

# The Interplay Between Global Digital Trade and Data Privacy Policy: A Comprehensive Review

Yijing Sun \*

Business School, Beijing Language and Culture University, Beijing, China

\* Corresponding Author Email: 202111680369@stu.blcu.edu.cn

**Abstract.** In the era of big data, international trade has gone through a digital transformation and developed into a new stage of digital trade. The gradual prosperity of digital trade and the increasing contribution of digital elements to the economy of countries and the international community also bring about problems such as data abuse, surveillance, privacy infringement, and regulatory difficulties. In order to adapt to the development trend of digital trade, countries are paying more attention to cross-border data flow and data privacy protection, in order to maintain national security and the data security of various entities. Therefore, this article analyzes the current situation and trends of digital trade, considers the security issues of data privacy from the perspective of different entities, links key issues such as cross-border data flow, data rights, and privacy rights, explores the current status of relevant domestic and foreign legal and regulatory systems, and conducts comparative analysis. The analysis results show that due to different values, there are significant differences in policies regarding digital trade and privacy protection among countries. The commonality is that none of them have established appropriate legal protection systems for data elements and privacy rights to promote the development of digital trade. Under the trend of technological development, data privacy will also be impacted by new technologies through digital trade. Therefore, in response to the expanding demand for data regulation, all entities should improve their privacy protection and cross-border data flow policies and standards from both internal and international perspectives.

**Keywords:** Digital trade; Data privacy; Cross-border data flow.

## 1. Introduction

In the era of big data, digital trade has gradually become an important component of economic exchanges among countries around the world. Digital trade, as an emerging product, is a new type of economic and trade activity that relies on modern information networks, new digital technologies, large digital platforms, data as a key production factor, and highly relies on cross-border data flow. However, the prosperity of digital trade has also brought a series of cross-border data flow rules and personal data privacy protection issues. This article focuses on reviewing global digital trade and data privacy policies. Firstly, it defines digital trade and summarizes the current development status of global digital trade. Next, analyze the current status of data privacy and security policies from different perspectives, as well as how they are challenged by digital trade. Finally, a comparative analysis is conducted on data policy examples of different entities after the emergence of global digital trade, and a retrospective conclusion is drawn and suggestions are put forward.

## 2. Literature Review

With the rapid development of big data, consumer privacy leaks often occur in the current society, and different countries have different levels of supervision on privacy theft under different policies and systems. Traditional data security protection technology can no longer meet the requirements of big data privacy protection. Currently, the world needs not only to strengthen data encryption, but also to improve laws and regulations and comprehensive supervision. On the other hand, with the rapid development of Internet technology and e-commerce, digital trade has become an important

part of transnational economic cooperation. However, its growth has also brought a series of privacy protection issues.

In the digital age, digital trade has the characteristics of being fast, convenient, and efficient, which helps to promote global economic growth. Personal information has also become an important economic resource. Internet platforms and digital traders often need to collect users' personal information to provide personalized services and product recommendations. However, such data collection and usage behavior can easily lead to the leakage and abuse of personal privacy, resulting in the leakage of personal privacy. Due to the fact that digital trade crosses national and regional boundaries, involving differences in laws and regulations between different countries, this legislative difference also poses challenges to digital trade and privacy protection. In order to solve the contradiction between digital trade and privacy protection, a balance needs to be found between global trade and the protection of personal privacy to promote each other's development.

At present, there is an endless stream of research on this issue from various parties around the world, and their perspectives are diverse. Some explores the current situation of the protection of personal privacy in the field of science and technology, and puts forward problems and improvement strategies based on the Internet, the Internet of Things, big data, cloud computing and other related technologies; There are also areas related to the technology field, focusing on researching the shortcomings of technology and government data and policy laws in privacy protection, and providing suggestions; There are also studies that focus solely on the law, focusing on the correlation between privacy law and trade law, and proposing global privacy agreements to be implemented within the trade order. Others links privacy protection with e-commerce or consumers, and researchers either analyze consumers' tendencies in protecting privacy and consumption and establish connections, or study and propose legal countermeasures for consumers who are violated by personal privacy in e-commerce.

