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Bridging the Regional Digital Divide from the Perspective of China Integrated Big Data System—An Analysis Based on the "East Counting, West Computing" Project

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Abstract: The digital economy has created new opportunities for regional coordinated development. The eastern, central, and western regions exhibit a growing trend of widening the regional digital divide due to differences in infrastructure, technological applications, and industrial distribution. The regional digital divide leads to differentiation in wealth and information across various regions and has emerged as a significant influencing factor in regional coordinated development with the widespread application of digital technology. The “East Data and west Calculation” project, as the overall design and layout project of the China integrated big data center collaborative innovation system, plays a crucial role in bridging the regional digital divide. Focusing on three key aspects, namely enhancing China computing power through the construction of computing facilities, promoting effective investment in digital industrialization and industrial digitization, and facilitating the transfer of relevant industries by promoting data transmission between the east and west, the project adopts a policy-oriented approach involving multi-entity collaborative cooperation. It embodies a new concept of digital economic development aimed at bridging the regional digital divide.

1. Background on the regional digital divide

At present, a new round of technological change is changing the layout of industrial development and the form of trade exchanges through new technologies and new business forms, and in 2022, the scale of China's digital economy has reached 50.2 trillion yuan, 41.5% of the total GDP, ranking second in the world, accounting for 18.5%. In the wave of the fourth industrial revolution, the digital economy is integrated into the planning of China's economic development through 5G, big data, blockchain, intelligent and other forms, and the report of the twentieth CPC National Congress points out that it is necessary to accelerate the construction of a strong network country and digital China, promote the integration of the digital economy and the real economy, and accelerate the creation of digital industry clusters.

On October 23, 2022, General Secretary proposed the in-depth implementation of the strategy of coordinated regional development, the major regional strategy, and the strategy of rural revitalization,

to continuously narrow the development and income gap between urban and rural areas, and to improve the balance, coordination, and inclusiveness of development. Due to the characteristics of data not being hindered by physical spans, China's coordinated and balanced development has seized the opportunity of digital transformation of industries. In 2016, General Secretary proposed the construction of a nationally integrated national big data center by taking the implementation of e-government and the construction of a new type of smart city as a hand, and data centralization and sharing as a way to build a national big data center during the 36th Collective Learning Session of the Political Bureau of the Central Government of the People's Republic of China. In December 2020, during the wave of the country's vigorous development of "new infrastructure", the National Development and Reform Commission, the Central Internet Information Office, the Ministry of Industry and Information Technology, the National Energy Administration and other four departments jointly issued the "Guiding Opinions on Accelerating the Construction of a Nationally Integrated Big Data Center Collaboration and Innovation System (Development and Reform High-tech [2020] No. 1922)", and explicitly stated that: "Strengthening the top-level design of the national integrated big data center is of great significance for deepening government-enterprise collaboration, industry collaboration, regional collaboration, as well as comprehensively supporting the digital upgrading of various industries and the digital transformation of industries." In March 2021, the "Outline of the Fourteenth Five-Year Plan for the National Economic and Social Development of the People's Republic of China and the Visionary Goals for 2035 (Draft)" proposed to "accelerate the construction of a nationally integrated big data center system, strengthen arithmetic power coordination and intelligent scheduling, build a number of national hub nodes and clusters of big data centers, and build E-class and 10E-class supercomputing centers". It points out the direction for promoting the high-quality development of data center clusters during the 14th Five-Year Plan period [1].

The structure of the "National Integrated Big Data Center Collaborative Innovation System" is gradually becoming clearer, pointing out the way forward for bridging the digital divide between regions. 2022 At the 37th meeting of the Standing Committee of the 13th National People's Congress on October 28, the State Council's report on the development of the digital economy put forward that China's digital economy development is obviously different from that of other countries. Economic development differences are obvious, with different industries, regions and groups having different digitalization bases. The digital divide is not conducive to the realization of common wealth, and the non-equalization of the use of information resources has resulted in information poverty between regions, which not only leads to an imbalance in the distribution of income, employment development, and opportunities in various places, but this Matthew effect also exacerbates path dependence on the digitization process, which tilts the resources to areas with more complete space, time sequence, and elements, resulting in the development of low value-added industrial agglomerations caught in the "low-end lock-in".

