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Digitalization of Special Economic Zones in China

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Abstract

Special Economic Zones (SEZ) have become the forefront in China to test legal and technological reforms for digital trade. This chapter explores three cutting-edge case studies in China's SEZs: the Beijing blockchain-based Single Window deposit box; newly established big data exchanges in Beijing, Tianjin, and Shanghai SEZs; and pilot projects in financial, medical care and automobile industries to flow data across the border in the Shanghai SEZ. It scrutinizes China's experiments in the context of its applications to join CPTPP and DEPA. It argues that the development of Chinese domestic law for digital trade is shifting away from the traditional paradigm that uses international commitments to push domestic reform or make domestic law according to international law. The development of Chinese domestic law for digital trade relies much more on China's domestic needs than what FTAs negotiations require. FTAs are increasingly becoming a tool for China to shape international law rather than a benchmark for legislating domestic Chinese law.

Keywords: Special Economic Zones, Digital Trade, China, Free Trade Agreement

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1. Introduction

With the impasse of WTO negotiations,¹ the year 2021 has witnessed China's significant law-making efforts to develop digital trade.² At the domestic level, China launched the Civil Code,³ the Data Security Law,⁴ and the Personal Data Protection Law⁵ and many other data regulations.⁶ On the international arena, China concluded the largest FTA, Regional Comprehensive Economic Partnership ('RCEP'), in the Asia Pacific⁷ which contains the highest level of e-commerce and digital trade rules among China's existing FTAs.⁸ It also applied to join the Comprehensive and Progressive Trans-Pacific Partnership (hereinafter 'CPTPP')⁹ and the Digital Economy Partnership Agreement (hereinafter 'DEPA').¹⁰

¹ RS Neeraj, 'Trade Rules for the Digital Economy: Charting New Waters at the WTO' (2019) 18 World Trade Review S121, S121–S134.

² In this chapter, 'data' and 'information' are exchangeable synonyms. 'Digital trade' is defined as the trade of data, a computer program, text, video, image, sound recording, or other product that is digitally encoded, produced for commercial sale or distribution, and that can be transmitted either electronically or through a physical carrier. Digital trade can be conducted both domestically in a state or internationally.

³ The Chinese Civil Code, promulgated on 28 May 2020 and effective on 1 January 2021, Order No. 45 of the President of China.

⁴ China Data Security Law, promulgated on 10 June 2021 and effective on 1 September 2021, Order No. 84 of the President of China.

⁵ China Personal Data Protection Law, promulgated on 20 August 2021 and effective on 1 November 2021, Order No. 91 of the President of China.

⁶ E.g. Provisions on Administration over the Internet User Public Account Information Services, promulgated on 22 January 2021 by the State Internet Information Office and effective on 22 February 2021; Provisions on Supervision and Administration of Internet Transactions, promulgated on 15 March 2021 by State Administration for Market Regulation and effective on 1 May 2021.

⁷ China became one of the first countries to ratify RCEP on 22 March 2021. All RCEP member states indicated that they would ratify RCEP in 2021 and bring it into effect on 1 January 2022. For texts, see <http://fta.mofcom.gov.cn/topic/enperu_recps.html> accessed 1 December 2021.

⁸ See e.g. *infra* section 4.2.

⁹ China applies to join Pacific trade pact to boost economic clout, <<https://www.reuters.com/world/china/china-officially-applies-join-cptpp-trade-pact-2021-09-16/>> accessed 1 December 2021.

¹⁰ China applies to join Digital Economy Partnership Agreement, <<https://www.reuters.com/world/china/china-applies-join-digital-economy-partnership-agreement-2021-11-01/>> accessed 1 December 2021.

Since China's opening up in 1979, it has used special economic zones (hereinafter 'SEZ')¹¹ as testing grounds to attract foreign investment,¹² promote export processing¹³ or import,¹⁴ develop modern service, high technology and tourist industries,¹⁵ grow e-commerce etc.¹⁶ Most recently, SEZs have become the forefront in China to test legal and technological reforms for digital trade. On 14 August 2020, the Chinese Ministry of Commerce issued 'the Overall Plan for Comprehensively Deepening the Pilot Program for the Innovation and Development of Trade in Services' (hereinafter the 'Plan').¹⁷ The Plan established 28 provinces and cities (regions) including Beijing, Tianjin, Shanghai, Guangzhou, Shenzhen as pilots for innovation and development of trade in services.¹⁸ The Plan highlights the importance of digital trade and aims to build a digitalized environment for business.¹⁹ In September 2021, China's President Xi Jinping delivered a video speech at the China International Trade in Services Global Service Trade Summit.²⁰ President Xi Jinping announced the support for Beijing and other cities and regions to match the high-level international free trade agreement rules and to create digital trade model zones.²¹

Existing scholarship finds that China's data regulations emphasize national security and are distinguishable from its US and EU counterparts.²² Building on this finding, this chapter

¹¹ SEZ is 'a policy tool to promote industrialization and economic transformation', Douglas Z Zheng, 'The Past, Present, and Future of Special Economic Zones and Their Impact' (2021) 24 *Journal of International Economic Law* 259, 259–265. See also Julien Chaisse & Xueliang Ji (2020). *The Pervasive Problem of Special Economic Zones for International Economic Law: Tax, Investment, and Trade Issues*. *World Trade Review*, 19(4), 567–588. doi:10.1017/S1474745620000129. This chapter uses 'SEZ' generally to refer to various SEZs in China including free trade zones, e-commerce zones, and pilot cities.

¹² Jie Huang, 'Challenges and Solutions for the China-US BIT Negotiations: Insights from the Recent Development of FTZs in China' (2015) 18 *Journal of International Economic Law* 307, 310–313.

¹³ Shenglan Li and Miaomiao Wang, 'The Achievements of and the Prospects for the Development of the Special Economic Zones in Guangdong During the 40 Years of Reform and Opening-Up' in Yiming Yuan (ed), *Studies on China's Special Economic Zones 4* (Springer 2021) 30–32.

¹⁴ Jie (Jeanne) Huang, 'The Latest Generation of SEZs: Consumer-Oriented Unilateralism in China's E-Commerce Trade' (2021) 24 *Journal of International Economic Law* 299, 303–305.

¹⁵ E.g. People's Republic of China, 'Central Committee of the Communist Party of China and the State Council issue of its overall plan for the construction of Hainan Free Trade Port', <http://www.gov.cn/zhengce/2020-06/01/content_5516608.htm> accessed 1 December 2021.

¹⁶ E.g. Reply on the Approval of 46 Cities and Regions to Establish Cross-Border E-commerce Comprehensive Pilot Zones, Guo Han [2020] 47 Hao, issued on 27 April 2020 by the State Council and effective on the same date.

¹⁷ The Overall Plan for Comprehensively Deepening the Pilot Program for the Innovation and Development of Trade in Services, issued by China Ministry of Commerce on 12 August 2020, Shang Fu Mao Fa [2020] 165 Hao, <<http://www.mofcom.gov.cn/article/b/xxfb/202008/20200802992306.shtml>> accessed 1 December 2021.

¹⁸ *Ibid.* 3.

¹⁹ *Ibid.* 5.

²⁰ Xi Jinping, Speech at the 2021 China International Trade in Services Global Service Trade Summit, <<http://www.scio.gov.cn/tt/xjp/Document/1711755/1711755.htm>>.

²¹ *Ibid.*

²² In contrast, the US emphasizes the free flow of data and the EU highlights the protection of personal information. See e.g. Henry S Gao, 'Data Regulation with Chinese Characteristics' in Mira Burri (ed), *Big Data and Global Trade Law* (Cambridge University Press 2021) 245–267.

steps further by analysing how China used its SEZs to experiment with liberalizing digital trade without infringing national security. The chapter scrutinizes China's experiments in the context of its applications to join CPTPP and DEPA. Based on case studies, this chapter focuses on three cutting-edge developments in China's SEZs: the Beijing blockchain-based Single Window deposit box; newly established big data exchanges in Beijing, Tianjin and Shanghai SEZs; and pilot projects in financial, medical care and automobile industries to flow data across the border in the Shanghai SEZ. The three cases studied are meaningful for reasons that the blockchain-based Single Window and beyond symbolizes a profound rethinking of paperless trade from digitalizing document submission to automating trade; establishment of big data exchanges have important implications on the right of a data company and open government data; and cross border flow of data is fundamental to develop digital trade.

