

Cross-border Data Flow Governance: The Integration of International Experience and China's Modernization Path

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Abstract. In the context of globalization and the rapid development of digital economy, data has become a new factor driving the development of productivity, and cross-border data flow has also become a key factor promoting international trade, investment and knowledge exchange. As two major data economies, the United States and the European Union have different legal frameworks and practice models in the management of cross-border data flows. The United States adopts a relatively decentralized and market-driven approach, regulated mainly through industry guidelines and federal and state laws. In contrast, the EU has formed a relatively unified legal system centered on personal privacy protection based on the General Data Protection Regulations (GDPR). This paper analyzes the cross-border data flow governance strategies of the United States and Europe to develop a suitable framework for China that incorporates international best practices while adapting to China's specific context. It suggests that China should learn from these advanced economies to create a flexible and effective data flow management system, ensuring a balance between data security and open communication. It also recommends enhancing China's data protection laws to align with its Civil Code and other legal systems, and advocates for China's participation in international efforts to establish global data governance standards. Ultimately, this paper outlines key considerations and strategic directions for China's future data governance strategy, offering insights and recommendations to support its modernization efforts.

Keywords: Cross -border flows, regulation, Chinese data rules, US data rules, EU data rules.

1. Introduction

In the current wave of digital sweeping the world, data has become a new engine to promote social and economic development. In terms of the overall development trend of digital trade, the global cross-border e-commerce is continuing to grow rapidly, the global trade of digital services is accelerating, and the scale of digital service export is constantly expanding [1]. According to the calculation of the Organization for Economic Cooperation and Development (OECD), the average promotion rate of data flow to the profit growth of various industries is 10%, which can reach 32% in digital platforms, finance and other industries. The value of data for economic growth is self-evident, and it has become an important strategic resource for the game between great powers.

In recent years, China has developed into a major digital trading country and actively builds massive data. According to the forecast of IDC, China's data volume will grow at an average rate of about 30% from 2021-2025, making it the largest country in the world [2]. As a proponent of economic globalization and a beneficiary of the digital economy, China has always maintained a positive attitude towards the governance of cross-border data flow. China's involvement in global data governance—from proposing e-commerce negotiations within the WTO to the enactment of the Personal Information Protection Law—demonstrates its commitment to aligning with international standards and enhancing its global influence. However, the evolving nature of data legislation in developed regions like the EU and the US, combined with China's engagement in major international agreements such as the CPTPP and RCEP, highlights the urgent need for China to address the complex balance between cross-border data flows, national security, and economic development within a multilateral framework.

This paper aims to explore these critical issues, examining the challenges and opportunities presented by the governance of cross-border data flows from China's perspective. Through a comprehensive analysis of global practices and China's existing policies, this study seeks to offer

strategic insights and recommendations to enhance China's data governance framework, ensuring it is both effective in safeguarding national interests and conducive to the country's continued growth in the digital economy. By dissecting the intricacies of international data governance models and assessing their applicability to China's unique context, this paper endeavors to contribute to the ongoing dialogue on achieving a harmonious balance in the global digital order.

2. The Current Status of Global Cross-border Data Flows

2.1. Governance Pattern

The landscape of global data regulation unfolds across two primary legislative philosophies that reflect diverging priorities between developed and developing nations. Developed countries champion the free flow of data across borders, aiming to harness global data resources to fuel economic growth and innovation. This approach is driven by the belief that unrestricted data access can lead to enhanced efficiencies, greater innovation, and competitive advantages in the digital economy. Conversely, developing nations often resort to data localization strategies as a defensive mechanism [3]. This approach stems from concerns over data sovereignty, privacy, and the desire to protect local data industries from international dominance.

