International Business & Economics Studies
ISSN 2640-9852 (Print) ISSN 2640-9860 (Online)
Vol. 7, No. 1, 2025
www.scholink.org/ojs/index.php/ibes

Original Paper

The Impact of Big Data on International Trade of Enterprises under the Background of Economic Globalization and Its Countermeasures

Ruofei Shi[1]

[1] Hubei University of Commerce and Trade, Wuhan, China

Received: January 02, 2025 Accepted: February 08, 2025 Online Published: February 17, 2025

doi:10.22158/ibes.v7n1p95 URL: http://dx.doi.org/10.22158/ibes.v7n1p95

Abstract

As developed countries strengthen import environmental protection review due to the Paris Agreement, enterprises are facing challenges of data processing, security and privacy, and talent shortage. To this end, this paper puts forward some countermeasures, such as increasing investment in data processing, building a security system, training and introducing talents, and using big data to optimize expansion strategies, emphasizing that enterprises should use their advantages to overcome challenges, enhance competitiveness, achieve sustainable development and promote global economic prosperity.

Keywords

economic globalization, big data, corporate international trade, sustainability, coping strategies

1. Introduction

Economic globalization has made the economies of all countries in the world increasingly close, and the scale of international trade has continued to expand. According to the statistics of the world trade organization, Global trade has increased at an average annual rate of about 3% in recent years. In this context, big data technology is booming and deeply integrated into international trade (Wu, Yang, & Wang, 2024). The guiding opinions on promoting the high-quality development of Trade issued by China emphasizes the use of new technologies such as big data to improve trade efficiency and accuracy. With the characteristics of massive, high-speed, diversity, low value density and authenticity, big data penetrates all aspects of international trade in an all-round way, promoting more accurate market research, more efficient product promotion, and more optimized transactions and services. Deeply exploring its impact and seeking countermeasures are extremely critical for enterprises to break through the global competition (Pan, Li, & Liang, 2024).