This chapter proceeds as follows. Section Two focuses on blockchain and paperless trade. It analyses the relevant domestic legal reform, the need for international interoperability, and the automatization of the supply chain. Section Three discusses newly established big data exchanges in China and explores the tension between the property right of data companies and the personality right of data subjects. Section Four scrutinizes the initiatives to flow data across the border in the financial, medical care and automobile industries in the Shanghai SEZ. Section Five concludes the chapter.

2. Blockchain, Customs Single Window and Beyond

The international supply chain is characterized by flows of goods, related data and associated funds.²³ Traders²⁴ need to submit to governments and other institutions in import and export countries large volumes and a wide variety of trade-related documents (for example . contracts, orders, invoices, consignment notes, customs declarations, packing lists, bill of lading, certificate of origin, export tax rebate form, tax payment form, sanitary and phytosanitary

²³ Economic Commission for Europe, Executive Committee, Centre for Trade Facilitation and Electronic Business, 25th Session, White Paper on the Technical Applications of Blockchain to United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Deliverables (hereinafter 'UN 2019 White Paper'), Geneva, 8-9 April 2019, ECE/TRADE/C/CEFACT/2019/8, page 2, https://unece.org/DAM/cefact/cf_plenary/2019_plenary/ECE_TRADE_C_CEFACT_2019_08E.pdf accessed 1 December 2021.

²⁴ In this chapter, 'traders' refer to entities and individuals, such as exporters and importers, freight forwarders, shipping agents, customs brokers, transporters, carriers, and other parties directly involved in the movement of goods.

certificates, or cross-border e-commerce specific documents).²⁵ These documents and data have to be submitted through several authorities with different manual or automated systems.²⁶ The repeated submissions are time and money-consuming. In this context, the Single Window is designed as a trade facilitation mechanism that enables traders to ‘electronically lodge data and documents with a single entry point to fulfill all import, export and transit regulatory requirements.’²⁷ It serves to reduce non-tariff trade barriers by enhancing efficiency, transparency, information-sharing and convenience to all parties involved in international trade.²⁸ When it was recommended by United Nations Centre for Trade Facilitation and Electronic Business in 2005, it does not necessarily imply the use of advanced information and communication technology.²⁹ However, submissions in a physical format often face problems such as requiring storage spaces, being brittle (and thus easily lost and damaged) and hard to archive and access in the long term. Therefore, Electronic Data Interface (Hereinafter ‘EDI’) hubs were adopted to enhance the functions of the Single Window. The EDI Single Window is managed centrally by a lead agency for example customs), enabling other governmental authorities and institutions to receive or have access to the information submitted by the traders.³⁰ Nevertheless, in its essence, the EDI Single Window views paperless trade as document-centric but shifting from paper submissions to digital submissions. This also reflects on FTAs where paperless trade provisions focus on trade document submission. For example, CPTPP, RCEP and the China-South Korea FTA have provisions for paperless trade, but they are all about document submissions.³¹ In comparison, the China-Australia FTA puts forward more stringent requirements: member states shall recognize that the digitally submitted documents have the equivalent legal effect as the paper version except where (1) there are opposite domestic or international legal requirements or (2) providing electronic documents

²⁵ Emmanuelle Ganne, Can Blockchain Revolutionize International Trade, WTO 2018, page 1 (indicating ‘trade transactions still remain heavily dependent on paper’.)

<https://www.wto.org/english/res_e/publications_e/blockchainrev18_e.htm> accessed 1 December 2021.

²⁶ Economic Commission for Europe and United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Recommendation and Guidelines on Establishing a Single Window: Recommendation No. 33 (hereinafter ‘UN 2005 Single Window Recommendation’), page 3, ECE/TRADE/352, published in July 2005, <https://unece.org/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf> accessed 1 December 2021.

²⁷ Art. 2.1, DEPA.

²⁸ n. 26, at 3,11..

²⁹ Ibid. at3.

³⁰ Ibid.

³¹ Art. 12.5 of the RCEP. Art. 14.9, of the CPTPP. Art. 13.6 of the China-South Korea FTA.

will reduce the effectiveness of the trade administration process.³² DEPA contains the same clause,³³ but it steps further by requiring member states to provide a Single Window.³⁴

The emergence of new data technology such as blockchains and smart contracts has called upon a rethinking of paperless trade by focusing on automation.³⁵ A typical hypothetical example is provided by United Nations in 2019 describing how blockchains can facilitate an Australian exporter to sell wines to a Chinese importer: the authenticity of parties and goods are verified by QR code and blockchain; sales, trade financing and shipping are triggered by smart contracts; and payment is made by bitcoin.³⁶ China's SEZs have actively experimented with how to use blockchains to facilitate trade and government management.³⁷ A typical example is, in 2021, the Chinese Ministry of Commerce publishes 10 Best Practice Cases of the Beijing SEZ and encourages other Chinese SEZs to follow.³⁸ One interesting case is how the Beijing SEZ uses blockchain to establish a 'Single Window' data deposit box to enhance paperless trade.³⁹ The basic function of the blockchain deposit box is to enable traders to electronically submit trade documents to customs, which can further share them with other government authorities via the deposit box.⁴⁰ Besides customs clearance, the deposit box has other functions. First, relying on big data analysis, the deposit box can integrate and verify trade, logistics and customs clearance data and help traders to obtain the customs AEO (certified operator) certifications.⁴¹ AEO requires traders to meet the information management requirements of government departments including customs, taxation and foreign exchange. The deposit box can automatically collect, organize and intelligently archive the documents as

³² Art. 12.9.1 of the China-Australia FTA.

³³ Art. 2.2.3 of the DEPA is the same as the Art. 12.9.1 of the China-Australia FTA.

³⁴ Art. 2.2.4 of the DEPA.

³⁵ E.g. Blockchain Technology for Paperless Trade Facilitation in the Maldives, Asian Development Bank, December 2020 (using trade ecosystem in the Maldives to demonstrate the significance and relevance of blockchain technology in international trade), <<https://www.adb.org/publications/blockchain-technology-paperless-trade-facilitation-maldives>> accessed 1 December 2021.

³⁶ n. 23,15-16.

³⁷ E.g. for Hainan SEZ, see Hainan Ecosystem Software Park is Actively Building a Blockchain Pilot Zone, <<http://tradeinservices.mofcom.gov.cn/article/gjszck/xwfb/202011/111588.html>>; for Zhejiang SEZ, see China Zhejiang Free Trade Zone Binjiang Blockchain, <https://www.hangzhou.gov.cn/art/2021/9/13/art_812262_59041697.html>; for Guangdong SEZ, see Building Blockchain Taxation Service Cloud Platform, <http://qhsk.china-gdftz.gov.cn/zwgk/cxyz/content/post_7911227.html> accessed 1 December 2021.

³⁸ Letter of the Ministry of Commerce on Distributing 10 Best Practice Cases from Beijing to Nationwide for the Construction of Comprehensive Model Zones and the Expansion of the Service Industry (hereinafter 'Beijing Best Practice Cases'), Shang Zi Han (2021) No. 469, <<http://www.mofcom.gov.cn/article/zcfb/zcwgzt/202109/20210903194705.shtml>>.

³⁹ Ibid. 35.

⁴⁰ Ibid.

⁴¹ Ibid. 38. AEO refers to Authorised Economic Operator Programs, defined in World Customs Organisation's Framework of Standards to Secure and Facilitate Trade, <<https://tfip.unece.org/contents/authorized-economic-operators.htm>> accessed 1 December 2021.

per the AEO certification requirements. Second, the deposit box is connected with the internal systems of banks.⁴² Traders can share their trade documents with banks to organize financing and payment.⁴³ Banks can rely on the blockchain to verify the trader's transaction information, control financing risks and award credits.⁴⁴ Third, based on blockchain encryption and secure sharing technology, the deposit box can generate a credit report for traders which can be sent to their new customers to build trust.⁴⁵ Fourth, the deposit box interoperates through its Application Programming Interface (hereinafter 'API') with business platforms such as Enterprise Resources Planning, Freight Management System, Foreign Trade Risk Control System etc.⁴⁶ This helps to automatize supply chain management.⁴⁷ While blockchain brings interesting opportunities to enhance the efficiency of trade, carefully weighing its legal implications is essential.

