

# Fragmentation in Global Digital Trade Rules: Challenges and China's Response

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**Abstract.** Global digital trade faces a regulatory vacuum due to the lag in WTO rules, leading to the emergence of three regional frameworks: the US advocates free data flow, the EU enforces strict privacy, and the Asia-Pacific uses modular rules. This fragmentation raises compliance costs, regulatory conflicts, and marginalizes developing economies. In response, China is building compliance support systems, piloting flexible rules in free trade zones, and promoting regional rule alignment via DEPA, moving from rule-taker to rule-shaper and contributing to a more inclusive global digital trade order.

**Keywords:** digital trade rules; rule fragmentation; China's countermeasures.

## 1. Introduction

Global digital trade has evolved into a core engine driving international trade growth[1]. According to United Nations Conference on Trade and Development (UNCTAD) statistics, its scale exceeded US\$5 trillion in 2023, accounting for over 60% of global services trade. However, its potential is constrained by the severe lag in multilateral rule systems [2]: e-commerce negotiations under the World Trade Organization (WTO) framework remain deadlocked due to member divergences, while the substantive failure of the 1998 Work Programme on Electronic Commerce has created a vacuum in international rulemaking. Against this backdrop, major economies have accelerated the construction of regional rule systems, forming a tripartite configuration of competing frameworks. The United States promotes a 'free flow of data' model through instruments like the U.S.-Mexico-Canada Agreement (USMCA); the European Union builds and exports its rigorous privacy regulatory standards anchored in the General Data Protection Regulation (GDPR); and the Asia-Pacific region has pioneered modular, flexible rule frameworks exemplified by the Digital Economy Partnership Agreement (DEPA). This fragmented regulatory landscape imposes severe challenges on Chinese enterprises engaged in global competition: externally, they bear high compliance costs arising from regulatory disparities and barriers; internally, they must reconcile potential conflicts between domestic legislation and internationally prevailing rules. This paper aims to dissect the root causes of fragmentation in global digital trade rules, systematically analyze its challenges, and explore China's viable strategic responses.

## 2. The Fragmentation of Global Digital Trade Rules: Current Status and Causes

### 2.1. Current Fragmentation: Divergences in Standards, Scope, and Enforcement Mechanisms

The global digital trade rule system exhibits profound fragmentation, rooted in irreconcilable differences among nations regarding data sovereignty concepts, governance models, and regulatory frameworks[3]. This fragmentation manifests most directly in systemic conflicts over core standards. On the critical issue of cross-border data flows, for instance, U.S.-led trade agreements typically establish a 'free flow' principle while restricting data localization. The European Union (EU), conversely, has built a data export regulatory framework anchored in stringent privacy protection and reliant on mechanisms such as 'adequacy decisions'[4]. Meanwhile, major Asia-Pacific economies favor risk assessment-based categorical management, forming a distinct third approach. Fractures



within the rule system are further evident in significant disparities in issue coverage. High-standard regional agreements led by developed economies have incorporated emerging issues—such as AI ethics, digital currency regulation, and non-personal data flows—into binding provisions. In contrast, mechanisms involving developing economies (e.g., the African Continental Free Trade Area Agreement) primarily focus on traditional facilitation measures like electronic signatures and paperless trade, resulting in a 'dual-track' global regulatory landscape. More detrimentally, institutional antagonism exists at the enforcement level: the U.S. typically employs extraterritorial application of domestic laws for unilateral sanctions; the EU enhances deterrence through penalties based on global revenue percentages; and the Asia-Pacific region relies predominantly on soft mechanisms like dialogue and consultation. These three divergent enforcement logics not only exacerbate regulatory chaos but also foster a mutually constraining environment, compelling multinational enterprises into multifaceted compliance dilemmas.

## **2.2. Causes of Fragmentation: Sovereignty Contestation and Multilateral Mechanism Failure**

The underlying drivers of fragmentation in global digital trade rules stem from the interplay of digital sovereignty contestation and the failure of multilateral mechanisms. Technologically advanced nations leverage industrial dominance to systematically pursue cross-border data access, algorithmic rule exportation, and long-arm jurisdiction, aiming to shape the global digital order. In response, developing economies commonly enact tiered data management and data localization legislation to safeguard digital sovereignty, creating structural opposition in rulemaking. Concurrently, the WTO multilateral framework suffers dual incapacities: its existing rules lag severely behind technological evolution, as the 1998 Work Programme on Electronic Commerce fails to address emerging domains like AI; critical update mechanisms are deadlocked due to fundamental disagreements between developed and developing economies over special and differential treatment provisions, leading to insufficient engagement by core members. This multilateral governance failure compels states toward regional alternatives. While addressing localized needs, these regional agreements—lacking global coordination mechanisms—objectively accelerate the fragmentation of the rule system. Notably, sovereignty contestation and mechanism failure exhibit a mutually reinforcing effect: technological powers undermine multilateral authority by exporting unilateral standards via regional pacts, while developing economies resort to defensive legislation due to marginalization, ultimately reinforcing a vicious cycle that entrenches regulatory fractures.