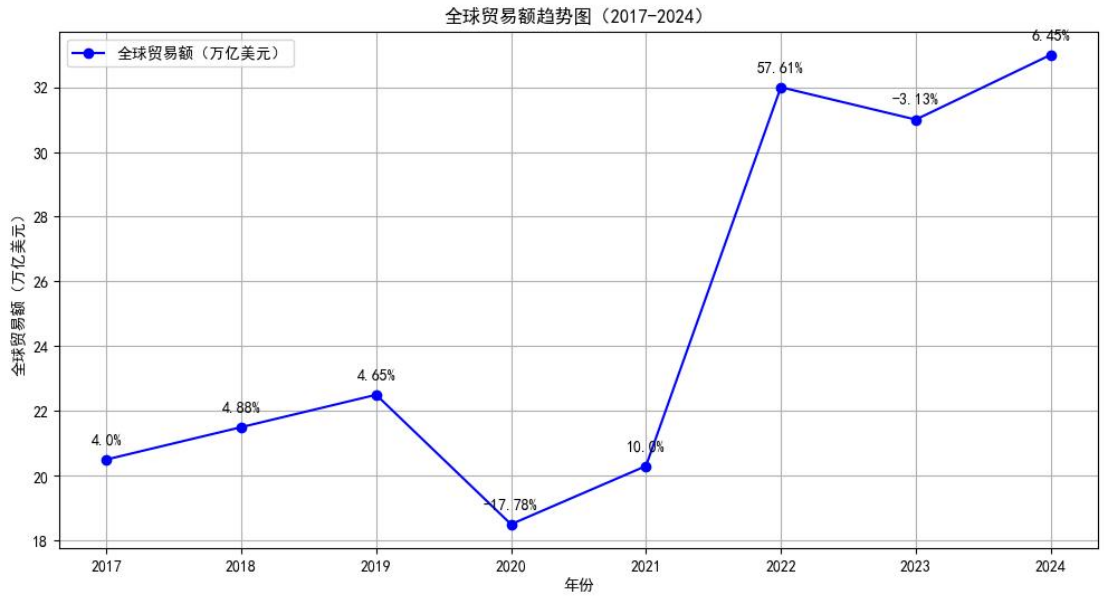

Figure 1. Trend Chart of Global Trade Volume

2. Application Status of Big Data in International Trade

2.1 Data Collection and Integration

Enterprises collect international trade related data through various channels, such as Internet search data, social media data, e-commerce platform transaction data, customs data and so on. With the help of advanced data integration technology, these scattered data are summarized, cleaned and collated to build an enterprise international trade data resource database, which lays the foundation for subsequent data analysis and application (Li, 2024). For example, an enterprise exporting clothing can collect discussion data on clothing style, color and material preferences on major fashion social media platforms around the world, as well as sales data of similar products on e-commerce platforms in major importing countries, and integrate them to form its own market demand analysis data system.

2.2 Data Analysis and Insight

Using data analysis tools and algorithms, enterprises deeply mine and analyze the collected international trade data. Through data analysis, enterprises can gain insight into key information such as international market trends, changes in consumer demand and competitor dynamics. For example, by analyzing the changes in search heat and purchase frequency of consumers in different countries and regions for a certain type of product in a specific period of time, enterprises can predict the future demand trend of the product in different markets and adjust production plans and marketing strategies in advance.

2.3 Precision Marketing and Customer Relationship Management

Based on the results of big data analysis, enterprises can achieve precision marketing. According to the customer groups of different countries, regions, cultural backgrounds and consumption habits, personalized marketing plans are formulated to push product information and promotional activities

that meet their needs, so as to improve marketing effect and customer response rate. At the same time, using big data to build a customer relationship management system, enterprises can better track customer behavior, understand customer preferences, timely handle customer feedback, and enhance customer satisfaction and loyalty. For example, according to customers' past purchase records and browsing history, relevant supporting products or upgraded products are recommended to enhance customers' willingness to repurchase.

Table 1. Application Status of Big Data in International Trade

Data collection and integration	Enterprises collect international trade related data through various channels, and summarize, clean and collate them.	Export garment enterprises collect data from global fashion social media and e-commerce platforms to form a market demand analysis data system.
Data analysis and insight	Using data analysis tools and algorithms, the collected data are deeply mined and analyzed to gain insight into market trends, changes in consumer demand, competitor dynamics and so on.	Analyze the changes of consumer search heat and purchase frequency, and predict the future demand trend of products in different markets.
Precision marketing and customer relationship management	Based on the results of big data analysis, precise marketing is realized, personalized marketing plans are formulated, and marketing effect and customer response rate are improved; Build a customer relationship management system, track customer behavior, and improve customer satisfaction and loyalty.	Recommend supporting or upgrading products according to customer purchase records and browsing history to enhance the willingness to repurchase.

3. The Impact of Big Data on International Trade of Enterprises

2.1 More Convenient and Comprehensive Access to Market Information

In traditional international trade, the channels for enterprises to obtain international market information are relatively limited and costly, mainly relying on market research agency reports, trade fairs, business negotiations and other means. In the era of big data, enterprises can quickly extract content related to international trade from massive Internet information, including market size, demand preference, competition situation and so on, through web crawler technology, data mining algorithms and other means. This enables enterprises to timely and comprehensively understand the market dynamics in all

corners of the world, breaks the barriers of information asymmetry, and provides strong support for enterprises to formulate accurate market strategies (Xue, 2024). For example, enterprises can quickly adjust product positioning and promotion strategies by monitoring changes in the number of keyword searches related to their products on major search engines around the world in real time, as well as the focus of attention on the product in different regions.