A blockchain is a type of Distributed Ledger Technology (DLT) that makes it safer for separate parties to work together.⁴⁸ It creates trust in a transaction because the ledger cannot be easily falsified due to a combination of factors including cryptography, its consensus/validation mechanism, and decentralized and distributed nature.⁴⁹ To fully develop the potentials of blockchain-based Single Window in China, legal reforms are required in at least three aspects.

2.1. Domestic legal reform

An important appealing feature of blockchains is tamper-resistant.⁵⁰ If the trade data embodied in one blockchain fails or is somehow corrupted, the failure or corruption has little impact on the broader network.⁵¹ Although the tamper-resistance feature can help prevent fraud on the ledger, it cannot prevent erroneous or forged data or documents from being fed into the ledger. The data in the ledgers cannot be altered or deleted except by seeking the consensus of all

⁴² Beijing Best Practice Cases, *supra* note 38, page 36.

⁴³ *Ibid.*

⁴⁴ *Ibid.*

⁴⁵ *Ibid.* 37. Since the launch of the blockchain data deposit box in March 2021, in three months, nearly 100 companies in Beijing FTZ have been actively using the deposit box, and a total of nearly 200,000 business documents in 10 categories have been deposited and processed.

⁴⁶ *Ibid.*

⁴⁷ *Ibid.*

⁴⁸ Maria Grazia Vigliotti and Haydn Jones, 'Bitcoin and Blockchain: The Fundamentals', *The Executive Guide to Blockchain: Using Smart Contracts and Digital Currencies in your Business* (Springer, 2020) 41.

⁴⁹ 'Law versus Technology: Blockchain, GDPR, and Tough Tradeoffs' (2020) 38 *Computer Law & Security Review* 1, 2–3.

⁵⁰ Kevin Werbach, 'Trust, but Verify: Why the Blockchain Needs the Law' (2018) 33 *Berkeley Technology Law Journal* 487, 503.

⁵¹ Primavera De Filippi and Aaron Wright, 'Characteristics of Blockchains', *Blockchain and the Law* (Harvard University Press 2018) 36.

members in the blockchain.⁵² It brings legal uncertainty in case that a member in the blockchain refuses to accept changes. In the case of human input error, Article 14 of the UN Convention on the Use of Electronic Communication in International Contracts (hereinafter ‘Electronic Communication Convention’) provides that:⁵³

Where a natural person makes an input error in an electronic communication exchanged with the automated message system of another party and the automated message system does not provide the person with an opportunity to correct the error, that person, or the party on whose behalf that person was acting, has the right to withdraw the portion of the electronic communication in which the input error was made if

- (a) The person, or the party on whose behalf that person was acting, notifies the other party of the error as soon as possible after having learned of the error and indicates that he or she made an error in the electronic communication; and
- (b) The person, or the party on whose behalf that person was acting, has not used or received any material benefit or value from the goods or services, if any, received from the other party.

When the Electronic Communication Convention was made in 2005, its drafters probably did not have blockchains in mind because blockchain was invented in late 2008 by Satoshi Nakamoto.⁵⁴ However, the concept of ‘automated message system’ covers blockchains.⁵⁵ Article 14 of the Convention is designed to remedy a specific situation where the system does not provide the person who inputs the data with the possibility to correct the error.⁵⁶ This mimics the tamper-resistant feature of blockchains: in a large public blockchain, seeking consensus to revise or delete data is hard to achieve. Therefore, the right to withdraw the

⁵² Yanling Chang, Eleftherios Iakovou and Weidong Shi, ‘Blockchain in Global Supply Chains and Cross Border Trade: A Critical Synthesis of the State-of-the-Art, Challenges, and Opportunities (2020) 58 International Journal of Production Research 2082, 2082.

⁵³ Art. 14 of the UN Convention on the Use of Electronic Communication in International Contracts, adopted on 23 November 2005 and effective on 1 March 2013, <https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications> accessed 1 December 2021.

⁵⁴ Primavera De Filippi and Aaron Wright, ‘The Technology’, *Blockchain and the Law* (Harvard University Press 2018) 20.

⁵⁵ Art. 4 of the Electronic Communication Convention (defining “automated message system” as ‘a computer program or an electronic or other automated means used to initiate an action or respond to data messages or performances in whole or in part, without review or intervention by a natural person each time an action is initiated or a response is generated by the system.’)

⁵⁶ Page 73 of the Explanatory note by the UNCITRAL Secretariat on the Electronic Communication Convention.

portion of the erroneously input electronic communication provided by this provision is significant when blockchains are used for the formation or performance of a contract between parties whose places of business are in different states.⁵⁷ Article 14 only addresses human input errors rather than other errors (e.g. machine-made errors).⁵⁸ It gives the right to withdraw the erroneous information to the party on whose behalf the information was input rather than the specific natural person who input the information to the automated message system. However, the Convention does not resolve all the issues relating to the right to withdraw. Instead, it leaves to domestic laws to decide the procedure for deleting or correcting errors or the relevant liabilities to the parties. China has signed the Convention but has not ratified it.⁵⁹ Both CPTPP and DEPA require member states to maintain a legal framework complying with the Convention.⁶⁰ China should consider ratifying the Convention soon.

In the Beijing SEZ, the Chinese traders who use the blockchain deposit box need to obtain a unique digital identity.⁶¹ However, the identification system is neither nation-wide in China nor available for foreign traders, trade-related government agencies and institutions. Consequently, all the documents from the sides of non-authenticated traders or agencies and institutions still heavily rely on paper documents, manual signatures and certifications to prove their authenticity and integrity. To prevent fraudulent data from loading to the blockchains, China needs to establish a more inclusive system to certify the digital identity of foreign traders and authenticate their digital seals or e-signatures.

2.2. Enhance international interoperability

Blockchains are widely known for their decentralized and peer-to-peer functions, while EDIs need to rely on a centralized authority.⁶² Paradoxically, blockchains-based Single Windows are often centralized.⁶³ Two types of blockchain implementations exist: permissionless and permissioned. Permissionless blockchains are well-known and they are public, open, decentralized and pseudonymous. Typical examples are Bitcoin and Ethereum. However,

⁵⁷ Arts 1 and 2 of the Electronic Communication Convention.

⁵⁸ Page 74 of the Explanatory note by the UNCITRAL Secretariat on the Electronic Communication Convention.

⁵⁹ China signed the Electronic Communication Convention in 2006, see Convention Status <https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status> accessed 1 November 2021.

⁶⁰ Art. 2.3 of the DEPA.

⁶¹ Beijing Best Practice Cases, n. 38, at 36.

⁶² 'Blockchain and the Law: A Critical Evaluation (2019) 2 Stanford Journal of Blockchain Law & Policy 1, 1.

⁶³ See Emmanuelle Ganne, Can Blockchain Revolutionize International Trade, World Trade Organization 2018, page 11.

permissionless blockchains cause concerns when deployed in heavily regulated areas such as customs clearance, banking and finance, which require customs and financial institutions to be able to track and verify parties and transactions. 'Permissioned' blockchains have since emerged, 'in which a single party or a consortium hosts the platform, sets the rules and explicitly grants permissions for other parties to act as nodes and/or perform transactions (transactions which may, depending upon a private ledger's rules, be open in whole or part to the public for execution or reading).'⁶⁴ The deposit box in Beijing SEZs relies on a permissioned blockchain centralized by the Chinese customs, which brings an immediate question: how to make it inclusive so that foreign traders, governments and financial institutions can participate. In the current format, permissions from the Chinese government are required before using the deposit box. Foreign traders may be willing to apply for such permissions. However, foreign governments and financial institutions may have a concern about their regulatory sovereignty or data security so that they may be hesitant to participate. Moreover, although many trade-related documents are common to all countries, each country often has its unique requirements and conditions.⁶⁵ The interoperability may involve the development of international standards and recommendations to create harmonization and alignment of the documents and relevant data exchange in supply chain management in different countries. Alternatively, it may require the use of API to enable data sharing among blockchains separately operated in different countries.⁶⁶

Compared with CPTPP, DEPA is better positioned to support the development of an inter-government blockchain-based Single Window. CPTPP, RCEP, China-Australia FTA and China-South Korea FTA have similar provisions on electronic authentication and electronic signatures which prohibit parties to deny the legal validity of a signature solely based on its electronic form.⁶⁷ DEPA steps further and it requires its member states to endeavor to interconnect their respective single windows in a 'seamless, trusted, high-availability and secured' way to facilitate the exchange of data relating to trade administration documents.⁶⁸ It also set out provisions for interoperable electronic invoicing,⁶⁹ cross-border authentication and electronic know-your-customer of individuals and businesses using digital identities.⁷⁰

⁶⁴ UN 2019 White Paper, n. 23, at 8-9. See also Ganne, *supra* note 63, at 10-11.