Although there are many studies on personal privacy protection and trade from different perspectives, there is still a lack of research that focuses on the global digital trade and personal privacy perspectives. Especially, the analysis of privacy protection issues for individuals, enterprises, and countries from the perspective of global digital trade is in high demand and needs further research.

## **2.1. Definition of Digital Trade Concept**

Under the influence of big data, international trade has evolved into a new stage of digital trade. Digital trade is a symbol of the digital age, providing strong impetus and broad space for economic growth, and providing important momentum for reshaping traditional value chains and promoting industrial transformation and upgrading. Digital trade is flourishing, but there is currently no broad consensus in academia on this concept, and there is no authoritative and recognized definition of what digital trade is.

In 2013, the United States International Trade Commission (USITC) formally proposed that digital trade is a domestic business and international trade activity that transmits products and services through the Internet. In the Global Digital Trade - Market Opportunities and Major Foreign Trade Restrictions released by the US International Trade Commission four years later, digital trade is defined as the delivery of products and services by different industry sectors through the Internet, smart phones, network connected sensors and other related devices [1]. The Digital Trade Measurement Handbook jointly released by the Organization for Economic Cooperation and Development (OECD), World Trade Organization (WTO), and International Monetary Fund (IMF) defines digital trade as all trade that is ordered or delivered through digital means [2]. The China Digital Trade Development Report (2021) dividing digital ordering trade into goods and services for cross-border e-commerce trade, and digital delivery trade into digital technology trade, digital services trade, digital product trade, and data trade [3].

Meanwhile, digital trade is an important practical scenario for creating value through data. Non competitive data elements can generate incremental benefits when flowing across enterprises, but it also brings privacy risks. Therefore, based on the existing definition of digital trade, combined with

the key role played by cross-border data flow in digital trade, the connotation of digital trade can be summarized as: a new type of economic and trade activity that uses modern information networks as carriers, new digital technologies as support, large digital platforms as media, data as a key production factor, and highly relies on cross-border data flow. Digital trade is also a foreign trade characterized by data resources as key production factors, digital services as the core, and digital ordering and delivery as the main features. Among them, digital delivery trade includes digital technology trade, digital service trade, digital product trade, and data trade. Digital ordering trade refers to the trade of goods and services achieved through cross-border e-commerce platforms.

## **2.2. Global Digital Trade Trends and Development**

According to data and related calculations from the United Nations Conference on Trade and Development (UNCTAD), from 2011 to 2022, the scale of global cross-border digital services trade increased from \$2.15 trillion to \$3.82 trillion, with an average annual growth rate of about 5.92%. In 2022, the year-on-year growth rate was 3.9%, accounting for 53.7% in service trade [4]. Along with the rapid growth of digital trade, global cross-border data flow has also experienced rapid development. From 2011 to 2021, its scale expanded from 53.57TB/s (T bytes/second, measuring data transmission speed) to 767.23TB/s, an increase of over 14 times. From 2011 to 2019, the average annual growth rate of cross-border data flow exceeded 25%. After 2020, the growth rate remained stable at a high level, exceeding 29% for two consecutive years [5]. In 2022, the global cross-border data flow reached 997000 GBPS, with an average growth rate of over 30% in the past three years, overall at a high level. In 2022, it slightly declined to about 27% [4].

It can be seen that the large-scale growth of cross-border data flow is closely related to digital globalization and the development of digital trade. Digital trade is carried by modern information networks, and cross-border flow of data elements is one of the most essential attributes of digital trade, which has become a key factor in accelerating the digital transformation of international economic activities. The data elements are widely integrated into the production process by combining with digital technologies such as big data, artificial intelligence, and the Internet of Things, and continuously creating economic value. According to a report by the International Monetary Fund, it is estimated that while maintaining the current global tax rates, the potential tax revenue from global digital trade is 2.5 times the current scale. Digital trade has become a new trend in the development of international trade and has enormous potential for growth.