2.2 Precision Marketing Improves trade Efficiency

Big data analysis enables enterprises to accurately identify target customer groups and deeply understand their consumption behavior, hobbies, purchasing power and other characteristics. Enterprises formulate personalized marketing plans accordingly, accurately push products or services to potential customers, and improve the pertinence and effectiveness of marketing activities. Compared with the traditional large-scale advertising, precision marketing can greatly reduce marketing costs, improve customer conversion rate and order turnover rate. For example, an electronic product company, by analyzing social media data, finds that young consumers in an emerging market have a high demand for smartphones with specific functions, so it can carry out targeted online promotion activities for young groups in the region, such as product trial sharing in cooperation with local well-known influencers, so as to quickly open up the market and increase product sales.

2.3 Optimize Supply Chain Management

Big data plays an important role in enterprise international trade supply chain management. Through the collection and analysis of data in all links of the supply chain, enterprises can realize real-time monitoring and optimization of the whole process of procurement, production, warehousing, logistics and sales (Liu, 2023). For example, enterprises can predict product demand according to sales data, arrange raw material procurement and production plans in advance, and avoid inventory backlog or shortage; At the same time, logistics data are used to optimize transportation routes and distribution plans, improve logistics efficiency and reduce transportation costs. In addition, big data can also help enterprises better manage supplier relations, select higher quality and reliable partners through the analysis of supplier delivery on-time rate and product quality data, and ensure the stable operation of the supply chain.

4. Challenges for Enterprises to Apply Big Data in International Trade

4.1 Insufficient Data Processing Capacity

Big data has the characteristics of massive, high-speed and complex, and enterprises need strong data processing capabilities to effectively manage and analyze it. However, many enterprises, especially small and medium-sized enterprises, are relatively weak in data storage, computing resources, data processing technology and talents, and are difficult to cope with the demand for big data processing. For example, when a small and medium-sized foreign trade enterprise tries to use big data to analyze the international market trend, due to the old server and backward data processing software, the processing speed in the face of massive data is very slow, which often leads to delayed data reporting,

thus missing the best decision-making opportunity. This lack of data processing capacity may not only lead to enterprises unable to obtain valuable information in time, delay decision-making, or even errors in the process of data processing, which will affect the normal operation of enterprises and the development of international trade business.

4.2 Data Security and Privacy Issues

In the process of big data application, enterprises involve a large number of international trade sensitive data, such as customer information, trade secrets, transaction data and so on. The security and privacy of that data is crucial. Once the data is leaked, enterprises may face huge economic losses, legal risks and customer trust crises. With the continuous upgrading of cyberattacks and the increasing frequency of cross-border data flows, enterprises are facing severe challenges in data security protection. For example, a multinational trading company has been hacked and a large amount of customer information has been stolen, including sensitive data such as transaction records and contact information. After the disclosure, the company not only faced huge fines, but also lost a large number of customer trust, and its market share declined sharply. After the investigation, it was found that the company's data encryption measures were insufficient, the firewall had loopholes, and the data security management system needed to be strengthened urgently.

4.3 Shortage of Big Data Professionals

The application of big data requires compound talents who understand international trade business and have professional knowledge of data science. Such talents can skillfully use data mining, data analysis, machine learning and other technologies to extract valuable information from massive international trade data and transform it into business decisions and action plans of enterprises. However, at present, such compound talents are in short supply in the market, and enterprises are facing greater difficulties in talent introduction and training. A well-known enterprise engaged in international trade is deeply disturbed by it. Although the enterprise has rich big data resources, it is unable to effectively mine the value of data due to the lack of professional data analysis team. Companies have tried to address this problem through recruitment, but qualified compound talents are extremely scarce and pay requirements are high. Finally, the enterprise was unable to adjust its market strategy in time, resulting in a decline in competitiveness. Talent shortage has become an important factor restricting the implementation of enterprise big data strategy.

5. Countermeasures for Enterprises to Cope with the Impact of Big Data

5.1 Improve Data Processing Capabilities

Enterprises should increase investment in data processing infrastructure construction, such as purchasing high-performance servers and storage equipment, building cloud computing platforms or adopting cloud services from big data service providers to meet the needs of big data storage and computing. At the same time, we should actively introduce and apply advanced data processing technologies and tools, such as data mining algorithms, machine learning models, big data analysis

software, etc., to improve the efficiency and quality of data processing. In addition, we should strengthen cooperation with universities and scientific research institutions, carry out research and development of data processing technology and personnel training projects, and enhance the innovation ability and talent reserve level of enterprises' own data processing technology.