⁶⁵ UN 2005 Single Window Recommendation, n. 26, at 7.

⁶⁶ UN 2019 White Paper, n. 23, at 8-9.

⁶⁷ Art. 12.6.3 of RCEP, art. 14.6 of CPTPP, art. 12.6 of China-Australia FTA, and art. 13.4 of China-South Korea FTA.

⁶⁸ Art. 2.2.5 of the DEPA. The documents may include sanitary and phytosanitary certificates, import and export data, or any other documents jointly determined by the Parties.

⁶⁹ *Ibid*, art. 2.5.

⁷⁰ *Ibid*, art. 2.7.

Moreover, China should develop its blockchain-based Single Window according to internationally recognized technical protocols.⁷¹ It may also consider concluding MOUs on building an inter-governmental blockchain for the secured sharing of data and trade documents, verifying the authenticity of trade documents, reducing human error, fraud and the cost of managing the identity of entities.⁷²

2.3. Beyond Single Window

The Blockchain-based Single Window may be interconnected with platforms (located or on the cloud), the Internet of Things (IoT), smart contracts etc. to enable traders, governments and financial institutions to significantly automate supply chains. For example, the Bureau International des Containers maintains a register of all sea containers, their characteristics and ownership.⁷³ If sensors are installed in containers, ships, ports and railway infrastructure, the movements of the containers may be tracked and the relevant information may be sent to blockchains for customs declaration. The data of the dispatch, arrival, value etc. of the containers may trigger actions based on programmed smart contracts where importers can make a payment or apply for trade financing at their banks. The banks can review the trade documents and the status of cargos via blockchains and IoT. APIs are the keys to connecting different technologies and sharing data between them. The foundation for interoperability between technologies and in different jurisdictions requires international recognition of electronic transferable records in courts of law. The Beijing blockchain deposit box has demonstrated the potentials to use APIs to connect different platforms such as those of banks and freight companies. To extend its application overseas, China should consider adopting the UNCITRAL Model Law on Electronic Transferable Records (hereinafter ‘MLETR’). All UNCITRAL texts on electronic commerce build on the principles of non-discrimination against the use of electronic means, functional equivalence and technology neutrality.⁷⁴ However, the MLETR extends the focus of the three principles from non-discrimination

⁷¹ E.g. ISO/TR 23455:2019, Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems; IEEE P2418.1 Standard for the Framework of Blockchain Use in IoT; WCO Customs Data Model, etc.

⁷² An example is Australia and Singapore MOU on Trade Facilitation, concluded in March 2020, <<https://www.dfat.gov.au/sites/default/files/australia-singapore-mou-on-trade-facilitation.pdf>> accessed 2 December 2021.

⁷³ Containers BIC-Code Register, <<https://www.bic-code.org/about-us/mission-vision/>> accessed 2 December 2021.

⁷⁴ UNCITRAL Model Law on Electronic Transferable Records (2017), <https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_transferable_records> accessed 1 December 2021.

between non-electronic and electronic means to non-discrimination between different electronic means.⁷⁵ This lays down the foundation to enhance interoperability between different technologies such as blockchains, IoTs, smart contracts etc.⁷⁶ Existing Chinese law can generally meet MLETR's requirements for legal recognition of an electronic transferable record⁷⁷ and the broad coverage of 'writing'.⁷⁸ The fast development of encryption in China may help to establish exclusive control of the electronic transferable record by a person and to identify that person as the person in control.⁷⁹ However, the existing Chinese law does not comply with the non-discrimination of foreign electronic transferable records as required by MLETR. In civil litigations in China, an electronic transferable record issued abroad, if not authenticated by the local Chinese embassy, will be denied legal effect, validity, or enforceability on the sole ground of its foreign origin.⁸⁰ The U.S. has challenged this practice in the US-China Trade Deal.⁸¹ DEPA also encourages its member states to adopt the MLETR. China should ratify the MLETR and not reject electronic transferable records on the sole basis that it was issued or used abroad.

3. Big Data Exchanges

In April 2020, the Central Committee of the Communist Party of China and the State Council issued the 'Opinions on Building a More Complete Factor Market Allocation System and Mechanism' which listed data, land, capital and labor as key production factors and proposed to accelerate the data trading market.⁸² To facilitate trade in data, the Beijing International Big Data Exchange was established in Beijing SEZs in 2020. The Shanghai Big Data Exchange and the Northern China Big Data Exchange were opened in Shanghai SEZ and Tianjin SEZ

⁷⁵ Henry Gabriel, 'The UNCITRAL Model Law on Electronic Transferable Records' (2019) 24 *Uniform Law Review* 261, 277–278.

⁷⁶ Niels-Philip Abdellatif, 'An Ethereum Bill of Lading under the UNCITRAL MLETR' (2020) 27 *Maastricht Journal of European and Comparative Law* 250, 250–274.

⁷⁷ Art. 7.1 of MLETR provides that '[a]n electronic transferable record shall not be denied legal effect, validity or enforceability on the sole ground that it is in electronic form.'

⁷⁸ *Ibid*, art. 8 of MLETR (providing that 'writing' shall include 'an electronic transferable record if the information contained therein is accessible to be usable for subsequent reference.')

⁷⁹ *Ibid*, art. 11.

⁸⁰ E.g. art. 264 of Chinese Civil Procedure Law, promulgated on 9 April 1991, most recently amended on 27 June 2017 and effective on 1 July 2017, Order No. 71 of the President of China.

⁸¹ Art. 1.30.1 of the Economic and Trade Agreement between the US and China (providing that in civil litigations, the Parties shall not require formalities to authenticate evidence obtained abroad).

⁸² 'Opinions on Building a More Complete Factor Market Allocation System and Mechanism', the Central Committee of the Communist Party of China and the State Council, 30 March 2021, <http://www.gov.cn/zhengce/2020-04/09/content_5500622.htm> accessed 1 December 2021.

respectively in 2021.⁸³ Besides improving data quality and taking security measures, the exchanges have adopted various ways to delaminate the rights of data subjects, data companies (that is, data sellers) and users (that is, data buyers). For example, according to the Beijing International Big Data Exchange, it combines technologies such as federated learning and encrypted computing to separate data ownership and user's rights and makes data invisible but usable to protect the privacy of data subjects.⁸⁴ The Northern China Big Data Exchange advertises that it aims to promote the integration and application of big data and telecommunications, finance, health care, manufacturing and other fields and provide more possibilities to exploit the value of data.⁸⁵ For example, data is often sold with algorithms, computing power and integrated service applications. For example, the meteorology data is integrated with algorithms and cloud computing to provide long-term and precise weather forecasts for an infrastructure construction project. The Shanghai Data Exchange also provides its first successful case where the Industrial and Commercial Bank of China (hereinafter 'ICBC') bought the 'Enterprise Electricity Smart Mapping' data product from Shanghai Electric Power Co., Ltd.⁸⁶ The data sold is the energy consumption data collected by Shanghai Electric Power which aims to help the ICBC tailor-make its financial products and services for enterprises in Shanghai. Selling the energy consumption data becomes a value-added business for Shanghai Electric Power.