Legislative principles governing data protection laws bifurcate into three key realms: personal, territorial, and protection-oriented principles. Developed countries, particularly those with robust digital economies, employ these principles to extend their legal and regulatory reach beyond their borders, effectively implementing "long-arm jurisdiction" over data matters. The United States, for example, emphasizes the "protection principle," leveraging it to justify its extensive data collection efforts globally under the pretext of safeguarding national interests. This practice underscores a strategic move to position itself as a dominant force in the global data ecosystem. Meanwhile, the European Union, Singapore, and Japan prioritize the "personal principle," setting high data protection standards to safeguard individual privacy on an international scale. This approach aims not only to protect citizens' data but also to sustain their jurisdictions' influence and credibility in the increasingly contentious field of data governance.

Among them, the United States implements "hegemonism" in the field of data by promoting free flow and overseas law enforcement power. This strategy, supported by the aggregation of data through economies of scale, not only allows the U.S. to maximize data value but also consolidates its dominance by attracting data from less competitive to more competitive entities. The U.S. has established a sophisticated, multi-tiered data protection system that facilitates the international flow of data while imposing stringent controls on the export of sensitive, "important data", marked under the Controlled Unclassified Information (CUI) framework initiated by Executive Order 13556 in 2010. This framework, coupled with the Cross Border Privacy Rules (CBPR) and the Clarification of Lawful Uses of Data Overseas Act (CLOUD Act), creates a "global data controller standard" extending U.S. jurisdiction globally [4]. Moreover, through extraterritorial legislation like the Patriot Act and the CLOUD Act, the U.S. enforces cross-border law on various fronts including anti-corruption and national security, enabling U.S. law enforcement to access data worldwide without disclosure requirements, thereby influencing the global data flow and raising concerns over privacy protection.

Different from the highly aggressive data policy of the United States, the European Union adopts a balanced regulatory approach, emphasizing high privacy standards while cautiously allowing data movement [5]. This approach aims to preserve the EU's legislative influence in the data realm, encouraging countries reliant on trade or finance to align their data protection laws with the EU's standards to foster trust. Central to the EU's strategy is the "adequacy identification" mechanism within the General Data Protection Regulation (GDPR), which underscores the importance of human rights in digital economy development and cross-border data exchanges. The GDPR, effective from 2018, permits the transfer of personal data to countries recognized as providing adequate protection, akin to the EU's own. This regulation extends beyond the EU's borders, applying to non-EU entities

that offer goods or services to EU residents or monitor their behavior within the EU, ensuring a comprehensive protective umbrella for personal data. Moreover, the GDPR's reach extends to data processing outside the EU, provided it falls within the activities of entities established within the EU, highlighting its expansive jurisdiction. The European Commission assesses "adequacy recognition" for non-EU countries every four years, examining their data protection laws, regulatory enforcement, and international agreements. At present, only 11 countries, including Canada, New Zealand and Switzerland, have received the adequacy recognition. The EU hopes to attract more acceptance and accession from developing countries after achieving internal consistent standards.

2.2. Overall Pattern

After years of development, three major cross-border data flow circles have gradually formed in the EU, North America and the Asia-Pacific region.

Among these "three major flow circles", the EU flow circle is the most stable, and the EU takes geopolitics as a strong guarantee. In 2015, the EU began to implement the EU digital single market strategy, which aims to eliminate the data transmission barriers between countries, and establish a complete trust mechanism among countries within the EU. By prioritizing seamless data flows and high privacy standards, the EU has established itself as a model of stability and integration in the realm of digital governance.

The North American's data flow ecosystem, primarily led by the United States with significant participation from Canada and Mexico, exhibits a relatively stable framework. The United States, wielding considerable influence, has shaped the region's data governance landscape, promoting a blend of open data exchange and stringent security measures. This balance has facilitated a robust and secure digital economy across the continent.

