

# Research Trends in China's Digital Economy

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**Abstract:** The digital economy has emerged as a pivotal force in the global restructuring of factor resources, the reconfiguration of the global economic landscape, and the transformation of patterns in global competition. This paper delves into the foundational aspects of the digital economy, elucidating the nuanced connotations, distinctive characteristics, and evolving trajectories within the context of both governmental and academic discourse in China. A comprehensive examination of contemporary global digital research is conducted, and a critical appraisal is made of the deficiencies and gaps existing in China's digital economy research vis-à-vis the backdrop of the nation's digital economic development policies and research endeavors. Furthermore, this study conducts an in-depth analysis of research shortcomings at the meso-level, encompassing facets such as digital transformation, high-quality development, digital finance, digital trade, among others. The findings culminate in actionable recommendations aimed at advancing the trajectory of China's digital economy.

**Keywords:** Digital economy, High-quality development, Digital technology, Digital finance, Industrial digitisation.

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## 1. Introduction

### 1.1. Background to the emergence of the digital economy

The digital economy first appeared in the 1990s, and it gradually came into the limelight with the development of the Internet. The initial form of the digital economy is the information economy, which arose in the mid-twentieth century; the level of microelectronics technology and integrated circuits, coupled with breakthroughs in the information storage infrastructure, greatly improved the storage capacity of information and knowledge (Liu, 2019). The concept of the information economy was proposed in 1962 by Mark Lupke in the context of digital technology, focusing on the dissemination of knowledge and market information through Internet technology, and then transformed into data information through digital technology to promote economic development, that is the new economic form - digital economy.

As new things are created, old things are eliminated, and economic development is no exception. The rise of the digital economy is built on the decline of the industrial economy; at the end of the last century, the European and Japanese economies appeared to slow growth or even stagnation; only the United States economy showed sustained growth. According to this situation, the American economic journal editor Michael Mandel, in December 1996 "The New Economic Achievements" journal, put forward the concept of a "new economy" and that the U.S. economy has stepped into the "new economic The New Economy" was introduced in the December 1996 issue of *At this time*, the so-called new economy is also known as the digital economy, because compared with the industrial economy, the digital industry in the United States has gradually emerged (He, 2005). E-commerce has gradually begun to replace the traditional mode of transaction. The information industry is also gradually replacing the industrial industry, which is an obvious industrial transformation. It can be regarded as the rise of the digital economy.

### 1.2. The emergence of the concept of the digital economy

The concept of the digital economy originated in the 1990s. In 1995, Canadian business strategist Don Tapscott published a book titled *The Digital Economy*, which discussed in detail the impact of the Internet on the economy and society, and the Chinese media hailed him as the "Father of the Digital Economy (yan, 2017)." According to him, the digital economy is the process of digitizing all forms of information, storing it in computers, and disseminating it rapidly through the Internet, thus creating a new information economy.

In the same period, many scholars have proposed relevant concepts to add to the digital economy; there are information technology and the digital economy as information industrialization to analyze. Brent R-Moulton, in 1999, proposed that the digital economy from the scope of the digital economy should include information technology and e-commerce; he believes that the information technology aspects of information processing and semiconductors communications equipment aspect of development; Neal-Lane believes that the digital economy is the integration of computer technology and communication technology in the Internet, and the development of the information technology industry promotes the development of the new economy.

The development of the digital economy is by the 1960s, Mark Lu and Borat successively from the perspective of sectoral economy put forward the information economy, with the continuous improvement of information technology, economists and put forward the network economy, and then the maturity of the 3D printing technology and Internet technology, the information and knowledge used in the digital and integrated into the overall economic development, and finally formed a digital economy.

Summarising the experience of the former, China has given its concept of the digital economy: the digital economy is the main economic form after the agricultural and industrial economies, and is a new economic form that uses data resources as the key element, modern information networks as the main carrier, and the integrated application of

information and communications technologies and the digital transformation of all factors as the important driving force, promoting greater unity between equity and efficiency. The digital economy is developing quickly, with a wide range of radiation and deep influence. It promotes profound changes in production, life, and governance modes, becoming a key force in restructuring global factor resources, reshaping the structure of the global economy, and changing the pattern of global competition ("The 14th Five-Year Plan for the Development of the Digital Economy", 2022).