3.1. The right to big data

After a data company legally collects personal data from millions of data subjects, what rights does the company have concerning the big data? For example, Dazhong Dianping Co Ltd. operated a popular website where users can share reviews of entertainment service providers such as restaurants, hotels, cinemas etc. Dazhong Dianping processed users' comments and ranked service providers accordingly. Aibang Ltd operated a competing website in China. It

⁸³ Northern Big Data Trading Center will be built in Tianjin, <http://www.tj.gov.cn/sy/tjxw/202111/t20211128_5735045.html> accessed 1 December 2021.

⁸⁴ According to the Beijing Big Data Exchange, a prerequisite for the development of the trade in data is the protection of privacy and personal information of data subjects. Technology methods such as desensitization and non-personalization processing are adopted to protect privacy and personal information. Alternatively, algorithm is applied to make data 'invisible but can be used' which means that the data users (i.e. buyers) cannot access the data. Instead, the data user submits problems to the data seller, who applies its big data to obtain a solution, and ultimately, the data seller sells the solution to the data user. The Establishment of Beijing Big Data Exchange, <http://jrj.beijing.gov.cn/jrgzdt/202104/t20210401_2342064.html> accessed 1 December 2021.

⁸⁵ Northern Big Data Trading Center will be built in Tianjin, <http://www.tj.gov.cn/sy/tjxw/202111/t20211128_5735045.html> accessed 1 December 2021.

⁸⁶ State Grid Won the 'First Order' from Shanghai Data Exchange, <<http://www.sh.chinanews.com.cn/swzx/2021-11-25/93649.shtml>> accessed 1 December 2021.

copied comments from the Dazhong Dianping website and displayed them on its website. Dazhong Dianping brought claims against Aibang.⁸⁷ In the beginning, Dazhong Dianping claimed Aibang violated the copyright of its users' comments.⁸⁸ Aibang argued that Dazhong Dianping was not the copyright holder such that Dazhong Dianping had no standing to bring the lawsuit. Aibang also alleged that many users' comments were not original so should not be considered as copyrighted works. The court agreed with Aibang.⁸⁹ Ultimately, Dazhong Dianping had to change its claim to one based on unfair competition.⁹⁰ The court held that Dazhong Dianping had invested human resources, money, materials and time in the collection and compilation of its users' comments; therefore, its legitimate interests in the big data aspect of users' comments should be protected by Chinese Competition Law.⁹¹ China's E-commerce Law, Personal Data Protection Law and Data Security Law do not clarify what rights a big data company should have concerning its collected data. Consequently, data companies have to rely on the Chinese Competition Law to protect their big data from the free-riding activities of their competitors.

To resolve this issue, the Shenzhen SEZ Data Regulation and the Shanghai Data Regulation both provide that natural persons, legal persons and unincorporated organizations possess property rights and interests in their data products and services derived from their legal data processing activities and that such rights and interests should be protected.⁹² They also similarly provide that natural persons (that is, data subjects) possess personality rights and interests in their personal data.⁹³ Namely, to protect data companies who maintained the big data they collected, the data subjects' personality rights are limited to the rights of informed

⁸⁷ Shanghai Hantao Information Consulting Co., Ltd. and Aibang Juxin (Beijing) Technology Co., Ltd. Aibang Juxin Branch Technology Co., Ltd. Infringement of Copyright Dispute, (2008) Hai Min Chu Zi No. 16204.

⁸⁸ Ibid.

⁸⁹ Ibid, the court examined the Dazhong Dianping user's agreement and held that not all users had granted copyrights to Dazhong Dianping. The court also held that among thousands of users' comments, some should be considered as copyrighted work but some also should not. The Court required Dazhong Dianping to provide evidence to prove that each user's comment constituted copyrighted work, which would take significant time considering the number of comments that Dazhong Dianping had. Copyright infringement of Shanghai Hantao Information Consulting Co., Ltd. and Aibang Juxin (Beijing) Technology Co., Ltd. Dispute case, (2010) Hai Min Chu Zi No. 4253.

⁹⁰ Unfair competition between Shanghai Hantao Information Consulting Co., Ltd. and Aibang Juxin (Beijing) Technology Co., Ltd. Dispute case, (2011) Yizhong Minzhongzi No. 7512.

⁹¹ Ibid.

⁹² Art. 4 of the Shenzhen Special Economic Zone Data Regulation, promulgated on 29 June 2021 by the 2nd Meeting of the No. 7 People's Congress Standing Committee in Shenzhen and effective on 1 January 2022, <http://www.sznews.com/zhuanti/content/2021-07/07/content_24368291.htm> accessed 20 December 2021.

Art. 12 of the Shanghai Data Regulation, promulgated on 25 November 2021 by the 37th Meeting of the No. 15 People's Congress Standing Committee in Shanghai and effective on 1 January 2022, <<https://www.shanghai.gov.cn/nw12344/20211129/a1a38c3dfe8b4f8f8fcb5e79f9e9251.html>> accessed 20 December 2021.

⁹³ Art. 3 of the Shenzhen Special Economic Zone Data Regulation and art. 12 of the Shanghai Data Regulation.

consent, correction, deletion, copying and review of their personal data etc. The data subject does not possess property rights and interests in their data. The data companies' property rights allow them to independently use, benefit and dispose of big data derived from the processing of personal data. However, scrutiny of the Shenzhen SEZ Data Regulation and the Shanghai Data Regulation reveals several issues.

First, it is questionable to separate a data subjects' personality right from the property right to his or her data.

Personality rights are based on and serve to realize human dignity.⁹⁴ They are disposable. However, the disposal of personality rights is different from the disposal of property rights. For example, a right holder can freely commercialize his or her property. In contrast, some personality rights are closely related to a person and the person's dignity (for example, the personality right to his or her life, health and body), the law forbids or restricts the disposal (for example, commercialization) of these personality rights.⁹⁵ For example, mercy killing is considered illegal in China.⁹⁶ This is because allowing a right holder to commercialize his or her life, health and body is considered as violating public order. Nevertheless, a right holder can commercialize some of his or her personality rights such as the personality rights to a person's name or portraits. If personal data is like a person's life, health and body, its commercialization would be prohibited or restricted. However, if it is like a human's name or portrait, the right holder would have more liberty to dispose it of.

The paradox of Chinese law is that it distinguishes personal data from privacy, and then, regarding personal data, it deprives data subjects of any property rights and interests in their data and gives those rights and interests to data companies or the government which maintains big data.⁹⁷

The distinction between personal data and privacy originates from the China Civil Code. The Code considers privacy as a personality right and defines it as the tranquility of the private

⁹⁴ Liming Wang, 'Personal Dignity: The Primary Value of Personal Rights in the Civil Code' (2021) 35 *Dangdai Faxue* [Contemporary Law] 3, 3–14.

⁹⁵ Xigen Wang, 'On the Human Rights Spirit of the Civil Code: Focusing on the Compilation of the Personality Rights Chapter of Civil Code' [2021] *Faxue Jia* [Jurist] 1, 4–6.

⁹⁶ E.g. Michelle Wong, 'Is It Killing for Kindness or Convenience? China Debates Euthanasia' (*South China Morning Post*, 16 January 2019) <<https://www.scmp.com/news/china/society/article/2182407/it-killing-kindness-or-convenience-china-debates-euthanasia>> accessed 20 December 2021.

⁹⁷ Some scholars consider a data subject has both personality and property interest in his or her personal data, e.g. Liming Wang, 'Harmony but not the Same: the Demarcation and Application of Privacy and Personal Information Rules' (2021) 39 *Faxue Pinglun* [Jurisprudence Review] 15, 17. However, it is unclear how to reconcile a data subject's property interest in his or her personal data and a data company's property right in the big data which is compiled by personal data.

life of a natural person and the private space, private activities and private information that the individual is unwilling to let others know.⁹⁸ Dating is a private activity. However, with the agreement of a celebrity, a media company may publish her dating information. A person may allow the artistic photographing of her private body part so long as such photograph is not used as pornography. Therefore, a person enjoys both personality rights and property rights to his or her privacy.