Benefiting from the new development impetus brought about by the digital economy, regional economies are focusing on fostering new growth points, providing opportunities to increase economic aggregates and "make the cake bigger". However, the uneven level of infrastructure construction and geographical distribution can not balance the objective conditions of access to the digital economy in each region, while digital talent training, digital technology application level of leading or lagging behind in the era of digital existence in each region in the access to digital resources, digital resources, digital resources, digital resources and other aspects of the creation of a huge difference, and the gradual emergence of the digital divide between regions. At present, under the trend of rapid development of the digital economy, the digital divide has become a key issue that threatens the sharing of digital dividends among regions and constrains common prosperity.

2. The meaning and reality of the regional digital divide

2.1 The concept of digital divide and its development process

The U.S. National Telecommunications and Information Administration (NTIA), "Lagging Behind in the Network: Defining the Digital Divide", first proposed in 1999 that the digital divide is the "information gap", "knowledge separation" and "polarization of the rich and the poor" caused by different degrees of application of the Internet and computers among countries, regions and populations in the process of global digitization [2]. Currently, academics believe that the digital divide is divided into "access divide", "application divide", "participation divide", "intelligence divide" [3]. "[3,4]. The early focus of the digital divide was mainly on the fact that the Internet and computers were only open to some users, forming a divide between different groups of people, and in the later stage, through the transmission effect of individuals, it was expanded to the inter-country, urban-rural, and inter-regional, resulting in the digital divide at different levels.

Developed countries usually have more advanced information technology infrastructure, wider network coverage and higher levels of digital literacy, while the digital divide is particularly prominent in developing countries due to inadequate infrastructure, low economic levels and limited education. Differences in the level of economic development, interests, and digital trade regimes have exacerbated the global gap between the rich and the poor, hindered the consensus on digital trade governance and the free flow of data elements, which not only affects the overall economic competitiveness of the country, but also affects the access to information, knowledge transfer, and innovation capacity at the national level [5].

The digital divide between urban and rural areas is also a notable issue. While cities usually have better digital infrastructure and higher levels of digital literacy, the digital accessibility and farmers' access gap still exists in rural areas, and the digital literacy and skills of rural residents have also become the cause of "new poverty" due to the lack of educational resources and skills training. The digital divide between urban and rural areas has become a "new poverty threshold"[6], and General Secretary has emphasized the need to "make efforts to solve the problems of development imbalance, governance dilemmas, the digital divide, and distribution gaps". This discrepancy has resulted in a "development lag" and an "awareness gap" in the countryside. This discrepancy has resulted in "developmental lag" and "weak awareness" in the countryside [7], which has led to the loss of opportunities for rural residents to access information and develop skills to participate in the digital economy, thus exacerbating the developmental gap between urban and rural areas.

2.2 Connotation of regional digital divide: institutional bias of technological progress

"Technology - economic paradigm" refers to the technological revolution will form the best practice of economic and social operation, including general-purpose technology and social organization, used to study the operation of the economic system and social organization formed by technological change [8,9]. "Technology - economic paradigm" explains the connotation of information technology to promote industrial change, the digital economy paradigm by replacing the old factors with data as a key factor of production, changing the mode of production of enterprises and organizations, and improving the skills requirements of the workforce, thus The digital economy paradigm will set off a wave of "new infrastructure", bring new product combinations, business models, and investment trends, and lead to the renewal of consumer products, consumption patterns, and lifestyles [10].

The gradual development of the "techno-economic paradigm" requires the simultaneous updating of organizational structures, social concepts, forms of governance and related policy systems [11], so as to avoid the systemic bias inherent in technological progress. Academics in the emphasis on

technology dividend creativity, profitability at the same time, ignoring the technological progress caused by the value chain, industry chain restructuring and labor market changes will not be automatically corrected by the "distribution mechanism" of the actual situation. From the point of view of production activities, the layout of the digital economy will inevitably lead to the development of its dividends first and maximize the benefits of urban and developed regions [12], productive services such as policy-based universal insurance can help to narrow the income gap between urban and rural areas, but may further increase the income gap between farmers in the eastern region and farmers in the central and western regions [12]. For residents' lives, the regional bias of the digital economy encourages residents of cities and developed regions to prioritize the enjoyment of improved digital infrastructure and social benefits brought by digital industries, making it easier for them to integrate into the digital life and enjoy the convenience of the digital economy, while residents of less developed regions may face digital skills gaps and the "access divide while residents in less developed regions may face digital skills gaps and an "access divide", preventing them from fully benefiting from the convenience and services of digitization. This gap may further widen the wealth gap between urban and rural areas, as well as between regions, and constitutes an important issue that needs to be urgently addressed in social development.