## **2. Current Status of The Development of The Digital Economy at Home and Abroad**

The digital economy is one of today's economic forms, attracting much attention from various countries. The Organisation for Economic Cooperation and Development (OECD) has issued the OECD Digital Economy Outlook 2030, which is sufficient to illustrate the status of the digital economy in international economic development.

In Europe and the United States developed countries, the digital economy has been gradually completed; for example, in the United States in 1998 the digital economy research and then the development of the form of dozens of laws and policies have been issued, divided into the main body of responsibility for the digital economy, regulate the development of digital economy path. The digital industry in the United States has become the main industry, from basic agriculture to industry and services; the United States has been integrating digital integration into the development of the three industries and accelerating the development of the information technology industry, enriched by computer technology and 3D printing technology.

The most intuitive manifestation of the development of the digital economy is the economic report of e-commerce; according to the eMarketer network data report shows that the U.S. e-commerce sales in 2021 reached 84.315 billion U.S. dollars, which can not be separated from the U.S. to establish a completely digital economy market, from digital transactions to the circulation of the market provides a perfect system of services and the establishment of a perfect digital economic and social credit system. This is also due to the establishing of a complete digital economy market in the United States, which provides a perfect market service system from digital transactions to circulation and establishes a perfect credit system for the digital economy and society, further promoting the digital industry process.

Some developed countries in Europe have followed suit, including the EU, which promulgated the General Data Protection Regulation in 2018 to establish strict data privacy security protection regulations to provide security for the development of the digital economy. After the outbreak of the New Crown epidemic, some smaller developed countries, under the condition of discovering that the digital economy can drive economic development, Singapore, Chile, and New Zealand signed the Digital Economy Partnership Agreement in 2020, aiming to strengthen cooperation in digital trade among the three countries and establish a digital trade agreement with relevant norms.

### **2.1. Status of China's digital economy development**

Since China's official access to the Internet in 1994, it has

begun to step into the digital era. Based on the continuous development of computer technology and 3D printing technology, e-commerce, and social media on China's Internet have rapidly emerged, and the digital economy has also entered a high-speed development track with the gradual maturation of information technology. Since the 18th National Congress, the CPC Central Committee has proposed a series of strategic objectives for developing the digital economy. At the Fourth Plenary Session of the 19th Central Committee, data was explicitly regarded as a factor of production. At the same time, the 14th Five-Year Plan and the 2035 Vision Outline have made a comprehensive layout of the digital economy to promote the high-quality development of China's digital economy.

In addition, according to the White Paper on the Development of China's Digital Economy published by the China Academy of Information and Communications Technology, during the 13th Five-Year Plan period, the scale of China's digital economy will grow from the initial 11 trillion yuan to 39.2 trillion yuan in 2020, accounting for 38.6% of GDP. The digital economy has gradually become one of the important forces for China's high-quality economic development. The digital economy has gradually become one of the important forces for China's high-quality economic development.

Among them, the industrial scale of China's digital development has been growing; according to the relevant data report, in 2020, China's Internet and related services enterprise revenue up to 1.3 trillion yuan, the artificial intelligence industry scale reached 160.69 billion yuan; agriculture and industry have undergone digital transformation one after another, as of 2020, the digitization rate of China's industrial enterprises' production equipment reached 49.4%, and the online retail turnover reached 1.176 billion yuan.

The digital economy has driven the development of industries and given a new direction in finance. China's traditional financial institutions and the Internet have used digital technology to realize financing, payment, investment, and other new financial business models, which has improved the service efficiency and quality of China's traditional financial institutions.

The digital economy has also optimized the development of e-commerce, using modern information networks for transmission, enhancing the efficiency of traditional trade, and optimizing the structure of e-commerce transactions. China's digital trade has also experienced years of development, with the trade turnover growing from USD 200 billion in 2015 to USD 294.76 billion by 2020, accounting for 44.5% of the proportion of trade in services and the top ten global head social media outlets. China occupies five places, and the international market business of digital trade is spread worldwide.

In order to regulate the development of the digital economy, China has introduced more than 60 policies related to the digital economy at both the central and local levels to guide the development path of the digital economy and regulate the development market of the digital economy, as well as relevant laws and regulations to fill the legal loopholes in the development of the digital economy.