## **3. Important Participants in Global Digital Trade**

Digital trade continues the development of trade in new ways, not as a newly created product. "The emergence of digital trade has broken the limitations of time and space, allowing everyone to become a participant in the global market," said Qian Houlin, General Manager of Business Operations at Forbes China Group.

### **3.1. National Level**

The digital trade rules are based on the development trend of the economy's own digital economy industry and considerations of political priorities. In 2022, developed economies will export digital services worth 3.14 trillion US dollars, accounting for 77.2% of the global market. Among them, the digital service exports of the United States, the United Kingdom, Ireland, Germany, and Japan were \$656.1 billion, \$378 billion, \$323 billion, \$236.8 billion, and \$117.1 billion, respectively, accounting for 16.1%, 9.3%, 7.9%, 5.8%, and 2.9% globally. Developing countries, especially. In 2022, the export of digital services from developing economies reached 927 billion US dollars, accounting for 22.8% of the global market and a year-on-year increase of 14% [6]. Although developing countries and emerging economies have the potential for rapid growth in digital service trade, developed countries still have an absolute advantage based on data. Therefore, they are the main participants in promoting digital trade rules.

The development momentum of digital trade is strong, but the rules of digital trade urgently need to be established and improved. In January 2019, 76 WTO members including China, the United States, and the European Union issued a joint statement to initiate negotiations on trade-related e-commerce issues. Australia, Japan, and Singapore are the joint conveners of the negotiations. At present, the number of negotiating parties has expanded to 90 members, accounting for over 90% of the global trade scale. However, from the negotiation results, the current achievements are mainly aimed at relatively easy issues, and many controversial issues still need to be resolved.

### **3.2. Enterprise Level**

The development of global digital trade has brought significant changes to the global market, and its influence is also increasing. For foreign trade enterprises, whether it is procurement, production, or sales, they will face new models and seek opportunities in the changing situation. The development and industrial chain division of labor for tangible products in the past has been quite complete, lacking growth momentum. The widespread application of digital technology is beneficial for market operators, especially small and medium-sized enterprises, in optimizing and upgrading their product structure, as well as for regions to ride the fast train of digital development. Latin America is currently one of the fastest growing regions in the world for e-commerce. The Middle East region has strong consumer power, fast e-commerce growth, and high profit margins, which have also created huge business opportunities for overseas enterprises. With the help of digital platforms, enterprises can improve operational service efficiency and international competitiveness.

## **4. Data Privacy and Security Policy**

### **4.1. Data Rights**

The legal community has not yet reached a mature consensus on data rights. At present, there are several main views on the theory of data rights, and logically and empirically, the new theory of rights is more reasonable. This theory believes that data rights include two parts: data sovereignty and data rights, namely national data sovereignty centered on the state and data rights centered on individuals. Data rights can also be divided into personal data rights, corporate data rights, and public data rights based on different subjects [7]. Information privacy and property are inseparable. Today, data rights need to be regarded as a new type of right and incorporated into the current legal system to facilitate cross-border data flow and better serve digital trade.

### **4.2. Individual Perspective**

From an individual perspective, safeguarding the rights of citizens to personal data is crucial. On the one hand, data is a product of individual participation in social activities, equivalent to the extension of individual personality, involving personal reputation and privacy. Therefore, maintaining the dignity of data subjects is a protection of individual basic rights, and it is necessary to grant data personality rights to reduce the possibility of data subjects being insulted, their privacy being peeked at, and information being stolen; On the other hand, as an important social resource circulating in the market, data itself has commercial value and can bring economic benefits to data subjects. Therefore, it is very important to protect the allocation of individual rights such as ownership, use, and income of data, and to render data property rights.