## **2.3. The Three Major Digital Trade Rule Systems**

Amidst multifaceted power struggles, the global digital trade rule landscape has distinctly crystallized into three characteristic and competing systems. The U.S.-led system prioritizes 'free flow of data'[5], propagating its standard template through dense bilateral and plurilateral agreements (e.g., USMCA). Its core objectives include restricting data localization requirements and protecting trade secrets like algorithm source code—stances markedly divergent from China's emphasis on data sovereignty and security[6-7]. The EU has forged a unique system centered on establishing 'fundamental rights for the digital age'[8], anchored by the world's strictest personal data protection framework (e.g., GDPR) and increasingly stringent ex-ante regulatory obligations for large digital platforms. Although the EU maintains dialogue channels with China, fundamental divergences in governance philosophies and regulatory pathways remain unresolved. Simultaneously, cross-regional agreements exemplified by DEPA and CPTPP demonstrate notable inclusivity and adaptive innovation. Their rule frameworks incorporate select high-standard clauses while pioneering modular architectures in treaty design, allowing members at varying development levels to flexibly accede to specific modules. China's engagement and influence within these emerging mechanisms are steadily growing[9]. Nevertheless, the coexistence of these three systems directly engenders deep-seated structural conflicts and compatibility issues across global digital trade agreements, with such regulatory frictions increasingly becoming critical bottlenecks hindering the seamless development of global digital trade[10].

### **3. Systemic Challenges Posed by the Fragmentation of Digital Trade Rules**

#### **3.1. Escalating Corporate Compliance Costs and Market Distortions**

The profound fragmentation of global digital trade rules has precipitated systemic governance dilemmas, with its most direct microeconomic effect manifesting as a structural surge in corporate compliance costs and significant distortions in market resource allocation mechanisms. Multinational operators are compelled to establish multi-layered compliance frameworks amid conflicting regulatory paradigms. This institutional adaptation necessitates fragmented restructuring of data management processes across distinct jurisdictions (e.g., China, the U.S., and the EU), thereby inducing substantial economies of scale losses. Empirical studies indicate that enterprises required to simultaneously comply with regulatory standards across these three major economies experience an average increase in compliance expenditures exceeding 30%. Core cost drivers stem from systemic redundancies caused by regional disparities in data localization mandates, user privacy protection standards, and algorithm transparency regulations. For instance, the cross-border e-commerce platform SHEIN was forced to implement capital-intensive modifications to its information governance system in response to mandatory content moderation obligations under Article 14 of the EU's Digital Services Act. Similarly, leading Chinese cloud service providers have witnessed a structural shift in their R&D budgets, with nearly 40% diverted to compliance-driven technical adaptations rather than core innovation activities. Most critically, these institutional costs exhibit pronounced scale-discriminatory effects: Indonesia's digital payment service DANA strategically exited the European market due to its incapacity to bear the €20 million maximum administrative penalty risk stipulated under Article 83 of the General Data Protection Regulation (GDPR). This case demonstrates how rule fragmentation institutionalizes market access barriers. The resulting asymmetric competitive pressures further entrench oligopolistic tendencies in digital markets, ultimately undermining the dynamic efficiency of the global digital economy.