The Code provides that the personal information of natural persons is protected by law.⁹⁹ Personal information is various information recorded electronically or in other forms that can identify a specific natural person separately or in combination with other information, including a natural person's name, date of birth, identity card number, biological recognition information, address, telephone number, e-mail address, health information and location information, among others.¹⁰⁰ A person's dating information may contain the individual's location information; the private part of a person's body may fall into the category of biological recognition information. Therefore, personal information may overlap with privacy information. The Code provides that if a piece of information is both privacy and personal information, the information shall be governed by the provisions on privacy; where there are no provisions, the provisions on the protection of personal information shall apply.¹⁰¹ In other words, when the provisions on the right to privacy and the provision on personal information protection conflict, the former shall prevail. Therefore, it seems questionable that a person can profit on his or her privacy but has no property right and interest in his or her personal information; instead, the entity which handles this person's data has the property right and interest in the data.

Recognizing that big data companies and governments have property rights and interest in the personal data collected by them can promote the development of these companies and enhance the management resources of the government. However, trade in data is often across the border. Therefore, China should consider cooperating with its trading partners to recognize its regulatory outcome. Among China's FTAs, RCEP requires contracting parties to cooperate

⁹⁸ *ibid.*, art. 1032.

⁹⁹ *ibid.*, art. 1034.

¹⁰⁰ *ibid.*, art. 1034. Art. 3.1 of the 2020 version of the Information Security Technology Personal Information Security Code defines personal information as a variety of information recorded electronically or in other ways that can identify the identity of a specific natural person alone or in combination with other information or reflect the activities of a specific natural person, see Information security technology personal information security specifications, issued by the State Administration for Market Regulation and the Standardization Administration of China on March 6, 2020, and effective on October 1, 2020, GB/T35273-2020. This is consistent with Article 4 of the Personal Data Protection Law of China.

¹⁰¹ Art. 1034 of the Chinese Civil Code.

to the extent possible to protect personal information transferred from a contracting party.¹⁰² CPTPP has similar regulations, but differing from the broad requirements of RCEP, CPTPP encourages contracting states to recognize each other's domestic regulatory outcomes and promote the compatibility of personal information protection systems in the domestic laws of each country through information exchange and other methods.¹⁰³ Compared with RCEP, the provisions of CPTPP are more advanced because the important result of the cooperation between the contracting states in the protection of personal information is mutual recognition of each other's domestic regulatory results and the realization of the integration of the protection system. However, apart from strengthening information exchange, the CPTPP offers mechanisms to achieve compatibility and interoperability between member states.¹⁰⁴ DEPA steps further and encourages businesses to adopt data protection trustmarks or certifications which would help verify conformance to personal data protection and best practices.¹⁰⁵ It waits to be seen how China can convince other states in its CPTPP and DEPA negotiations to recognize China's pro-data-companies-and-government regulatory outcomes.

3.2. Protecting personal data

Among FTAs concluded by China, the RCEP standard is the highest in terms of the regulations on the protection of personal information. Both RCEP and CPTPP require that contracting parties should publish relevant information on the protection of personal information they provided to e-commerce users, including how individuals seek relief and how companies comply with any legal requirements.¹⁰⁶ RCEP also requires that contracting parties should encourage legal persons to publish their policies and procedures related to the protection of personal information through the internet and other means. This regulation is not included in the CPTPP and neither in the China-Korea FTA and China-Australia FTA. Nevertheless, under the CPTPP and RCEP, the provisions for the protection of personal information are 'best effort' or 'should' clauses rather than 'shall' clauses which embody binding obligations.¹⁰⁷ Compared to the CPTPP and RCEP, the DEPA imposes higher binding requirements. For example, it provides eight general principles for the protection of personal information.¹⁰⁸ None of these

¹⁰² Art. 12.8 of the RCEP.

¹⁰³ Art. 14.8 of the CPTPP.

¹⁰⁴ The mechanisms include 'the recognition of regulatory outcomes, whether accorded autonomously or by mutual arrangement' and 'broader international frameworks', see Art. 14.8.5 of the CPTPP and art. 4.2.6 of the DEPA.

¹⁰⁵ Art. 4.2.6-10 of the DEPA.

¹⁰⁶ Art. 14.8 of the CPTPP.

¹⁰⁷ Art. 14.8.3, 14.8.4, and 14.8.5 of the CPTPP.

¹⁰⁸ Art. 4.2.3 of the DEPA.

FTAs offers specific implementation details to personal information protection. This is mainly because personal information protection involves behind-the-border measures, and personal information protection and privacy protection are inextricably linked. The domestic laws of privacy protection in states vary, making them cautious in accepting binding commitments on this issue.

Under Chinese domestic law, data sellers in trade in personal data should obtain the consent of data subjects. Trade in data would be captured under the processing of data. This is because China's Personal Data Protection Law provides that processing includes the collection, storage, use, processing, transmission, provision, disclosure, deletion etc. of personal data. When data is sold from one party to the other, the data is transmitted between them. Trade in data may also involve other processing activities such as storage, use, provision and disclosure. Therefore, data sellers should inform data subjects in a truthful, accurate and complete way that their data is being collected for trade purposes.¹⁰⁹ Chinese Civil Code provides that unless otherwise stipulated by the law, processing a person's privacy information requires the clear consent [Míngquè tóngyì, 明确同意] of a data subject, while processing non-privacy personal information can be conducted based on the consent of a data subject or his or her guardian.¹¹⁰ 'Clear consent' may not necessarily equate to 'express consent [Míngshì tóngyì, 明示同意]'. 'Clear consent' may cover 'implied consent' when the intention of the data subject is clear albeit implied. The Civil Code does not make it clear whether 'clear consent' is limited to 'express consent' or whether it extends to 'implied consent'.

Moreover, when personal information is being sold by a handler, should the handler *inform* the relevant data subjects of the name and contact information of the recipient of their personal data,¹¹¹ or should the handler *obtain* separate consent from the individual?¹¹² Article 22 of the Personal Data Protection Law provides that 'inform' applies to cases where a personal data handler needs to transfer data due to a merger, division, dissolution, declaration of bankruptcy or other reasons. Trade in data differs from cases where data is transferred due to reasons under business association law such as merger and division. Therefore, Article 22

¹⁰⁹ Art. 17 of the Personal Data Protection Law.

¹¹⁰ *ibid.*, art. 1033 and art. 1035. Art. 13 of the China Personal Data Protection Law.

¹¹¹ Art. 22 of Personal Data Protection Law. The handler shall inform the relevant individuals of the name and contact information of the recipient of their personal data. The recipient shall continue to perform the obligations of the personal data handler. If the recipient changes the original processing purposes or methods, the recipient shall obtain the consent of the individuals again.

¹¹² Art. 23 of Personal Data Protection Law.

should not be applied. Article 23 of the Personal Data Protection Law states that ‘obtain separate consent’ is for cases where a personal data handler provides data to other personal data handler. However, the buyer in trade in data may not be a personal data handler. This is especially the case when the data handler (that is, seller) applies algorithms to make sure the data cannot be used to identify the data subjects.¹¹³ Consequently, the buyer should not be considered as a personal information handler, so Article 23 should not be applied. According to China Data Security Law, big data exchanges should require data companies that sell the data to explain the sources of data, verify the identity of both the seller and buyer, and retain the verification and transaction records.¹¹⁴ For the long-term development of trade in data, the big data exchanges in China should also review whether data sellers have desensitized or non-personalized data or whether the algorithm is secured enough to prevent data buyers from identifying data subjects.

4. Flow of data across the border

China lags behind several countries in terms of digital service export.¹¹⁵ In 2019, China’s digital service export was ranked eighth in the world, amounting to 143.55 billion USD.¹¹⁶ China was ranked after the US, UK, Ireland, Germany, the Netherlands, India and France. The US digital service export reached 534.18 billion USD,¹¹⁷ taking 16.7% of the global digital service export, while China only took 4.5% of the global share in 2019. Service export requires cross-border transfer of data (for example, consumer data and transaction data). SEZs in Beijing, Shanghai, Hainan and Xiong’an New District are tasked to comprehensively explore and improve the digital economy and experiment with cross-border data transfer securely.¹¹⁸ For example, in Shanghai SEZs, the Lingang New Area plans to carry out cross-border data flow pilot projects in the automobile industry, industrial Internet and medical care (except

¹¹³ E.g. see *supra* footnote 84.

¹¹⁴ Art. 33 of the Data Security Law.

¹¹⁵ The China Academy of Information and Communications Technology (CAICT), ‘Digital Trade Development White Book (2002)’ 22
<<http://www.caict.ac.cn/english/research/whitepapers/202012/P020201228566556820400.pdf>> accessed 1 December 2021.

