

# Impact of Digital Transformation on International Trade

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**Abstract.** Digital transformation is profoundly affecting international trade, bringing both positive impacts and challenges; digitization and automation of trade processes have increased efficiency and reduced costs; cross-border trade facilitation has promoted global business exchanges; and data-driven decision-making has optimized market operations; however, issues such as the aggravation of the digital divide, data security and privacy protection, and barriers to the application of emerging technologies also need to be addressed, with corresponding measures and recommendations in the areas of policy, technology, and infrastructure development, and other corresponding measures and recommendations were put forward to promote digital transformation and the healthy development of international trade.

**Keywords:** Digital transformation, international trade, trade processes, cross-border trade, data-driven.

## 1. Introduction

With the continuous development of digital technology, digital transformation has become one of the key driving forces of global economic development, in the field of international trade, digital transformation not only changes the trade methods and patterns, but also profoundly affects the global business environment, this paper will explore the impact of digital transformation on international trade, analyze its positive role and challenges, and put forward relevant countermeasures and recommendations to promote the sustainable development and prosperity of international trade. development and prosperity.

## 2. Importance of international trade

International trade is the exchange of goods and services between different countries and regions, which is of great significance to the global economic development, international trade provides countries with great economic growth and development opportunities, through trade, countries can make full use of their respective resource advantages, industrial upgrading and technological innovation, promote the optimization of the economic structure and improve the efficiency of production, international trade enlarges the scale of the market, increases the International trade expands the market scale, increases the scope of circulation of goods and services, provides consumers with more choices, and promotes the competitive decline of commodity prices, which is conducive to consumers enjoying better quality and more competitive products, international trade also promotes economic cooperation and political stability among countries, through trade transactions, countries establish interdependent relationships, strengthen friendly exchanges and cooperation, which helps to reduce conflicts and improve international trust <sup>[1]</sup>.

### **3. Positive impact of digital transformation on international trade**

#### **3.1. Digitalization and automation of trade processes**

The digitization and automation of trade processes refers to the use of information technology and automated systems to optimize all aspects of trade activities, from order processing to logistics management, to payment and settlement, to achieve the digital management and automated execution of the entire process, taking e-commerce as an example, through the online platform, buyers can easily browse the goods, order to buy, and real-time tracking of the logistics status, and the seller can conveniently manage product information, process orders, and arrange shipments. This digitalization and automation of trade processes brings many practical benefits.

Digitalization and automation improve trade efficiency. Traditional manual processing may have problems such as delayed information transmission and high error rate, while digitalization and automation system can realize instant information transmission and accurate data processing, which greatly shortens the transaction cycle and improves the efficiency of order processing and logistics execution. Digitization and automation reduce trade costs. Traditional trade often requires a large amount of human and material inputs, such as manual order processing, data recording, inventory management, etc., while digitization and automation systems can save these costs, reduce the waste of human resources and logistics resources, and improve the profitability of enterprises. Digitalization and automation improve customer experience, through online platforms and automated services, customers can enjoy an uninterrupted shopping experience and conduct transactions anytime and anywhere, which improves shopping convenience and satisfaction, while digital systems can also provide personalized recommendations and customized services to better meet customer needs and enhance customer stickiness [2].

#### **3.2. Facilitation of cross-border trade**

The facilitation of cross-border trade is particularly important in today's context of globalization. An obvious example is the development of cross-border e-commerce in China, where platforms such as Chinese e-commerce giants Alibaba and Jingdong provide global consumers with a way to buy Chinese products directly without the need for intermediaries or cumbersome processes, and this facilitation has greatly accelerated the speed at which Chinese products can move into the international market; at the same time, many of the Chinese e-commerce platforms also offer global logistics solutions that provide more convenient delivery services for cross-border trade. Through partnerships and advanced logistics management systems, these platforms can achieve fast and reliable delivery worldwide, thus greatly improving the shopping experience for consumers. Many countries and regions have also taken active measures to promote cross-border trade facilitation. For example, the European Union has introduced the "one-stop window" service, which simplifies export and import procedures and reduces the cost and time of cross-border trade, while Asia-Pacific Economic Cooperation member countries are also striving to achieve the goal of trade facilitation, promoting regional trade facilitation through information sharing, e-commerce and digital processes. e-commerce and digitized processes, facilitating intra-regional trade cooperation and development.