#### **3.2. Dilemmas in Aligning Domestic Regulations with International Rules**

Persistent conflicts between sovereign states' domestic digital regulatory frameworks and internationally accepted norms have generated profound systemic frictions, significantly exacerbating global digital trade governance challenges. The core 'secure and controllable' principle underpinning China's Data Security Law, which establishes a security assessment regime for cross-border data transfers, directly contradicts the U.S. priority of 'free flow of data' advocated in trade agreements, constituting a central point of contention in bilateral digital rule negotiations. Similarly, fundamental incompatibilities exist between China and the EU: the extraterritorial jurisdiction asserted under China's Personal Information Protection Law clashes intrinsically with the EU GDPR's 'adequacy decision' mechanism. As the EU has not recognized China's data protection regime as 'equivalent,' substantial commercial data flows between Chinese and European enterprises rely on cumbersome and costly legal instruments, drastically diminishing efficiency. The European Chamber of Commerce's 2023 Annual Report indicates a resultant 35% increase in transaction costs. In critical frontier domains like artificial intelligence, regulatory conflicts grow more acute and strategically charged—U.S. officials and industry leaders explicitly condemn China's stringent restrictions on cross-border transfers of generative AI training data as a novel digital trade barrier, while China perceives U.S. export controls on advanced AI chips and related technologies as systematic containment of its technological advancement. These proliferating and intractable regulatory frictions have transcended theoretical debates to tangibly constrain global digital trade growth momentum. The WTO's 2024 Digital Trade Monitoring Report notes a 3.2-percentage-point decline in digital services trade growth among major economies compared to pre-fragmentation levels, unequivocally demonstrating how rule fragmentation drives systemic dissipation of global technological dividends.

### **3.3. Imbalanced Rule-Making Influence and Governance Deficits**

The current concentration of global digital trade rule-making power within a few developed economies directly undermines the fairness and inclusivity foundations of global digital governance, intensifying governance deficits. In pivotal rule-shaping forums like the WTO's Joint Statement Initiative on E-Commerce (JSI), developed members such as the U.S. and EU dominate core clause negotiations through political-economic influence, while critical development demands from developing countries—including bridging digital infrastructure gaps and enhancing technological capacity—are consistently marginalized. A representative example is China's 'development transition period' proposal, aimed at securing reasonable policy space for developing nations, which was excluded from substantive negotiation texts due to opposition from developed members. This exclusionary logic manifests more blatantly in closed 'regulatory clubs' led by advanced economies. For instance, the EU-U.S. Trans-Atlantic Data Privacy Framework (TFDP) was unilaterally renegotiated without third-country participation; its unilateral certification standards de facto create market access barriers for enterprises operating under other data protection regimes, substantially depriving them of fair competition opportunities[11]. A deeper consequence is the monopolization of rule-making values: scrutiny of prevailing global digital trade agreements reveals minimal substantive provisions reflecting developing countries' developmental rights (e.g., inclusive access, technology cooperation), with overwhelming emphasis on U.S.-EU regulatory preferences and commercial interests. This compels emerging economies into long-term roles as passive adapters within the existing rule system, systematically eroding their participatory and shaping powers, thereby cementing the democratic deficit in global digital governance.

## **4. China's Systemic Response Strategies**

### **4.1. Strengthening Enterprise Support: Constructing a Multi-Tiered Compliance Support System**

Confronted with the complex labyrinth of global digital trade rules, China is developing a multi-tiered, full-cycle enterprise compliance support system, providing systematic safeguards particularly for export-oriented small and medium-sized enterprises (SMEs) with weaker risk resilience. The Ministry of Commerce (MOFCOM)-led 'Digital Trade Compliance Service Stations' must function as policy radars, closely monitoring regulatory developments in key markets such as Europe and the U.S., delivering precise and actionable compliance alerts alongside practical guidance in real time. The China Council for Promotion of International Trade (CCPIT) focuses on operational implementation; its comprehensive operational guidelines should integrate critical tools: standardized contract templates directly applicable to China-EU/U.S. cross-border data scenarios, verified reusable technical solution templates (e.g., encryption and anonymization), and standardized emergency response protocols for sudden data security incidents. Concurrently, it is imperative to launch a government-guided, multi-stakeholder support initiative—on one front, promoting state-owned cloud service providers with international certifications to offer GDPR-compliant data processing and storage services, lowering compliance system barriers for SMEs; on another, encouraging industry leaders with mature compliance frameworks to share audit expertise, technical interfaces, and training resources with upstream/downstream supply chain partners. This layered, ecosystem-driven support network aims to systematically enhance Chinese enterprises' global rule-navigating capabilities and effectively mitigate overseas compliance risks.