With the rapid development of science and technology, personal privacy data has realized data processing processes such as cross-border collection, access, transmission, storage and use through the Internet, making the flow of personal privacy data more involved, more influential, and more complex. Once leaked, the consequences are very serious. Compared to the pure domestic flow of personal data, transborder flow of it also represents the need for differentiation in data management and privacy protection across different countries and regions, which is challenging and conflicting [8].

### **4.3. Business Perspective**

With the development of information and communication technology, data has transformed into an asset that can bring substantial profits to enterprises. Digital platform enterprises collect and utilize user private information, providing personalized and precise products and services to users, improving the level of digital economy development and the convenience of social life. At the same time, some platform enterprises abuse user privacy to strengthen their advantageous position and interfere with users' autonomous exercise of privacy rights, thereby impacting the privacy protection mechanism.

In the digital era, some platform enterprises take advantage of the psychology of people who want to obtain personalized and customized experience, collect data such as users' publishing and browsing records on the Internet, analyze users' preferences, and form accurate predictions and data portraits of users' personal characteristics. Technologies with predictive features can help enterprises more accurately capture user needs and improve the level of digital economy development. However, the opacity of technology provides more space for companies to abuse digital technology. Therefore, companies take advantage of their asymmetric information resources with customers and expand their control over user private information through digital technology [9]. By using default privacy policies and designs, they guide users to provide partial private information, making it easier for companies to access their personal private activities and sensitive information. Transborder data flow expands data privacy issues at the business level.

### **4.4. Country Perspective**

Exploring data sovereignty, namely data security and protection, from a national perspective is a consideration of the rationality and legality of transborder data flows from the perspective of national interests. The data sovereignty requirement aims to safeguard the country's three fundamental data interests: confidentiality, integrity, and availability. Data sovereignty refers to the territorial sovereignty that extends beyond network sovereignty [7]. In this period, data, as one of the important strategic resources of a country, to occupy a new advantageous position in international competition, it is necessary to better leverage its data value. Similarly, the prosperity of digital trade is also accompanied by security risks caused by data leaks, unclear data jurisdiction, and limited enforcement power. It can be seen that data has become the elementary strategic resources of the country. Although most of them are owned and used by Internet information companies, data security can often rise to the level of maintaining national security. It is necessary to place data under national jurisdiction.

## **5. Impact Analysis**

### **5.1. Cross-Border Flow Rules and Privacy Protection Policies for Personal Data of Different Entities**

#### **5.1.1. Case of EU Countries**

The EU advocates for cross-border flow of data elements that prioritize human rights. The EU attaches great importance to the free transborder flow of data; therefore "full protection" has become the most obvious feature of privacy protection issues in EU regulation of personal data cross-border flow. The European Commission has the right to assess whether the data exporting country has reached the level of "sufficient protection". The main evaluation factors generally meet the standards, and then a convenient and efficient channel is constructed for cross-border data transmission, eliminating the need for repeated and strict identification. Having passed this recognition means that the data exchange between the EU and recognized entities is roughly equivalent to data transactions and transmissions within the EU [10].

The EU's "full protection" model prioritizes unified legislation that enables the seamless cross-border flow of data under stringent conditions. This model serves to protect stakeholder data within the EU, ensures the security of data exports, and reduces the risk of privacy breaches internationally. However,

this strong focus on personal privacy can also hinder the free movement of cross-border data, thereby raising the barriers for digital trade. This has emerged as a significant challenge to the expansion of the EU's digital trade sector.

### **5.1.2. Case of United States**

As the most technologically advanced country in the global information industry, the United States ranks among the top in the world in terms of cross-border data flow every year, always advocating for the "maximum possible free flow of information across borders". To consolidate its position and promote the steady development of its domestic information industry to the greatest extent possible, the United States has always advocated reducing various factors that restrict the flow of personal data as much as possible and providing a relaxed development environment for the flow of transborder data [11]. At the same time, the United States has taken into account the global nature of data protection and has attempted to expand the scope of protection for citizen data as much as possible by signing international cooperation agreements.