Contrastingly, the Asia-Pacific region presents a more fragmented and dynamic picture. The shift of the digital economy's focal point from the Atlantic to the Pacific Rim has intensified the competition for control over cross-border data flows. Nations like the United States, Japan, and Singapore actively vied for governance dominance, at times seeking to marginalize China's influence within the free flow of data paradigm. This competition has given rise to numerous data flow agreements, including the Cross-Border Privacy Rule, the Trans-Pacific Partnership Agreement (TPP), and the Comprehensive Progressive Trans-Pacific Partnership (CPTPP). Despite these efforts, the Asia-Pacific region faces challenges in achieving cohesive data flow governance, hindered by fluctuating membership, limited implementation scope, and a lack of consensus among participating countries.

3. Status and Challenges of Cross-Border Data Flow Governance in China

3.1. Governance Status

According to two reports published by IDC, an international data company, "The Digital World-From Edge to Core" and "China to Have the World's Largest Data Circle by 2025", China's total data volume will grow at an average annual rate of up to 30% from 2018-2025, which is much higher than the global average. Among them, in 2018, China generated a total of 7.6 ZB (1 ZB = 1 billion TB = 1 trillion GB) of data, and it is expected that China's total data volume is expected to increase to 48.6 ZB in 2025, accounting for 27.8% of the world's total, and its total volume is far more than that of the United States, which is 30.6 ZB [6].

On the issue of cross-border data flows, China has not explicitly adopted "data sovereignty" or recognized the attitude of data without borders and completely free flow of data, but only the concept of global security based on risk aversion [7]. Since 2021, China has successively passed and implemented the Data Security Law, Personal Information Protection Law, and Data Security Assessment Measures, basically forming a "3+3" management system dedicated to monitoring and regulating the cross-border flow of private data information and non-personal data information [8]. Additionally, various state departments have been consistently advancing efforts like data exit

security assessments, with certain regions pioneering data exit pilots, reflecting a progressive stance towards managing and safeguarding cross-border data flows.

3.2. Governance Challenges

However, compared with the rapid development of China's digital economy and digital trade, the international cooperation mechanism for cross-border data flow is lagging behind. Compared with the cross-border data flow policies and international regulations of major countries, there are still many challenges.

Firstly, the legislation is relatively decentralized and lacks systematicity. China's existing personal information protection is regulated only through integrated laws such as the Cybersecurity Law, the Data Security Law, and the newly adopted Personal Information Protection Law and industry regulations, and lacks a certain degree of compliance system construction. Part of the law for cross-border data flow regulation is basically principle-based provisions, this decentralized and abstract legislative model is difficult to provide a concrete legal basis for the rapid development of cross-border data flow, still need to improve the compliance response under the new wave of data protection regulation.

Secondly, the regulatory system is not flexible enough. The current Opinion Draft on Personal Information Outbound Security Assessment abandons the original dual-track route of "self-assessment + assessment by regulatory authorities" in the assessment of personal information outbound security, and adopts a comprehensive approval mechanism by the regulatory authorities instead. Although this is conducive to safeguarding data security in cross-border transmission and promoting effective data governance, it has, to a certain extent, increased the operating costs of enterprises and market regulatory costs.

Thirdly, data protection has not yet formed a broad consensus. Although China has continuously strengthened data governance and supervision in recent years, there are still deficiencies in data governance capabilities. Incidents of various organizations collecting user data in violation of the law, lacking the necessary data security measures, and abusing or even trafficking user data are common. With regard to cross-border data transmission, since cross-border transmission involves not only different rights holders, but also different regulatory bodies and different legal jurisdictions in different transmission links, the loopholes in the regulatory framework arising from the lagging concept of data protection will face greater security risks.

Lastly, the absence of a cohesive international strategy for cross-border data regulation places China at a potential disadvantage. Unlike the more unified approaches seen in the United States and Europe, China's current stance may contribute to the risks of data monopolization and fragmentation ("data silos"), thereby undermining the development of global digital governance standards. Addressing these challenges is crucial for enhancing China's role and influence in the international digital ecosystem.