**Table 1. Summary of Important Policies for China's Digital Economy, 2015-2021**

<b>Date</b>	<b>Policy/Meetings</b>	<b>Related content</b>
2015.11	“Outline of the Thirteenth Five-Year Plan for National Economic and Social Development of the People's Republic of China”	Implementing the national big data strategy and promoting the open sharing of data resources
2017.10	Report of the 19th National Congress	Strengthening applied basic research to provide strong support for building a strong science and technology nation, a strong quality nation, a strong aerospace nation, a strong network nation, a strong transport nation, a digital China and a smart society
2017.12	Second Collective Study of the Political Bureau of the Central Committee of the Communist Party of China	Promoting the implementation of the national big data strategy, accelerating the improvement of digital infrastructure, guaranteeing data security and speeding up the construction of a digital China
2019.11	Fourth Plenary Session of the 19th Central Committee (PRC)	Promote the construction of a digital government, strengthen the orderly sharing of data, and protect personal information in accordance with the law
2019.11	Implementation Programme for the National Pilot Area for Innovative Development of the Digital Economy	In different provinces to start the stock price of digital economy innovation and development pilot area creation work. Through about 3 years of exploration, digital industrialisation and industrial digitisation go with significant results
2020.04	Opinions on Building a More Perfect Institutional Mechanism for the Market-based Allocation of Factors	Explicitly include data as a new factor of production in policy documents.
2020.04	Implementation Programme on Fostering the Development of the New Economy by Promoting the Action of "Uploading, Using, Empowering and Intelligent"	Vigorously cultivate new forms of the digital economy, deeply promote digital transformation, create a data supply chain, and form a digital ecosystem that integrates upstream and downstream of the industrial chain and across industries
2020.07	Opinions on the Healthy Development of New Industries and New Models Activating the Consumer Market and Driving the Expansion of Employment	Actively explore new modes of online services to activate new markets for consumption; accelerate the digital transformation of industries to grow new kinetic energy in the real economy
2021.03	Outline of the Fourteenth Five-Year Plan for the National Economic and Social Development of the People's Republic of China and Vision 2035	Giving full play to the huge amount of data and rich application scenarios, promoting the deep integration of digital technology and the real economy, empowering the upgrading of traditional industries, giving rise to new industries and new business models, and strengthening the new engine of economic development.
2021.05	Statistical Classification of the Digital Economy and Its Core Industries (2021)	The core industries of the digital economy are various types of economic activities aimed at providing digital technologies, products, services, infrastructures and solutions for the digital development of industries, as well as those that are fully dependent on digital technologies and data elements
2021.06	Data Security Development in the People's Republic of China	Based on the overall concept of national security, incorporate data sovereignty into the scope of national sovereignty and further integrate the development and security of data elements, so as to provide legal protection for China's digital transformation and the construction of a digital economy, digital government and digital society.
2021.11	The Fourteenth Five-Year Plan for the Development of the Big Data Industry	The development of the big data industry should be based on the theme of promoting high-quality development, with supply-side institutional reform as the main line, oriented to releasing the value of data elements, focusing on consolidating the foundation of industrial development, striving to promote high quality of data resources, high level of technological innovation, and high efficiency of infrastructure, focusing on building a stable and efficient industrial chain, striving to enhance the industrial supply capacity and industry empowerment effect, integrating development and security, and fostering an autonomous, controllable and open and cooperative industrial ecosystem. Open and cooperative industrial ecology, and create new advantages in the development of the digital economy.

### 3. Research Directions for China's Digital Economy

According to Figure 1, Chinese scholars of digital economy research have published 26,635 relevant literature. Since 2016, the research literature on digital economy has begun to increase year by year, with as many as 30 design disciplines.

In terms of the distribution of significant themes (Figure 2), the digital economy serves as the main research content, and academics also diversify their research by targeting multiple perspectives, such as digital transformation, high-quality development, digital trade, and digital financial inclusion. Therefore, this study will deeply analyze the current research status from four dimensions: digital transformation, high-quality development, digital trade, and digital inclusive

finance.