#### **3.3. Data-driven decision-making**

Data-driven decision-making is an important method in modern enterprise management, which guides the decision-making process by collecting, analyzing and utilizing big data to improve the accuracy and effectiveness of decision-making. For example, the Internet advertising industry is a typical data-driven industry, in which the advertising platform collects a large amount of user data, such as search records, browsing histories, clicking behaviors, etc., and utilizes data analysis technology to understand the user's interests and behavioral. The data analysis technology is used to understand users' interests and behavioral patterns, so as to accurately place advertisements, improve the click rate and conversion rate of advertisements, and achieve better marketing results for advertisers. Another example is the product recommendation system in the field of e-commerce. The

e-commerce platform analyzes the user's purchase history, browsing records, search keywords, and other data, and uses recommendation algorithms to recommend personalized products to the user, improving the shopping experience and user satisfaction, as well as boosting the growth of the transaction volume and the sales of the platform. In the healthcare industry, data-driven decision-making also plays an important role. By collecting and analyzing patients' medical record data, medical image data, genetic data, etc., healthcare providers can carry out personalized diagnosis and treatment, improve the accuracy and efficiency of medical services, and provide patients with better medical care and treatment results<sup>[3]</sup>.

## **4. Challenges of digital transformation for international trade**

### **4.1. Data security and privacy protection**

Data security and privacy protection are crucial topics in today's digital era. Data security involves protecting data from unauthorized access, tampering, or destruction, and businesses and organizations need to take various measures, such as encryption, access control, and security auditing, to ensure data security and integrity; privacy protection focuses on the lawful collection, transparent processing, and secure preservation of personal data, and businesses must comply with relevant laws and regulations, such as GDPR and CCPA, and obtain explicit consent from users, while adopting technical means such as anonymization and desensitization to maximize the protection of user privacy. In order to strengthen data security and privacy protection, enterprises can establish a sound security management system, strengthen the security awareness training of employees, adopt advanced security technologies and tools, conduct regular security risk assessment and vulnerability scanning, and work closely with security experts and regulators; only by ensuring the security and privacy of the data can they effectively protect the rights and interests of the users, build trust, and promote the healthy development of the digital economy<sup>[4]</sup>.

### **4.2. Barriers to the application of emerging technologies**

The application of emerging technologies faces multifaceted barriers that limit the speed and effectiveness of enterprises and organizations in adopting and applying new technologies. The lack of uniformity in technical standards is a major barrier. The technical standards and specifications provided by different technology vendors or developers may be different, which leads to compatibility problems between different systems and increases the complexity and cost of integrating and applying new technologies. High cost is another major obstacle. Adopting emerging technologies usually requires huge investment in R&D, equipment acquisition and talent training, which may be an unaffordable burden for SMEs. Shortage of technical talents is also a common problem. The rapid development of new technologies has led to a surge in the demand for talents with the appropriate skills and knowledge, but the supply in the market falls short of the demand, which makes it difficult for enterprises to find suitable Talent brings difficulties, security and privacy issues are also important obstacles to the application of emerging technologies, enterprises need to ensure that in the process of adopting new technologies, user data is adequately protected to avoid data leakage, privacy violations and cyberattacks and other security issues.

## **5. Response measures and recommendations**

Measures and suggestions to address barriers to the application of emerging technologies cover a number of aspects to promote more effective adoption and application of new technologies by enterprises and to enhance their competitiveness and innovation capabilities. To strengthen the unification and formulation of technological standards, the government and industry organizations should promote the formulation and unification of technological standards to reduce the differences in standards between different technology suppliers and to lower the costs and risks of integrating and applying new technologies. Reduce costs and provide financial support, the government can provide financial support and tax incentives to encourage enterprises to invest in the research and

development, application and talent training of new technologies, reduce the costs and thresholds for the application of new technologies, strengthen cooperation with universities and research institutions, share scientific research results and talent resources, and accelerate the transformation and application of new technologies, in addition, strengthen security and privacy protection, enterprises should strengthen data security and privacy protection measures, establish a sound security management system and emergency response mechanism to guarantee user data and privacy security <sup>[5]</sup>.

## 6. Conclusion

In the era of digitalization, the application of emerging technologies has become a key driver for innovation and development of enterprises. Despite the many challenges, we can overcome these obstacles and realize the effective application of new technologies through measures such as strengthening technical standards, lowering costs, cultivating human resources, strengthening security protection and actively participating in the development of laws. We should work together to seize the opportunities and address the challenges, and continue to explore and innovate, so as to promote the wide application of emerging technologies in various industries and make greater contributions to building a digital and intelligent future.

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