5.2 Strengthen Data Security

Establish a sound data security management system and formulate strict data security policies and processes. In all aspects of data collection, transmission, storage and use, security measures such as encryption technology, identity authentication and access control are adopted to prevent data from being illegally obtained, tampered with or leaked. Regularly evaluate and scan data security systems for vulnerabilities, update and upgrade security protection software and equipment in a timely manner, and prevent network attacks. For situations involving cross-border data flows, we should strictly abide by the data protection laws and regulations of relevant countries and regions to ensure the legal and compliant transmission of data. Strengthen the training of employees' data security awareness, improve employees' understanding of the importance of data security, standardize employees' data operation behavior, and prevent data security risks from within.

5.3 Training and Introducing Big Data Professionals

Enterprises should formulate diversified big data talent strategies. On the one hand, we should strengthen internal staff training, carry out training on basic knowledge of data science and big data application skills for existing international trade business personnel, so that they can understand big data analysis methods and tools, and can effectively cooperate with the data team in their daily work; On the other hand, we should actively introduce external big data professionals, including data analysts, data engineers and data scientists, to enrich the strength of enterprise big data teams. At the same time, we should establish a good talent incentive mechanism, provide competitive salary and career development space, attract and retain big data talents, and provide a solid talent guarantee for the implementation of enterprise big data strategy.

5.4 Using Big Data to Optimize International Market Expansion Strategy

Enterprises should make full use of the results of big data analysis, deeply understand the market characteristics, competition pattern, consumer demand and other information of different countries and regions, and formulate differentiated international market expansion strategies. For example, adjust product design, function, packaging and pricing strategies according to the demand preferences and consumption capabilities of different markets; According to the market competition situation in different regions, choose the appropriate market entry mode and marketing channel combination; Combined with local cultural customs and social hot spots, targeted brand promotion and marketing activities should be carried out to improve brand awareness and reputation. At the same time, we should use big data to continuously monitor international market dynamics and competitor behavior, adjust market expansion strategies in time, and maintain the dominant position of enterprises in international market competition.

6. Conclusion

In the context of economic globalization, big data has become an indispensable resource and tool for enterprises to carry out international trade. It has brought many advantages to enterprises, such as convenient access to market information, precision marketing, supply chain optimization, strengthening risk prevention and control, and has profoundly changed the operation mode and competition pattern of international trade of enterprises. However, enterprises are also facing challenges such as insufficient data processing capacity, data security and privacy issues and talent shortage in the process of applying big data. In order to make full use of the opportunities of big data, enterprises need to adopt a series of coping strategies, including improving data processing capabilities, strengthening data security, training and introducing big data professionals. Only in this way can enterprises accurately grasp the pulse of the market, enhance their competitiveness, achieve sustainable development and contribute to the prosperity and development of the global economy on the international trade stage in the era of big data.

References

Li, Y. L. (2024). *Research on the impact of big data development policy on corporate performance*. Shanghai Foreign Studies University.

Liu, Y. (2023). Research on the impact of big data analysis on enterprise marketing. *Northern economic and trade*, (12), 123-126.

Pan, Li, Z. J., & Liang, A. J. (2024). Research on the impact of big data on enterprise management decision-making. *Time honored brand marketing*, (16), 118-120.

Wu, R. Q., Yang, B., & Wang, Y. Y. (2024). The impact of big data regional development level on enterprise innovation - intermediary effect based on internal control. *International business accounting*, *2024*(23), 7-13+19.

Xue, J. (2024). Discussion on the impact of big data on international trade of enterprises under the background of economic globalization and its countermeasures. *Mall modernization*, (14), 76-78.