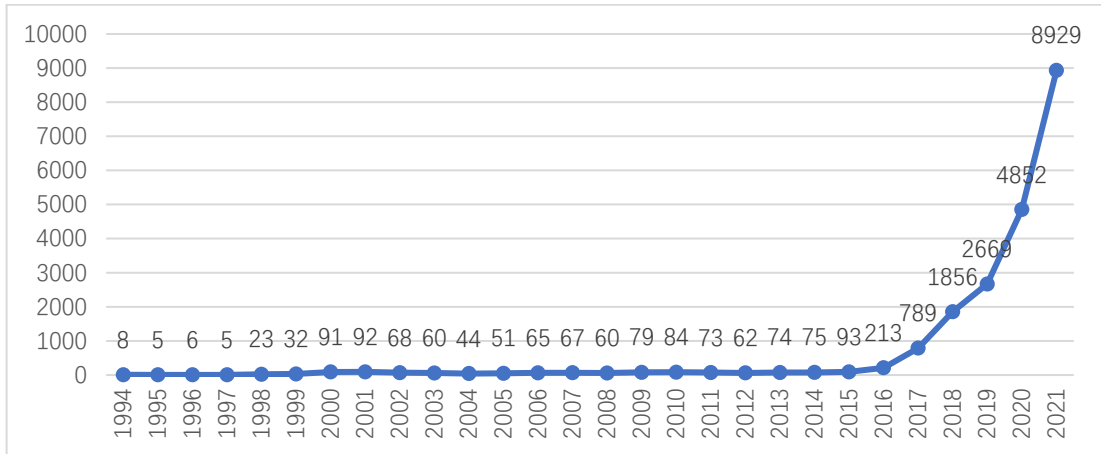


Figure 1. Research Literature Related to China's Digital Economy

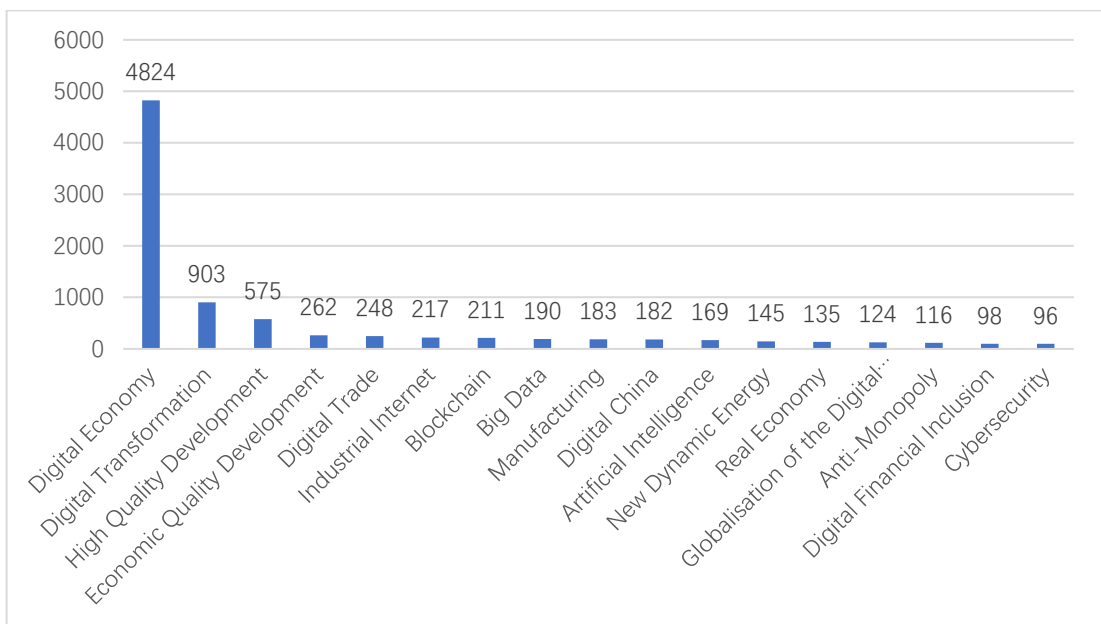


Figure 2. Major Themes in China's Digital Economy Research

### 3.1. Digital Transformation

The pioneer industry of the digital economy is the information and communication industry, which is the so-called digital industry, mainly provides technology, services, products, etc., for the development of the digital economy, including sub-industries such as the electronic information manufacturing industry, telecommunication industry, Internet industry, and so on. With the passage of time, the digital industry is constantly upgraded; the enterprise found the digital industry's higher productivity, they increased investment in IT technology in order to improve enterprise productivity and return on investment (ROI), and gradually have a combination of industrial and digital technology development path, that is, today's industrial digital transformation path.