¹¹⁶ China’s total volume of import and export in digital service is 271.81 billion USD in 2019, *Ibid*, 23-27.

¹¹⁷ The US total volume of import and export in digital service is 845.03 billion USD in 2019, *Ibid*.

¹¹⁸ *Supra* note 16, art. 76 of the appendix of the Plan, ‘Comprehensively Deepen the Pilot Projects, Specific Measures and Division of Responsibilities for the Innovation and Development of Trade in Services’.

human genetic resources) etc.¹¹⁹ It will also allow eligible foreign financial institutions to transfer relevant data (especially those involving internal management and risk control) from their Chinese subsidiaries to overseas parent companies to facilitate group management.¹²⁰ Importantly, these pilot projects aim to balance the tensions between China's comprehensive data localization requirement¹²¹ and the liberalized cross-border flow of data commitments under CPTPP and DEPA.

4.1. Localization requirement

In the finance industry, Chinese Securities Law restricts the transmission of 'documents and materials related to securities business activities overseas without clarifying the procedure to obtain permission at the state council securities supervision department or other relevant departments.'¹²² Moreover, the Securities and Fund Management Institutions Information Technology Management Measures prohibits 'securities and fund management institutions ... intercepting and retaining customer information, [or] in any way provide customer information to other institutions and individuals except that the China Securities Regulatory Commission or the law prescribes otherwise.'¹²³ Therefore, to carry out the pilot plan to allow the transfer of internal management and risk control data from Chinese subsidiaries to their parent companies in the financial industry, the Shanghai Government must seek clarification from the China Securities Regulatory Commission, the Cyberspace Administration of China, or other relevant ministries regarding how a business entity in the Lingang New Area can obtain permissions from the relevant government department and benefit from the pilot data cross-border flow policy. The internal management and risk control data should not contain customer information. Otherwise, the relevant entity should follow the rules on cross-border provision of personal data under the Personal Data Protection Law which fails to provide clear rules either.¹²⁴

¹¹⁹ Notice of the Shanghai Municipal People's Government on Issuing the "14th Five-Year Plan" for the Development of the Lingang New Area of China (Shanghai) Pilot Free Trade Zone, issued on 22 July 2021 by Shanghai Municipal Government, page 20
<<https://www.shanghai.gov.cn/nw12344/20210812/bd6b7c5e895d42ac8885362bd0ae6e0c.html>> accessed 1 December 2021.

¹²⁰ *ibid.*

¹²¹ E.g. *ibid.* (requiring that the de-localization of data storage in specific industries should not violate the protection of state secrets and personal privacy).

¹²² Art. 177 of the Securities Law, promulgated on 29 December 1998 and most recently amended on 28 December 2019.

¹²³ Art. 34 of the Securities and Fund Management Institutions Information Technology Management Measures, promulgated on 31 March 2017 by China Securities Regulatory Commission and amended on 15 January 2021.

¹²⁴ Art. 38 of the Personal Data Protection Law.

The Lingang New Area also plans to experiment with the cross-border transmission of health and medical care data (except human genetic resource data). Excluding human genetic resource data from the experiment is because transmitting such data overseas should go through a security review under the Ministry of Science and Technology of China (hereinafter ‘MOST’).¹²⁵ The security review aims to ensure the transfer will not endanger the public health, national security and social public interests of China.¹²⁶ It is unclear the criteria of the MOST security review and whether it is equivalent to the data security review conducted by the State Administration of Cyberspace under the Data Security Law. Besides human genetic resource information, other health and medical care data are also subject to comprehensive localization requirements. For example, Population Health Information Management Measures (Trial) defines population health information as the basic population information, medical and health service information, and other population health information generated by medical and health family planning service institutions at all levels in China.¹²⁷ It requires that Chinese population health information should not be stored in servers located overseas.¹²⁸ The entities that manage population health information should not entrust or rent servers located overseas.¹²⁹ Therefore, the cross-border transmission of health and medical care data is unlikely to include the population health information. Moreover, National Health and Medical Big Data Standards, Safety and Service Management Measures (Trial) provide that big data related to health and medical treatment generated in the process of human disease prevention, health management etc. should be stored on a safe and reliable server in China.¹³⁰ If transmitting it overseas is necessary due to business needs, the transmission should be subject to the security review under the Personal Data Protection Law and other relevant laws. Consequently, the pilot projects of the cross-border flow of health and medical care data should exclude health and medical treatment data unless special permission is granted.

¹²⁵ Art. 28 of Regulations on the Management of Human Genetic Resources, promulgated by the State Council on 28 May 2019, Guo Ling No. 717 (Art. 2 provides that human genetic resource information refers to information such as data generated by using human genetic resource materials. Human genetic resource materials refer to organs, tissues, cells, and other genetic materials that contain human genomes, genes, and other genetic materials.) The Ministry in charge of science and technology of the State Council should refer to the Ministry of Science and Technology of China.

¹²⁶ Ibid.

¹²⁷ Art. 3 of Population Health Information Management Measures (Trial), promulgated on 5 May 2014 by National Health and Family Planning Commission, Guo Wei Gui Hua Fa [2014] No. 24.

¹²⁸ Ibid, art. 10.

¹²⁹ Ibid.

¹³⁰ Arts 4-30 of National Health and Medical Big Data Standards, Safety and Service Management Measures (Trial), issued on 5 May 2014 by National Health and Family Planning Commission, issued on 12 July 2018 by the National Health Commission, Guo Wei Gui Hua Fa [2018] No. 23. The National Health and Family Planning Commission was integrated into National Health Commission in 2018.

Lingang New Area also plans to experiment with the cross-border transmission of data in the automobile industry. Notably, the Several Provisions on Automobile Data Security Management (Trial) distinguishes important automobile data from other data: the former refers to data that may endanger national security, public interests, or the legitimate rights and interests of individuals or organizations once it has been tampered with, destroyed, leaked, obtained or used illegally.¹³¹ Examples include geographic data, population flow data, and vehicle flow data in important sensitive areas such as military management zones and data reflecting the Chinese economy such as vehicle flow and logistics.¹³² Important data shall be stored in China; if it is necessary to transmit it overseas due to business needs, the transmission shall pass the security assessment organized by the Ministry of Cyberspace Affairs in conjunction with the relevant ministries of the State Council.¹³³ The overseas flow of personal data should comply with the Personal Data Protection Law.¹³⁴

4.2. Treaty obligations

Driven by the US, the Trans-Pacific Partnership (hereinafter “TPP”), and the later form, the CPTPP, includes provisions to promote the cross-border transfer of data¹³⁵ and restrict localization of computing facilities.¹³⁶ These provisions aim to make the flow of data a driving force to economic development, alongside the free flow of goods, services, investments and people. In November 2018, the US concluded the US-Mexico-Canada Agreement (hereinafter “USMCA”) with Canada and Mexico. The USMCA contains a digital trade chapter that draws upon the e-commerce chapter of the CPTPP but further reduces restrictions on cross-border information flow.¹³⁷

The EU shapes international law on the cross-border flow of data through two means. The first is within the EU. While the EU Data Protection Directive allows EU member states to apply their law,¹³⁸ the European Union General Data Protection Regulation (hereinafter “GDPR”) now establishes a harmonized framework on digital trade given its direct application

¹³¹ Art. 3 of Automobile Data Security Management Regulations (Trial), promulgated by the Cyberspace Administration of China on 16 August 2021 and effective on 1 October 2021 (defining ‘automobile data’ as personal information data and important data involved in the process of automobile design, production, sales, use, operation, and maintenance.)

¹³² *ibid.*

¹³³ *ibid.* art. 10.

¹³⁴ *ibid.*, art. 11.

¹³⁵ Art. 14.11 of the CPTPP, which is the same as Art. 4.3 of the DEPA.

¹³⁶ *ibid.*

¹³⁷ For the text of USMCA, see <<https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>> accessed 1 November 2021.