Summarizing the development process and social change of the new round of digital economy, the data governance and social relations problems exposed in the ICT era are not only manifested in the form of uneven development of digital economy among regions and digital divide with large differences in digital skills among groups, but also in the form of insufficient policy support for the progressive development of the "technology-economy paradigm", and the sharing and universality of the digital economy may fall short of social expectations. There is also insufficient policy support for the progressive development of the "technology-economy paradigm", and the shareability and universality of the digital economy may fall short of social expectations.

2.3 Impact of bridging the regional digital divide

Bridging the interregional digital divide can help industrial transformation and upgrading from different angles. First, to promote the combination of the virtual economy and the real economy, to achieve the synergistic development of the online and offline industry chain, the deep integration of the digital economy and the real economy is a major strategy and important initiative for China's economy to enter the new normal development stage of structural optimization and transformation of kinetic energy. Bridging the digital divide is a global strategic directive put forward by the "National Integrated Big Data Collaborative Innovation System" for the sake of deeper integration of the real economy into the digital platform, easier utilization of the digital economy platform, and solving the dilemmas faced by the real industry in production, management, sales, etc., such as large costs and physical distance. The data platform represented by the industrial Internet can make full use of the data elements to integrate innovation elements inside and outside the industry, make more efficient use of market-based supporting resources, assist small and medium-sized enterprises to realize innovation and research and development breakthroughs on a large and comprehensive platform [13], and at the same time also counteractively promote the further development of the digital economy platform [14]. Second, through the bridging of the digital divide, Chinese industries are expected to gain a more prominent position in global value chains. As a new type of global production network system, GVCs include product research and development, design, production, processing, sales, and service links in the world, involving industrial synergy and cooperation across multiple countries and regions. Bridging the inter-regional digital divide by improving the digitalization level of traditional industries in the central and western regions, and extending the industrial chain of high-tech industries in the eastern region to the west, it can promote the traditional agriculture and animal husbandry

industry in the western region to climb up in the global value chain status; while transforming the traditional manufacturing industry into a platform economy dominated by the industrial Internet, under the intermediary role of the Internet platform, the manufacturing industry's innovation and R&D breakthroughs can be transformed into the With the intermediary effect of the Internet platform, the innovation and R&D breakthroughs in the manufacturing industry can be transformed into core R&D capabilities, and the status of the manufacturing industry will be transformed and upgraded from the production and assembly links at the bottom of the "smile curve" to the high-value-added R&D and sales industries, so that it can better play a key role in the global value chain. With the support of digitalization, China's real economy will be able to provide more efficient and flexible production and supply chain management, and get rid of the "low-end lock-in" situation in global competition.

Bridging the interregional digital divide can enhance people's sense of well-being and accelerate the realization of common prosperity. The interregional digital divide is not only a task of economic development, but also a powerful initiative to enhance people's sense of well-being and fulfillment. The digital economy has the potential to enhance the quality of life and solve social problems. For example, the application of digital skills in the fields of healthcare, education and transportation can provide people with more convenient and efficient services and improve the quality of life. As a result of the digital divide, the central and western regions are lagging behind in the development of the digital economy in general. Due to the unbalanced distribution of technology, resources, talents and development timeframes, some regions are experiencing an "access divide", thus missing out on development opportunities, and their residents will miss out on the dividends of enjoying the fruits of these innovations. Bridging the digital divide will help realize the goal of common prosperity. The increase in innovation and entrepreneurial activities driven by the digital economy is expected to provide more employment opportunities for all regions and promote overall economic growth. By allowing more regions to participate in the development of the digital economy, more wealth can be created and the distribution system can be optimized, thus contributing to the realization of common prosperity for the whole society.

3. Action Dilemma in Bridging the Digital Divide in Regional Development

According to the China Digital Economy Industry Development Report (2023)① released by the Ministry of Industry and Information Technology, the digital economy development index shows a development pattern of echelon distribution among provinces, autonomous regions, and municipalities directly under the central government, with regions along the west of the Hu Huanyong Line, such as Inner Mongolia, Heilongjiang, Jilin, and Gansu, basically falling into the third echelon, and coastal regions, such as Beijing, Shanghai, Jiangsu, and Zhejiang, belonging to the first echelon. Central regions such as Anhui and Jiangxi are in the second echelon. Among them, Beijing-Tianjin-Hebei, Yangtze River Delta, Pearl River Delta region as the eastern coast of the developed areas, the digital economy to the inward radiation, the formation of the first echelon of the regional "leading" development trend; Sichuan, Hubei, as the central and western regions of the significant development of the digital economy of the provinces in the regional development of the role of the prospective, Guizhou, Jiangxi and other places in the development of regional characteristics Guizhou, Jiangxi and other places in the development of regional characteristics, but the overall development momentum is low; Guangxi, Heilongjiang and other places in the development of conservative, digital economy development is still behind other regions.