Advancements in technology have played a significant role in the development of industries, as evident from early research. However, the impact of IT technology on industrial growth was once a topic of debate amongst scholars. In the late 1980s, Strassman conducted a survey of 292 enterprises and found that although there was a lack of clear correlation between enterprise IT investment and return on investment

from a productivity standpoint, the effect was minimal.

In contrast, the United States witnessed a surge in productivity growth rates in the mid-1990s, leading to speculations of a "new economy" propelled by the rapid growth of the IT industry. It was during this period that the US entered the digital economy and numerous studies confirmed that IT technology had the potential to enhance enterprise productivity. These developments prompted a re-examination of the "Solow paradox," with scholars shifting their focus towards digital technology-led industrial transformation (digital transformation).

One of the earliest studies on digital technology-led industrial transformation was conducted by Chinese scholar Luo Dongmiao in 1996. He proposed using digital technology to upgrade the surveying and mapping industry and create a digital surveying and mapping technology system industry using new manufacturing technology. As the new millennium approached, Chinese scholars delved deeper into the development of the digital industry, culminating in the establishment of the China Digital Industry Alliance in 1999. The alliance aimed to jointly discuss the development strategy and focus of China's digital industry and explore the development mode that was best suited to China's national

conditions.

In the 21st century, Chinese scholars have intensified their exploration of digital technology, particularly its integration with various industries, termed as "digital + industry." This perspective posits that digital technology not only facilitates the technological upgrading of the information and communication sector but also synergizes with other industries to propel their transformation. The trajectory of research in this area can be traced back to 1996 when Luo Dongmiao advocated for the use of digital technology to upgrade the surveying and mapping industry. Subsequently, industries like real estate followed suit. Nie Meisheng, in 2006, emphasized the need for continuous innovation in modern enterprises, highlighting how digital technology could optimize the real estate industry's supply chain.

The literature review reveals an increasing number of studies on the combined development of industry, agriculture, and services with digitalization, particularly witnessing a surge after 2018. Early research primarily offered suggestions for industry upgrading using digitalization, without delving deeply into its impact on industrial transformation or the challenges enterprises face during digital transformation.

Technological advancement is identified as the primary driver of industrial transformation. The study of industrial transformation necessitates an in-depth analysis of technology. A search on the China Knowledge Network for "industrial digitalization" yielded 46 articles related to "digital technology." Initial research focused on the media industry, highlighting how digitalization, rooted in information technology upgrading, positively affected the advertising industry.

As research progressed, scholars explored the impact of digital technology across various industries. For instance, Xie Xuefang (2019) studied the cultural industry, while Lv Tie (2019) argued for the digital transformation of traditional industries to achieve business innovation and growth. Scholars like Li Yanli and Du Zhao (2020) delved into the digital transformation of the sports industry, emphasizing how digital technology supports sports products' innovation.

Moreover, scholars investigated digital technology's influence on industry development, considering factors such as production, value, and mechanism. Qi Yudong et al. (2020) explored the relationship between digital technology, value, and industry, emphasizing its role in breaking down traditional information barriers and optimizing factor circulation. He Yuchang and Liu Quanlin (2021) highlighted digital data as a key element, asserting its equal importance to labor, land, and capital in the digital economy era.

In summary, digital technology emerges as the principal force propelling industrial digital development. It breaks information barriers, optimizes factor circulation, and fosters industrial integration during the transformative process. Contrary to the productivity paradox, digital technology promotes its integration into industries, transforming from indirect to direct productivity and contributing new value-added attributes to the integrated industry.

