange (EDI). The external cross-border e-commerce function actually supports a "virtual market" that links product manufacturers, service providers, wholesalers, retailers and customers involved in business activities. To do this, companies must apply information technology to ensure the free flow of information among these members to support the realization of functions such as planning, design, development, production, and provision of products and services. Currently, EDI is the primary means of information flow between businesses and businesses. EDI refers to the standardization and formatting of business documents in accordance with agreed protocols and the exchange and automatic processing of data between trading partners' computer network systems via computer networks. EDI is based on sophisticated computer processing and advanced communication networks. It is not simply passing standard data from one unit of computer system to another unit's computer system through a computer network. It also requires the computer in the system to automatically identify and process the transmitted information, ie the message, without human intervention^[3].

Compared with the EDI private network on the Internet, the Internet has obvious advantages in information collection and information communication. Therefore, the information exchange between enterprises and customers is mostly based on the Internet. . At present, there are three levels of information exchange between enterprises and customers: through the World Wide Web on the Internet to achieve online search, shopping guide, relocation and promotion, this information flow is generally one-way, essentially the completion of advertising functions; Enterprise and customer questions through two-way information flow to complete information exchange and information feedback; Information flow along with electronic money flow, and electronic distribution system support, to achieve the entire process of direct marketing through the network between enterprises and customers. This is a typical cross-border e-commerce model.

3.2 Internal information flow

The internal information flow reflects the production supply chain within the enterprise, including horizontal and vertical flow. Vertical information flow refers to top-down or bottom-up information flow. The bottom-up flow of information describes the state of affairs within an organization that is built into everyday business activities. For example, when a business occurs, the information originates from the lowest level of the organization and then flows to a different department. Information technology plays an important role in bottom-up information flow. Daily operational information is collected and distributed by computers to provide decision-making support for decision makers. The top-down information is mainly about strategic goals and guiding information, and generally flows from a higher level to a lower level. The horizontal flow of information flows between the various functional departments of the enterprise^[4].

Within the enterprise, the Intranet can be used to create vertical and horizontal information flows, so that information can flow freely within the organization and improve the efficiency of the internal work. The so-called Intranet is that enterprises make full use of the existing technologies of the Internet, plus firewalls to establish their own management information system, in a way that is faster and more economical to achieve the flow of information within the enterprise (see Figure 1).