In 2022, the B2B of digital trade exceeded 230,000 cases, mainly concentrated in the eastern coastal cities, only the number of transaction events in five places, namely Beijing, Shanghai, Guangdong Jiangsu and Zhejiang, accounted for about 70% of the country, and the number of

transaction events in all other regions accounted for only about 1%, and the capital activity was characterized by significant regional imbalance. Between 2013 and the middle of 2022, the index of the digital economy development in the east has increased by 5.42 times, compared with 3.31 and 2.78 times in the center and west respectively. Among the Internet enterprises, according to the "Internet Comprehensive Strength Enterprises in 2023", the proportion of the central and western regions as well as the northeastern region accounts for less than 10%, and at the same time, the industries in the central and western regions are mostly concentrated in the fields of low-end cultivation, animal husbandry, heavy chemical industry, etc., with the level of industrial synergy being at the bottom, and the digital divide between large, medium-sized and small enterprises is very obvious [15]. The spillover effect of the capital cities in the eastern and central regions is obvious, while it is not obvious in the western region, at the same time, the spillover effect of medium-sized cities is greater than that of small-sized cities and large-scale cities [16].

3.1 Unbalanced infrastructure layout

The layout of China's data centers as a whole shows the trend of "more on the east coast and less in the central and northwest", and the gap in "facilities and hardware" will become a major hidden danger for data security, industrial transformation, and regional coordinated development of the digital economy and society. From the perspective of Internet accessibility, as of the end of 2022, the 100Mbps and above fixed Internet broadband access users in the east, central, western and northeastern regions reached 233.59 million, 140.72 million, 146.90 million and 325.09 million, accounting for a comparable proportion of broadband access users in the region. And the broadband access users with access rate of 1000 Mbps and above reached 44.16 million, 21.64 million, 23.08 million and 2.86 million respectively, accounting for 17.7%, 14.6%, 14.7% and 8.2% of the total number of fixed broadband access users in the region. It can be seen that, in terms of digital access, the penetration of China's basic facilities has been relatively perfect, which can ensure normal household use, but in the Internet area of the high-end communications industry, there are still significant regional differences, which means that in economically underdeveloped or remote areas, residents' digital experience and access to resources in the high-end communications area are limited. In terms of digital technology application, according to the New Infrastructure Competitiveness Index (2022)③ , the average scores of the Information Infrastructure Competitiveness Index of the provinces and cities in the East and West regions are 83.94 and 73.49, respectively; the average scores of the Convergence Infrastructure Competitiveness Index are 84.49 and 72.79, and the average scores of the Innovation Infrastructure Competitiveness Index are 82.58 and 71.54, with the West region The competitiveness indexes of the western region have not reached the national average level, and there is a big gap with developed regions. In the central region, the information infrastructure competitiveness index is lower, and the convergence infrastructure competitiveness and innovation infrastructure competitiveness indices have made greater progress, and are comparable to those of the eastern region; the northeastern region has widened the gap between it and the developed regions, with the information infrastructure competitiveness index ranked at the back of the list, and the innovation infrastructure index basically equal to that of the central region, and the convergence infrastructure competitiveness index is poorer.

Cities in the eastern region occupy the top six places in the country, with no major difference in the head region over the years. Among them, Beijing, Zhejiang and Shanghai ranked first in the country in the Innovation Infrastructure Index Score, Convergence Infrastructure Index Score and Information Infrastructure Index Score respectively. Meanwhile, the lagging position of the western region has not changed much, but the central region as well as part of the western region are developing rapidly, and the provinces in the middle of the ranking have greater development potential.

3.2 Sub-developed regions lagging behind in human capital and skills training

The digital economy has ignited the engine of economic growth, and the construction of new infrastructures has empowered the backward regions to take advantage of their backwardness and accelerate economic restructuring. However, the humanistic and technological qualities required for the development of digital economy are built in the relatively unbalanced development areas between regions.