### 3.2. High-quality development

Since the commencement of economic reform and opening-up policies, China has sustained a protracted phase of robust and rapid economic growth (Shen & Li, 2011; Wang, 2000; Cai et al., 1999). Presently, the Chinese economy is experiencing a gradual deceleration in growth rates. Key factors contributing to this deceleration encompass the

presence of an imbalanced industrial structure (Liu, W., 2011), the waning demographic dividend (Cai Fang, 2010), and a decline in total factor productivity (Zhou et al., 2018). Scholars posit that the impetus for future economic growth lies predominantly in technological innovation and demand-driven forces (Ren & Li, 2021). Consequently, technologies emanating from the digital economy era, such as the Internet, blockchain, and digitalization, play a pivotal role in steering the trajectory toward high-quality development.

At the macro level, within the digital economy era, the sourcing of factors becomes more diversified, intricate, and advanced, concurrently enhancing the efficiency of factor allocation and utilization. The advent of the digital economy, particularly within the ambit of Internet technological innovation, has given rise to novel factors of production that are continually incorporated into the macroeconomic production function. Scholars like Hu Beibei and Wang Shengguang (2017) underscore the emergence of data as a new fundamental production factor, signifying a trajectory wherein production factors evolve towards virtualization. Yang Rudai (2018) contends that, given data's attributes of facile replicability, zero marginal cost, and non-depletion, it should be integrated into the growth accounting framework in the new economic era, offering a means to surmount the scarcity and exclusivity constraints of traditional factors and circumvent conventional resource limitations.

From a meso-level perspective, the digital economy has progressed from phases of digital technology innovation and integration development, digital technology application, and industrial development to the current stage marked by the profound integration of the digital economy with the real economy (Ding, 2020). At this meso-level juncture, the discernible "enabling effect" of the digital economy is evident, not only propelling the industrial development of digital technology but also catalyzing the digital, networked, and intelligent transformation of traditional industries. This metamorphosis manifests through the amalgamation of novel modes, industries, and business forms facilitated by industrial integration.

On a micro level, the distinctive characteristic of infinite replication within the digital economy translates into low marginal costs for enterprises. Leveraging low or even zero marginal costs, enterprises are inclined to boundlessly expand production scales, resulting in the equitable distribution of high fixed costs, subsequent reduction in long-term average costs, and the realization of economies of scale in production (Pei et al., 2018). Additionally, traditional enterprises harness the pertinent technologies offered by the digital economy to achieve economies of scale by concurrently supplying an array of weighty products.

### 3.3. Digital trade

With the swift progression of the digital economy, its pervasive integration into diverse sectors of the economy and society has expanded, engendering and consolidating a myriad of innovative elements. This evolution has breathed new life into the traditional trade domain, giving rise to the phenomenon of digital trade (Liu Hang et al., 2019). Despite being a derivative of the digital economy, digital trade and the digital economy are mutually reinforcing. Within the digital economy category, the aspect involving digital platforms or carriers facilitating commodity trade activities constitutes the domain of digital trade, creating a substantial overlap between the two (Zhang et al., 2020). Both digital trade and the digital

economy revolve around knowledge and information as primary production factors, primarily serving to enhance productivity in the traditional three industries. Consequently, digital trade represents a novel scenario congruent with economic activities in the era of the digital economy, sharing analogous connotations and characteristics with its broader economic counterpart (Sun, 2020).

Furthermore, in the era of the digital economy, data has assumed the role of not only the fourth factor of production but also the linchpin of each country's competitive advantage. Scholars, therefore, focus on formulating rules governing data circulation as a common facet of research in both the digital economy and digital trade. This pursuit aims to ensure the development of national economies and trade markets. Presently, nations have not reached a unanimous consensus on cross-border data circulation rules, with most countries crafting regulations that bear local protective characteristics to safeguard their individual interests (Zhou et al., 2017). WTO member countries have also formed Regional Trade Agreements (RTAs) based on bilateral, plurilateral, and interregional accords to regulate cross-border data circulation through the enactment of pertinent laws and regulations (Zhang et al., 2022). The classification of products or services requiring cross-border data flows as either trade in goods or trade in services lacks consensus, with scholars predominantly subjecting them to the regulation of the General Agreement on Trade in Services (GATS).