4. Policy Recommendations for Strengthening Cross-border Data Flows and Digital Governance in China

The regulation of digital trade and cross-border data flow is one of the core contents of the global economic and trade rules in the 21st century, and will have a wide and far-reaching impact on the future direction of the world economic and trade pattern. In the face of the new situation of the United States, Europe and other big countries strengthening the dominance of rules by means of digital strategies, China should serve the strategic goal of building a "strong digital economy", comprehensively promote the construction of China's relevant institutions and top-level design, explore the governance framework system of cross-border data flow that is suitable for China's national conditions and development path, and strengthen the dominance of rules.

4.1. General Consideration of Regulation

China is a "sovereign protection" regulatory model premised on safeguarding national data security, although it is different from the "freedom of trade" of the United States and the "human rights protection" of the European Union. Although it is different from the scale model of "trade freedom" of the United States and "human rights protection" of the European Union, there is no complete conflict in essence. The main reason why countries cannot reach consensus on the regulation of cross-border data flow is that the interests and needs of countries are different. As a digital economy power, how to achieve a dynamic balance in trade growth and data security, will be directly related to our country's future control of data regulation of the dominant discourse, but also a test of the big country's commitment. In the face of the restrictions and localization requirements of some developed countries on our cross-border data flow, it is not appropriate for us to avoid them, but we should use negotiations to promote the construction of rules on cross-border data flow that meet the interests of most countries in the world. Based on the guiding principle of mutual benefit and win-win situation, China's legal regulation of cross-border data flow should not only adhere to the principle of "sovereignty protection", but also take into account the two major principles of "freedom of trade" and "human rights orientation". It should also take into account the two principles of "freedom of trade" and "human rights orientation", and at the same time take into account the proposals of various countries as well as the actual situation of China, and actively promote the negotiation of global rules. Regarding the free flow of data and localization, under the basic position of safeguarding national information security, we will promote the construction of a cross-border data flow rule system that meets the needs of the development of the global digital economy and China's strategic goal of realizing a strong network state.

4.2. Constructing a Perfect Jurisdiction and Trust System

At present, the United States, Europe and other developed economies continue to strengthen the "long-arm jurisdiction" of data exit, China can actively follow suit and appropriately extend the scope of application of "long-arm jurisdiction" based on specific scenarios, and formulate and introduce a management framework for the exit of important data, so as to improve the policy environment for the protection, management and utilization of important data. China can actively follow suit and appropriately extend the scope of application of "long-arm jurisdiction" according to specific scenarios, and formulate and introduce a regulatory framework for the export of important data, so as to improve the policy environment for the protection, management and utilization of important data. In addition, we can draw on the EU model and consider establishing a "white list system" to implement reciprocal measures for the protection of personal information and cross-border data flow for relevant countries. Some regions should be included in the list of countries and regions with free flow of data, so as to build a trust system for cross-border data flow.

4.3. Strengthening Cross-border Cooperation at Bilateral, Regional, and Multilateral levels

In fact, for digital trade issues, multilateral negotiations are not the best choice, free trade agreements can often go further than multilateral negotiations, which is almost difficult to do in multilateral negotiating organizations such as the WTO. But this does not mean that the digital trade rules to abandon multilateral negotiations, precisely because we need to establish a functioning multilateral digital trade rules, so for some of the more urgent, short-term difficulties in reaching agreement on the subject, through bilateral, interregional trade agreements or free trade agreements to solve, and the feasible rules gradually extended to the multilateral trading system rules.

In view of the unshakeable role of multilateral trade rules in the liberalization of international trade, the multilateral negotiations on digital trade must not be easily abandoned. Therefore, for the current status quo of digital trade rules, we should improve them one by one, and absorb the effective solutions in bilateral trade agreements and regional trade agreements into multilateral negotiations. RTAs can also provide a basis and experience for the establishment of multilateral trade negotiations and rules, and at the same time will gradually deepen the links between developing countries and

developed countries, and enhance the enthusiasm of developing countries to participate in the formulation of digital economic and trade rules, which is obviously the best choice for the liberalization of international trade and international trade macro-control. In view of China's accession to the RCEP, it can be regarded as China's active promotion of the degree of national trade openness and trade level through regional agreements, which is an important initiative to promote the virtuous circle of trade liberalization until the ultimate goal of reaching comprehensive multilateral digital trade rules and establishing a rule-based multilateral trading system.