In the personal data protection system of the United States, to a certain extent, the privacy interests of data subjects have given way to economic benefits, and unless risks are not regulated by the market, there is no need to rely on the legal system to protect personal data privacy rights. In the United States, all participants in the data processing process have greater autonomy, and companies and individuals can discuss and discuss various aspects of data circulation, without the government directly intervening. Although the United States has been advocating for the free data streaming across borders, it still relies on long arm jurisdiction to strengthen the overseas data control capabilities of various countries. It can be seen that the regulation of transborder data flow in the United States tends to provide convenience for domestic digital trade but ignores the importance of privacy protection for all parties involved.

### **5.1.3. Case of China**

China advocates for security first data element cross-border flow, restricts data cross-border flow, requires data localization, and implements market access for cloud computing. In order to safeguard the legitimate rights and interests of all subjects, promote the development of digital trade, and ensure data security, China's transborder data flow rules provide corresponding policy adjustment space. According to the Cybersecurity Law, in principle, key information infrastructure operators are not allowed to export personal information and important data collected in China. If there is a need to export, corresponding security assessments should be conducted [12]. Compared with other advanced regulatory models, China's transborder data flow protection system started relatively late, with a relatively simple form, scattered protective legislation, and numerous legal norms. In terms of content, it tends to provide security protection and restrictions on the free data streaming, and its participation at the international level is relatively low. Therefore, China is still in the exploratory stage.

## **5.2. Comparative Analysis**

The cross-border flow rules and privacy protection policies of personal data vary among different entities worldwide, and there are significant differences in basic concepts. Represented by the European Union, entities place greater emphasis on human rights and privacy protection. Therefore, EU law regards data privacy protection as a fundamental right. When other policy objectives conflict with data privacy protection, strict authentication is required, which partly limits the advancement of digital trade in the region. The United States, on the other hand, is more inclined to focus on freedom. Based on its global market dominance, it values the economic benefits of transborder data streaming, and its goal is to fully utilize the economic value of data streaming and continuously promote and ensure the leading position of the world economy. The protection of transborder data streaming in developing countries such as China is based on security and restrictions, and the overall regulation is relatively weak compared to developed countries. The regulatory level of privacy protection is also relatively weak. People still need to pursue negotiations with the international community and further improve cross-border data flow. From this, due to the influence of digital trade, cross-border data

flow rules and privacy protection policies are not the same. When facing different values of different entities, cross-border data flow is either promoted or hindered, and privacy protection is either more perfect or underestimated. Currently, no entity can find the most perfect balance between the two to promote the development of digital trade.

## **6. Discussion**

### **6.1. Future Trends and Predictions**

Facing the rise of data elements, digital cross-border flow is unstoppable. And with the advancement of technology, digital technology drives the digitization of international trade, making digital trade a key link in global economic activities. Currently, artificial intelligence and blockchain technology are widely used, but they face legal, ethical, and scalability challenges. In addition, data rights are gradually being valued by countries, and in order to promote the high-quality advancement of global digital trade, the issues of transborder data streaming and privacy preservation need to be properly addressed. Therefore, the increasing demand for legal systems and regulations on related issues in various countries is also a challenge to their ability to negotiate and cooperate at the international level.

### **6.2. Policy Recommendations**

#### **6.2.1. Establish Sound Legal and Regulatory Systems for Cross-Border Data Flow and Privacy Protection**

Given the issues related to cross-border flow of data elements and secret protection, it is crucial to ensure a sound legal system within the country. The country should adhere to improving various data management laws, and when establishing a cross-border data flow system, it should consider ensuring data privacy and security, strengthening regulatory mechanisms, and improving relevant regulations to constrain and regulate cross-border data flow, ensuring the protection of data privacy rights and the reliability and compliance of data in cross-border flow.