Chinese scholars, though initially lagging in digital trade research, have drawn insights from developed countries and international organizations. They analyze the development patterns of China's digital trade and explore potential development paths. For instance, Zhou Nianli and Li Yuhao (2017) scrutinize the divergence between the United States and Europe in formulating digital trade rules, emphasizing data flow as a key research subject in the global rules of digital trade. Other scholars such as Xu et al. (2019) advocate for a reform of the WTO system and rules in light of the burgeoning digital economy and trade in services. Additionally, scholars like Blue Qingxin, Dong Xiaojun, and Wang Yan have analyzed the connotation, development, and trends of digital trade in the United States, Europe, and Japan. They propose strategic design considerations, urging China to actively participate in the negotiation of digital trade rules and foster a domestic digital trade rules and regulations system supportive of sustainable development.

Furthermore, scholars examining international trade regulations, agreements, and institutional conditions have analyzed the implementation of relevant provisions for digital trade by international organizations. Yue Shumei and Xu Jun, for instance, posit that the OECD's two-pillar establishment of a market country-oriented tax system is instrumental in highlighting the digital economy's sanctity and the public right, contributing to the advancement of global trade norms. On a similar note, Tan Guanfu contends that while digital trade rules within international trade regulations can be applied, they may not fully align with the WTO system. Hence, there is an urgent need for categorizing digital trade to expand the applicability of its rules.

### 3.4. Digital Finance

Digital finance, broadly defined, refers to the utilization of digital technology by traditional financial institutions and internet-based companies to facilitate new financial business models such as financing, payment, and investment. This

concept aligns with the definition of "Internet finance" as delineated by the People's Bank of China and other regulatory bodies, involving the integration of traditional financial entities and internet companies utilizing internet technology and information and communication technology for capital financing, payment, investment, and information intermediary services. Moreover, the term corresponds to the Financial Stability Board's (FSB) characterization of "financial technology" (FinTech), which emphasizes the promotion of financial innovation through technological means, resulting in significant impacts on financial markets, institutions, and services through the creation of innovative products, business models, technological applications, and business processes.

China's foray into digital finance traces its origins back to 2004, notably with the launch of the Alipay account system. Nevertheless, the industry conventionally recognizes 2013, with the introduction of Balance Treasure, as the inaugural year marking the commencement of China's digital finance development. Over slightly more than a decade, China has emerged as a global leader in the field of digital finance, showcasing its preeminence on the world stage. A primary distinguishing feature of digital finance in China is its profound support for inclusive finance.

In the endeavor to promote inclusive finance, the Chinese government initiated efforts in 2006, including the establishment of microfinance companies, the creation of "inclusive finance departments" within financial institutions, and pilot programs such as "two-rights" mortgages in rural areas. However, these initiatives were often characterized by half-hearted endeavors that lacked commercial sustainability.

Digital technology has offered a potential solution to the inherent challenges of financial inclusion. Internet platforms leverage their extensive user base, connecting tens of millions or even hundreds of millions of mobile terminals by establishing platform "scenarios." Simultaneously, these platforms analyze vast amounts of big data from social media and online shopping platforms to conduct credit assessments. This approach significantly reduces the cost of customer acquisition and risk control without physical interactions, thereby enhancing the feasibility of inclusive finance development. The popularity of digital inclusive finance has prompted extensive discussions among relevant institutions and academics in China.

The Digital Finance Research Centre of Peking University's Research Group (2017) systematically documented the overall development pattern of digital inclusive finance in China, analyzing business practices and potential risks across various domains such as internet payment, online lending, internet insurance, and wealth management. Additionally, the Peking University Digital Finance Research Centre Subject Group (2016) collaborated with Anthem to compile the "Peking University Digital Inclusive Finance Index," covering multiple administrative levels in China. This index provides a comprehensive portrayal of different dimensions of China's digital inclusive finance, including breadth of coverage, depth of use, and degree of digital support.

Scholars have employed the digital financial inclusion index to delve deeper into its impacts. For instance, Song (2017) demonstrated that the development of digital inclusive finance significantly reduces the income gap between urban and rural residents, as evidenced by the analysis of provincial balanced panel data models. Similarly, Zhang Zihao and Tan

Yanzhi (2018) derived similar empirical results using spatial panel econometric models. Hao Yunping and Lei Hanyun (2018) utilized spatial autoregressive modeling with provincial panel data to establish the strong spatial correlation and agglomeration effects of digital financial inclusion, highlighting its significant positive impact on economic growth. Importantly, the contribution of digital financial inclusion to economic growth follows a triple-curve promotion rather than a simple linear effect. Additionally, research indicates that digital finance supports innovation and entrepreneurship, as evidenced by studies such as Xie et al. (2018), which explores the relationship between the digital financial inclusion index and the registration information data of new enterprises, revealing a significant role played by digital finance in promoting entrepreneurship.