4.4. Establishment of a Tiered, Categorized, and Regional Regulatory System

First, in managing cross-border data flows involving personal data, a balanced approach that leverages market dynamics, government oversight, and corporate self-regulation is recommended. Utilizing the Personal Information Protection Law as a foundation, the regulation can differentiate between general and sensitive personal data categories. Additionally, the government should enforce standard contractual agreements for international data transfers, as outlined in the Personal Information Protection Law, to mitigate risks associated with personal data export.

Second, for cross-border audits involving commercial data, we need to recognize the importance of commercial data. Commercial data not only reflects the production and operation of enterprises and reveals the future development trend of the industry, but also for the national and public interest-based commercial data may jeopardize the security of national subjects and induce international unfair competition. Therefore, for cross-border transmission of commercial data, the subject should set up certain self-examination obligations, and if necessary, should also obtain the approval of the relevant qualification departments before transmission.

Thirdly, for data associated with national security, a nuanced, risk-based regulatory framework is advisable. This approach would classify data based on its sensitivity and potential risk, drawing from international best practices to determine restrictions and monitoring requirements. Such a system would facilitate varied levels of scrutiny and control, ranging from total export bans to conditional approvals, based on the assessed risk level of the data in question, ensuring a balanced and effective management of national security-related data flows.

4.5. Promoting the Establishment of a Global Governance Framework

As the basis for supporting the development of global digital trade, cross-border data flow has a natural "global attribute". Therefore, the rule system for cross-border data flow must also be based on a global perspective. Although relevant international standards or models have been agreed upon, their models and implementation methods vary greatly from country to country, so there is still a need for an interoperability mechanism, accelerated exploration of the establishment of an international law enforcement collaboration mechanism, and a future-oriented framework for global digital trade rules and digital governance.

The Global Governance Framework for cross-border data flows aims to harmonize varying national regulations under a unified set of standards and protocols that ensure data security, privacy, and smooth digital trade. It focuses on creating interoperability mechanisms for diverse legal systems, enhancing international law enforcement cooperation against cyber threats, and establishing fair dispute resolution methods. Additionally, it emphasizes the need for adaptable policies that can evolve with emerging technologies, ensuring the framework remains relevant. This collaborative effort among nations seeks to secure a resilient global digital economy, fostering an environment of trust, cooperation, and mutual respect for the flourishing of digital trade worldwide.

In a word, the essence of cross-border flow of data is the process of information interaction between different jurisdictions [9]. Consequently, it's crucial to pay attention to the shortcomings in the development of China's digital economy, stay current with global trends, draw on the experience of U.S.-European data legislation and combine it with China's national conditions and the changing trend of data governance. This strategy aims to guide multinational enterprises to avoid the risk of

violations, solidify China's global leadership in the digital economy, and provide China's solutions for the healthy development of the world's digital economy [10].

5. Conclusion

The management of cross-border data flows represents a critical juncture for global digital trade, with far-reaching implications for national security, economic development, and the protection of individual privacy. China's rapid digital expansion and its evolving role in the global digital economy demand a forward-looking approach to data governance that harmonizes with international standards while addressing unique domestic needs.

Domestically, China should focus on crafting a comprehensive legal framework that balances data security with the freedom of data flow. This involves developing a nuanced regulatory system for cross-border data that categorizes, grades, and regionalizes data flows, thereby enhancing data security management and building technical capabilities to support digital trade. Internationally, given the slow pace of multilateral digital trade negotiations and the challenge of achieving a cohesive governance framework soon, China could initially integrate its cross-border data flow policies into bilateral and regional trade agreements. This strategic insertion would serve as a stepping stone towards influencing the development of global regulations, aiming to amplify China's voice and influence in the regulation of international data flows.

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