#### **6.2.2. Promote the Establishment of International Standards for Cross-Border Flow of Data Elements and Privacy Protection Governance**

In the current context of global digital trade, countries should cooperate on cross-border flow of data elements and privacy protection governance to prevent companies from finding opportunities to infringe on data rights under different legal systems in different countries. On the one hand, it can increase more flexible cooperation models between countries or regions, providing legal channels for digital trade. On the other hand, countries need to collaborate to develop unified international standards for this issue, establish more efficient management mechanisms for transborder data flow and privacy protection, assist nations in effectively managing data transborder flow and privacy protection, reduce legal and technical conflicts, promote digital trade, and reduce the adverse effect of illegal transborder data flow.

## **7. Conclusion**

In the era of digital economy, data elements have become the key driving force for the prosperity and development of digital trade. A large amount of data, including private data, from different entities and levels, will be transmitted across borders, and even monitored or abused. How to better safeguard the privacy and security of personal, corporate, and international data in cross-border processes while promoting digital trade requires joint consultation and efforts from all countries or regions around the world. Starting from digital trade and its global development pattern, this article finds that cross-border data flow has a significant impact on the data rights of individuals, businesses, and countries or regions. By selecting cases of transborder data flow rules and privacy protection policies for different entities, comparative analysis reveals that the values of each entity are different, and their

laws and regulations always have a bias towards the two. Based on the impact of the technological revolution on current digital trade, it can be seen that data privacy protection will be challenged by new technologies and technologies. Therefore, there is an increasing demand for policy regulation within countries and regions, as well as internationally. It is recommended that countries consider both internal and external factors and establish a sound legal protection system and more comprehensive international standards.

From the perspective of digital trade and data privacy protection, this article proposes a new perspective for research on the impact of data privacy on cross-border data flow in digital trade. Based on the current global situation and future predictions, policy recommendations are proposed for this perspective. To address the issues of digital trade and data privacy, all parties and regions must deeply realize the upward trend of digital trade and the urgency of data privacy protection. The correct solution is to cooperate with each other and jointly establish a more comprehensive new digital trade system. The limitation of this article is that the exploration of current global data privacy protection policies among countries or enterprises is not comprehensive enough. In the future, research on entities and regions with different levels of development can be expanded, and different degrees of digital trade can be combined with corresponding digital cross-border flow privacy protection to propose more practical solutions.

## References

- [1] U.S. International Trade Commission, *Global Digital Trade 1, Market Opportunities and Key Foreign Trade Restrictions*, 33 (2017).
- [2] OECD, “Handbook on Measuring Digital Trade”, 10-11(2023).
- [3] Ministry of Commerce of the People's Republic of China, *Report on the Development of Digital Trade in China*, 1(2021).
- [4] China Academy of Information and Communications Technology, *Global Digital Governance White Paper*, 1-2 (2023).
- [5] Ma T., Liu B.Y., *Cross-Border data flow, data element valuation, and global digital trade governance*. *International Economic Review*, 1-26(2024).
- [6] Ministry of Commerce of the People's Republic of China: *Report on the Development of Digital Trade in China*, 3-4(2022)
- [7] Cao B., *Research on Legal Issues of Data Localization in China in the Context of Digital Trade*, North China University of Technology, MA thesis (2023).
- [8] Hu R., *A Study on the Impact of RTA Digital Trade Rules on Cross-Border Data Elements Flow Abstract*, Dalian Maritime University, MA thesis (2023).
- [9] Tan G.F., *Regulation of Cross-Border Data Flows in Digital Trade through International Law*, *Journal of Comparative Law* 03, 169-185(2022).
- [10] Wu Y., *Regulation of Cross-border Data Flows under EU and U. S. : A Comparative Study—From the Perspective of Data Privacy Protection*, Southwest University of Political Science and Law, PhD dissertation (2020).
- [11] Sedgewick, M. B., *Transborder Data Privacy as Trade*, *California Law Review* 105, 1513-1542(2017).
- [12] Li D., *International Conflict and China's Solution to Privacy Protection in Cross border Personal Data Flow*, Foreign Affairs College, MA thesis (2022).