## 4. Digital Economy Measurement Methodology

In the current era, the digital economy has become a focal point of research, prompting various institutions and academics to explore methods for measuring its size. However, the lack of a universally accepted definition for the connotation of the digital economy has led to variability in measurement methods among different institutions and scholars. The construction and measurement of China's digital economy indicators draw inspiration from interpretations found in the digital economy development reports of the United Nations and other countries. The digital economy indicator system is constructed and measured from different perspectives, primarily encompassing three dimensions:

### 1. Construction of Digital Economy Indicators:

The digital economy's indicators are constructed based on its development foundation, deep integration, and social development, incorporating various dimensions such as scale, stock measurement, and industry specifics. For example, the U.S. Department of Commerce's 2003 measurement program centers on the industrialization of the digital economy, using the SNA accounting system and industry classification standards. China's approach, as seen in the "2019 China Digital Economy Development Index White Paper," decomposes the indicator system into basic, industry, integration, and environmental indicators (Wan et al., 2019). Scholars further contribute to the field by establishing evaluation systems based on the triadic space theory of information cyberspace, entity physical space, and human social space.

### 2. Selection of Representative Indicators:

Some scholars opt not to focus on constructing and measuring digital economy indicators but instead choose a few representative indicators from various dimensions for comprehensive index measurement and empirical research. These dimensions typically revolve around the foundational requirements for digital economy development, external environmental factors, and the application and integration of the digital economy across primary, secondary, and tertiary industries.

### 3. Multi-Dimensional Evaluation Index System:

This method involves establishing a multi-dimensional evaluation index system based on the connotation of the digital economy. By constructing an indicator system and utilizing statistical or measurement means, scholars measure the index system to derive a digital economy development index and level. OECD and the EU have published reports

classifying the digital economy into dimensions like smart infrastructure, social vitality, innovation, and creativity. In China, research on multi-dimensional measurement often includes indicators such as digital infrastructure, digital industrialization, industrial digitization, and digital finance (Liu Yaobin et al., 2023; Sun Xiaoqiang et al.).

In summary, the scope of digital economy research has expanded beyond information technology, integrating with social infrastructure, industry, and various facets of the real economy. Given this comprehensive characteristic, this paper opts to construct a multi-dimensional index system for the digital economy, considering the availability of research data and the practicality for subsequent empirical research.

## 5. Conclusion

Based on the evolution of the concept of the digital economy, this study selects the relevant research literature on China's digital economy and deeply analyses the evolution process and research hotspots in the field of China's digital economy research. Based on the results of the analysis, the following relevant conclusions are drawn:

(1) The continuous improvement of the meaning of the digital economy has led to the continuous transformation of China's economic form, and the use of new connotations of economic development has enriched the relevant theoretical and practical innovation methods for the high-quality development of China's economy and has promoted the continuous development of economy-related research.

(2) With the continuous development of the digital economy, the index for measuring its development level and the index related to digital financial inclusion have gradually improved. They provide data support for academic research to further determine the status of China's digital economy development and the characteristics of China's digital economy development. The impact of digital economy development is clarified through the relevant indexes, which promote the transformation of Chinese academia's research issues, such as the key elements and strategic deployment of development in the digital economy era.

(3) The digital economy as a research object has a relatively short research period in China, and most of the issues still remain at the macro level. For example, digital technology promotes the improvement of production efficiency and reduces production costs, but the consequent substitution of manpower costs, labor transfer, and re-employment has not been studied in depth; and, with the digital economy as the research angle, the micro research on the development of small and medium-sized enterprises has not yet been carried out. Nowadays, China should speed up the research on the micro level of the digital economy, enrich the indicator system for the high-quality development of China's digital economy, combine the economic theory of sustainable development with the development strategy of "Belt and Road," improve the framework system for the development of China's digital economy, and put forward the path of China's digital economy development in a sustainable way.

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