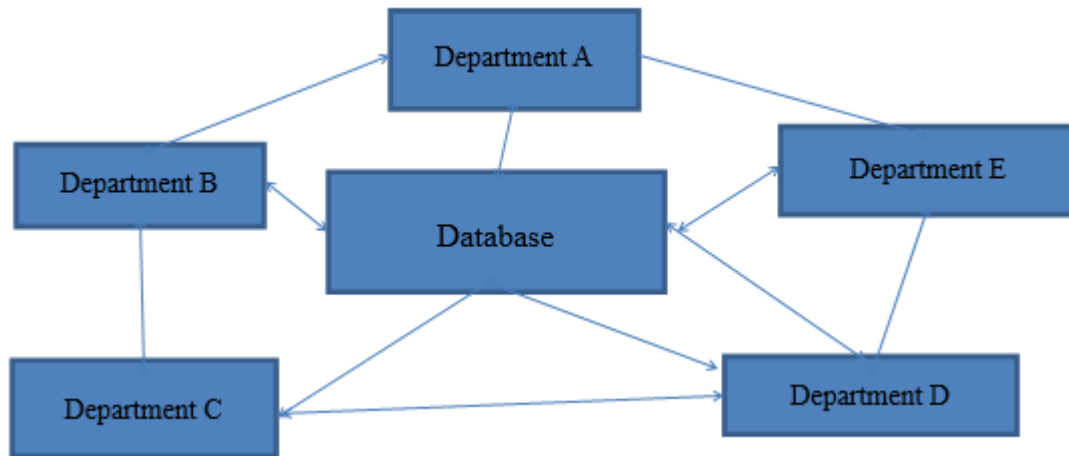


Figure 1 Enterprise internal network information flow model

4. Strategies to improve cross-border e-commerce information flow

4.1 Optimization of internal information flow

Cross-border e-commerce internal information flow includes the information flow of enterprises in daily management and business activities, mainly focusing on horizontal circulation and vertical circulation among various departments within the enterprise. In the big data environment, the optimization should start from the internal organizational efficiency of the enterprise, and rationalize the various links of information flow, so as to optimize the internal information flow in cross-border e-commerce activities. The first step is to build an intranet. Through the intranet, enterprises can not only realize the sharing of information devices, but also achieve collaborative work. At the same time, the information flow can be transmitted in a timely and effective manner within the enterprise, whether it is vertical or horizontal, which not only saves the management cost of the enterprise, but also optimizes the information flow, thereby enhancing the competitiveness of the enterprise. Second, we must reconstruct the internal structure of the enterprise. Starting from a flat enterprise organization, a corporate organization of this structure is more conducive to the transmission of information than a pyramidal organizational structure. Finally, we must improve the information management system. Improve the enterprise information management system, improve information security awareness, improve relevant management systems, strengthen information security management, and ensure the security and confidentiality of information flow, thus ensuring the smooth conduct of cross-border e-commerce activities^[5].

4.2 Optimization of external information flow

In the context of big data, the external information flow of an enterprise mainly includes information flow between enterprises and customers, and between enterprises and enterprises. Taking a typical cross-border e-commerce information flow transmission model as an example, the production enterprise first understands the market demand through the network, and uses the objective analysis of the computer to obtain the relevant required data, formulate the production plan for production, and then promote it to the user. At the same time, users can find out the relevant information of the products they need through the network, and communicate with the enterprise, online ordering, electronic payment, logistics and distribution, user signing, and then feedback some suggestions and suggestions to the enterprise. In order to optimize the external information flow, it is necessary to build an information platform in the cross-border e-commerce with the industry association as the entry point, and the telecom operators provide technical support and integrate relevant data of the industry. The construction and implementation of the public platform will also promote the process of enterprise information construction, smooth the flow of information, improve the information flow efficiency of cross-border e-commerce enterprises, and

promote the healthy and orderly development of cross-border e-commerce.

5. Conclusions

With the development of cross-border e-commerce, the data is increasing in geometry, the amount of information is getting larger and larger, and the role of information flow is becoming more and more obvious. The optimization and integration of information flow is related to the information flow of all transnational industrial chains, which is of great benefit to both enterprises and the government. Therefore, in the context of big data, it is necessary to scientifically and rationally manage information flow from both internal and external perspectives, continuously optimize information flow and improve the efficiency of cross-border e-commerce.

Acknowledgements

First Level Key Built Discipline Projects of the Business Administration under Jiangsu Provincial "the 13th Five-Year Plan". Project number: SJY201609

References

- [1] Wang X, Wan N. Dynamic prediction model on export sales based on controllable relevance big data of cross-border e-commerce[J]. *Journal of Computer Applications*, 2017.
- [2] Zhang K, Huang L. Research on Cross-border E-commerce platform selection in China small & medium-sized enterprises[C]// *IEEE International Conference on Service Operations & Logistics*. 2016.
- [3] Iorio C T D, Carinci F, Brillante M, et al. Cross-border flow of health information: is 'privacy by design' enough? Privacy performance assessment in EUBIROD[J]. *European Journal of Public Health*, 2013, 23(2):247-253.
- [4] Kawa A. Supply Chains of Cross-Border e-Commerce[C]// *Asian Conference on Intelligent Information & Database Systems*. 2017.
- [5] Feng Y, Hua M. Research on Non-verbal Graphic Symbol Communication of Cross-Border e-Commerce[J]. *Ifip Advances in Information & Communication Technology*, 2016, 445:251-263.