¹³⁸ Directive 95/46/EC, consideration (9).

to member states.¹³⁹ Secondly, collaboration with non-EU member states is orchestrated through the European Commission's adequacy decision procedure. States receiving data from the EU are required to offer an adequate level of data protection.¹⁴⁰ When making the decision, the European Commission considers factors such as whether the non-EU country respects human rights and fundamental freedoms by general and sectoral legislation.¹⁴¹ The EU seems to separate data protection from trade topics because the right to protect personal data is a fundamental human right and cannot be traded off.¹⁴² In contrast, the US FTA approach combines data protection with other trade topics. Negotiating data regulations with other trade topics can enhance the US' bargaining power.

Like the US, China integrates data protection in its trade negotiations. However, existing China's FTAs either focus on trade facilitation or allow more exceptions to restrict the cross-border flow of data compared with its US counterparts.¹⁴³ For example, the e-commerce chapter of the Protocol to Upgrade the China-Singapore FTA which was concluded in 2019 has eleven articles, four of which are related to customs facilitation (electronic authentication and electronic signatures, customs duties, transparency and paperless trading).¹⁴⁴ Article 7 (online consumer protection) and Article 8 (personal information protection) allow parties to apply domestic laws rather than seeking inter-operation or harmonization.¹⁴⁵ Compared with the Protocol to Upgrade the China-Singapore FTA, the RCEP includes additional provisions on cross-border flow of data, localization of computing facilities etc. Article 12.15.3 of RCEP, Article 14.11.3 of CPTPP and Article 4.3 of the DEPA, all provide for exceptions for the cross-border transfer of electronic information. Two key differences exist. First, unlike CPTPP and DEPA, RCEP stipulates that parties can take any measures necessary to protect their essential security interests to restrict the electronic transmission of information across borders.¹⁴⁶ GATS

¹³⁹ Paul Lefebvre and Cecilia Lahaye, 'EU Data Protection and the Conflict of Laws: The Usual "Bag of Tricks" or a Fight Against the Evasion of the Law?' (2017) 84 *Defense Counsel Journal* 1, 2.

¹⁴⁰ Aaditya Mattoo & Joshua P. Meltzer, 'International Data Flows and Privacy: The Conflict and Its Resolution', 21 *J. Int. Econ. Law* 769, 775–777 (2018).

¹⁴¹ Art. 45. 2 (a) of GDPR.

¹⁴² While the EU Japan Adequacy Decision was rendered the same time the EU Japan Economic Partnership Agreement was concluded, the EU emphasized that 'privacy is not a commodity to be traded' and 'dialogues on data protection and trade negotiations with third countries have to follow separate tracks', Questions & Answers on the Japan Adequacy Decision, https://europa.eu/rapid/press-release_MEMO-19-422_en.htm (last visited 9 November 2021).

¹⁴³ E.g. Appendix 6 New Chapter 15 of the Protocol to Upgrade the Free Trade Agreement Between China and Singapore; Chapter 12 of the China-Australia FTA; and Chapter 13 of the China-South Korea FTA,

¹⁴⁴ E.g. arts. 4, 5, 6, and 9 of Appendix 6 New Chapter 15 of the Protocol to Upgrade the Free Trade Agreement Between China and Singapore, <<https://www.enterprisesg.gov.sg/non-financial-assistance/for-singapore-companies/free-trade-agreements/ftas/singapore-ftas/csfta>> accessed 9 November 2021.

¹⁴⁵ *ibid.*, arts. 7 and 8.

¹⁴⁶ Art 12.15.3 of RCEP.

Article 14 provides for security exceptions and limits the basic security interests to three situations. In contrast, RCEP does not define what constitutes a ‘fundamental security interest’. Unlike GATS, RCEP also does not impose any restrictions on measures taken by contracting parties to restrict the cross-border transmission of information based on their basic security interests.¹⁴⁷ Article 12.15.3.2 of RCEP also provides that ‘[s]uch measures shall not be disputed by other parties.’ The wording seems to suggest that other contracting parties can object to an extensive interpretation of the ‘essential security interests’ adopted by the state who takes the measure. However, because Article 12.15.3.2 of RCEP does not allow member states to dispute the measures taken on the ground of ‘essential security interest’, it is insignificant to object to the extensive interpretation of the ‘essential security interests’. Therefore, RCEP shows more respect to the sovereignty needs of contracting states and provides more flexibility for them to restrict the cross-border transmission of information, which creates uncertainties to the stability and continuity of digital trade.

Second, RCEP, CPTPP, and DEPA stipulate that parties can rely on the legal public policy objectives to restrict the free flow of information on the condition that the restriction should not constitute a means of arbitrary or unjustifiable discrimination or disguised restrictions on trade. Article 19.11 of the USMCA deletes the CPTPP and DEPA’s ‘regulatory requirements’ exceptions. This strengthens the binding force of the ‘free flow of cross-border data’ clause and enhances its enforcement and consistency. Therefore, there is a big gap between USMCA and RCEP and other FTAs concluded by China in terms of electronically transmitting information across borders, and CPTPP and DEPA are in between.

Third, differing from the EU, China has not formulated detailed rules to enable cross-border data transfer. China’s Personal Data Protection Law provides that where a personal data handler needs to transfer personal data overseas, it must do so either by passing the security assessment organized by the State Cyberspace Administration, obtaining certification by professional organizations or using a standard contract.¹⁴⁸ No detailed law has been published relating to the procedure by which personal data handlers may legally transfer personal data overseas.

Therefore, although China’s SEZs are ambitious in piloting cross-border transmission of data, the central government neither has issued any detailed enabling measures to limit or suspend the application of the broad data localization requirement nor has enacted any

¹⁴⁷ *ibid.*

¹⁴⁸ Art. 38 of the China Personal Data Protection Law.

implementation rules to allow cross-border data flow. Moreover, compared with the USMCA, China's FTAs as well as CPTPP and DEPA provide more leeway for a state to restrict cross-border data flow. Therefore, it is unclear what nationwide impacts the bottom-up liberalization measures in China's SEZs may have.

5. Conclusion

Reflecting on the most recent development of digital trade in China's SEZs, this chapter selected three representative cases: blockchain-based Single Window, big data exchanges, and pilots in the cross-border data flow. It finds that, firstly, China actively adopts data technologies to enhance trade facilitation measures in trade in goods. Secondly, it distinguishes personality rights of data subjects and property rights of data companies to boost the domestic market for trade in data. Thirdly, it tries to explore controlled liberalization of the cross-border flow of data in industries such as finance, health and automobile; however, the initiatives lack implementation details.

These case studies generate broad implications. China's current approach to developing digital trade focuses on its domestic rather than international market. It is aggressively cracking down domestic legal barriers to enhance the circulation of data as a production factor. The digitalization of trade facilitation measures focuses on the side of Chinese traders, government authorities and other Chinese institutions. This inward-focus approach is openly endorsed by the Fourteenth Five-Year Plan for the National Economic and Social Development of China and the Outline of the Long-term Goals for 2035 (hereinafter 'The Fourteenth Five-Year Plan'). The Fourteenth Five-Year Plan aims to build a new development pattern *based on a strong domestic market*.¹⁴⁹ Its Book Five lays out steps to build a digitalized China which predominantly is about to create a sound digital ecosystem in China bridging e-government, the high-tech industry and the consumer demands.¹⁵⁰ Although Book Twelve requires China to further open up its economy and build a high-standard FTA network, the digital trade is briefly mentioned and limited to enhance cross-border data flow without infringing national security. In terms of digital trade, China is making a paradigm shift: the development of Chinese domestic law for digital trade is shifting away from the traditional paradigm that uses international commitments to push domestic reform or making domestic law according to

¹⁴⁹ Book Four of The Fourteenth Five-Year Plan, (published on 12 March 2021) <http://www.gov.cn/xinwen/2021-03/13/content_5592681.htm> accessed 2 December 2021.

¹⁵⁰ *ibid.* Book Five.

international law. The traditional paradigm has been adopted by China since 1978. The typical example is, based on China's WTO negotiation and commitments, China significantly reformed its foreign trade and investment laws in the early 21 century. Different from the traditional paradigm, the development of Chinese domestic law for digital trade relies much more on China's domestic needs than what FTAs negotiations or commitments require. In the fields of digital trade, FTAs are increasingly becoming a tool for China to shape international law rather than a benchmark for legislating domestic Chinese law.

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