### **4.2. Deepening Domestic Reform: Exploring an Adaptive Regulatory Framework**

Addressing the challenges of global rule fragmentation, China is actively exploring an adaptive regulatory framework that fortifies security baselines while flexibly accommodating complex international dynamics through deepened domestic regulatory reforms. Within the Beijing Pilot Free Trade Zone, the cross-border data flow 'positive list' system is advancing steadily. Its core mechanism involves rigorous dual oversight through expert assessments and corporate self-certification,

progressively enabling streamlined data export channels for high-economic-value, relatively controllable-risk sectors like precision financial risk control and cross-border medical collaboration. Shanghai pioneers a 'negative list' approach centered on precise targeting—strictly concentrating regulatory scrutiny on a minimal set of data genuinely threatening national security (e.g., specific geospatial information, core national R&D data)—while implementing a record-filing system for non-listed data flows, substantially unleashing market vitality. Shenzhen, as a reform frontier, offers highly replicable pilot experience: it has constructed a three-dimensional differentiated regulatory mechanism based on data sensitivity, the rule of law and regulatory standards in the recipient country/region, and the recipient enterprise's security capabilities. This system embodies a distinct 'rule-adaptation' orientation: significantly simplifying approval procedures for enterprises from member states of international agreements where China has deep participation and high rule alignment (e.g., DEPA); enhancing risk assessments and certification requirements for enterprises from jurisdictions with significant regulatory divergence (e.g., U.S./EU); and establishing supporting 'regulatory sandboxes' permitting enterprises to test innovative cross-border data applications within government-supervised parameters. These explorations in balancing regulatory rigor with flexibility aim to create a secure yet competitive institutional environment for Chinese enterprises' global engagement.

### **4.3. Expanding International Collaboration: Leading a Development-Oriented Rule Network**

To resolve global rule fragmentation, China is proactively expanding multilateral and regional collaboration to construct and lead a rule coordination network genuinely attentive to developmental needs[12]. The Digital Economy Partnership Agreement (DEPA) serves as a pivotal lever for China's rule innovation, necessitating accelerated domestic adaptation and stress-testing of its modular, flexible rule architecture—particularly within pilot zones like the Hainan Free Trade Port. Leveraging its special policy advantages, Hainan could pioneer a 'cross-border data flow classification and tiered management system' centered on balancing data value and risk, generating replicable regulatory experience nationwide[13]. Simultaneously, the digital economy cooperation framework under the Belt and Road Initiative must evolve beyond basic e-commerce facilitation—substantially expanding the relatively foundational e-commerce chapter of the Regional Comprehensive Economic Partnership (RCEP) into a comprehensive developmental cooperation framework encompassing joint digital infrastructure development, collaborative technical capacity building, and efficient transparent online dispute resolution mechanisms. Facing exclusive 'regulatory clubs' led by advanced economies, China must more resolutely unite emerging markets and developing countries to vigorously advance practical provisions—such as digital capacity-building funds and critical technology transfer assistance for developing nations—within multilateral fora like the WTO. By sharing pilot experiences (e.g., Hainan's reforms) and providing digital infrastructure support, China can champion a more inclusive global rule-making model that genuinely reflects diverse developmental demands, progressively rectifying the current system's imbalances.

## **5. Conclusion**

The profound fragmentation of global digital trade rules, while continuously escalating corporate compliance burdens, intensifying international regulatory frictions, and cementing governance power imbalances, is simultaneously catalyzing China's critical transition from a rule 'adapter' to a new order 'shaper.' Short-term breakthroughs hinge on deepening regulatory convergence with modular, highly inclusive Asia-Pacific mechanisms like DEPA, thereby constructing broader regional rule coordination networks to provide enterprises with relatively stable institutional predictability amid volatility. For the long term, China must urgently develop a tiered and dynamically optimized cross-border data flow framework grounded in its developmental needs and security imperatives: implementing strict controls over core data genuinely affecting national security lifelines; establishing risk-assessment-based precision release mechanisms for important data concerning vital industrial interests or citizen rights; and actively expanding efficient channels for vast volumes of

low-sensitivity general commercial data. This approach maximizes the global value of data as a production factor within a secure foundational framework[14]. China's current pathway—modularly interfacing with international rules, building adaptive regulatory frameworks, and creating synergistic enterprise support ecosystems—transcends its own development: it offers a highly referential governance model for developing nations facing similar dilemmas in navigating the power-dominated digital jungle while balancing security control with open development. By consistently sharing practical experience in infrastructure connectivity and capacity co-development accumulated through the 'Digital Silk Road' initiative, China can collaborate with emerging economies to advance a new global digital trade order that genuinely reflects pluralistic developmental demands—one characterized by greater inclusivity and sustainable resilience.

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