In the field of technology, China is facing two challenges, which not only constrain the rapid development of leading domestic digital technology enterprises, but also deepen the "digital divide" between regions. First, China is facing technical monopoly brought about by trade friction in the international digital technology field, and the "necklace problem" restricts the high-speed development of China's leading digital technology enterprises and regions in key issues such as chips, engines, materials, numerically controlled machine tools, industrial software, and so on, and it is difficult to rapidly realize the independent innovation of digital frontier technology; On the other hand, the unbalanced development of digital technology between regions has exacerbated the formation of the "digital divide", and the promotion and popularization of new technologies such as 5G, AI computing, blockchain, etc. will bring great pressure on the development of new digital infrastructure represented by data centers, and it is expected that China's data centers in general will have a large arithmetic resource gap, and the eastern part of the country will have a large arithmetic demand to match the high arithmetic demand of the eastern part. Region's arithmetic demand matched with high energy-consuming supply will generate huge environmental pressure.

Within the field of education, due to the role of regional industrial structure, industrial transfer, labor mobility and other factors, there are regional differences in the economic growth effect of human capital structure [17], and the reconstruction of regional human capital by digitization has deepened the inter-regional digital divide. On the one hand, the development of the digital economy has put forward higher standards for the education years and skills training requirements of practitioners, making crossing the digital threshold a necessary condition for obtaining employment opportunities [18]. In this process, it is easier for developed regions in the east to obtain digital education resources and better teachers, which has a more significant effect on the enhancement of regional human capital, and this has led to the fact that the eastern region occupies a clear advantage in the talent reserve and Cultivation occupies an obvious advantage. On the other hand, the rise of the digital economy promotes the transformation and upgrading of traditional industries and the birth of new types of industries, which forces workers to continuously improve their knowledge and skill levels, thus promoting the advanced human capital structure [19], and also to a certain extent creates the siphoning effect of the digital divide on human capital. The eastern region has an absolute advantage in the recruitment of digital talents due to the conditions for attracting a large number of high-quality talents, such as rapid economic development, high income, and many employment opportunities, etc., while regions with a lack of human capital are in a worse situation due to the crowding-out effect that makes it difficult to satisfy the demand for high-skilled talents in the era of the digital economy.

3.3 Insufficient coordination of the industrial chain

At present, the construction of an economic cycle system with a smooth national economic cycle, a deepening domestic division of labor, and the continuous progress of the country's technological level as an endogenous driving force as one of the important connotations of China's new development pattern, the realization of this goal requires the deepening of the division of labor and collaboration among domestic regions and industries. [20]

On the one hand, the differences in the digital transformation process have led to greater disparities

in the level of division of labor and even the level of economic development among regions. As a new factor of production, data has the characteristics of continuous dissemination across time and space, reducing transaction costs and improving the efficiency of economic operation. Data promotes the flow and interoperability of data in the business unit and process chain, realizing the business model and process management updates [21], to a certain extent, breaking the traditional regional economy of industrial agglomeration. However, matched with the production efficiency of the various regions, the transparency of the supply chain, the speed of response, and its supporting links due to the application of digital technology and the degree of digitization is different in each region. It make it poorly integrated and coordinated, feedback in the industrial chain.

On the other hand, the difference in the level of digital integration of regional advantageous industries causes different levels of development between the industrial chains. In different regions, influenced by policies and their unique geographic, economic and resource conditions, different regional advantage industries have been developed. However, there are obvious differences in the digital integration of these industries, resulting in inconsistent levels of development between the various industrial chains. At the same time, due to the different market demand and consumption structure of each region, the new industry and new mode of digital economy-enabled industrial integration and development has different performance in each region, and the digital transformation of the Northeast and the West is mainly concentrated in the animal husbandry and heavy chemical industry, with a lower degree of transformation.

4. China's countermeasures - analysis based on the "East Counts West Counts" project

On February 17, 2022, the National Development and Reform Commission (NDRC), the Central Net Information Office (CNIO), the Ministry of Industry and Information Technology (MIIT), and the National Energy Administration (NEA) jointly issued the "Action Plan for the Construction of a New Type of Digital Information Infrastructure" and the "Action Plan for the Development of Computational Network Convergence", and subsequently, large Internet companies such as Tencent and Alibaba put into operation data centers in this layout, and gradually constructed eight national computing power hub nodes, such as the Jing-Jin-Hebei (Beijing-Tianjin-Hebei), the Yangtze River Delta (Yangtze River Delta), the Guangdong-Hong Kong-Macao Bay Area (Guangdong-Hong Kong-Macao Bay Area), centered in Tianjin 8 national arithmetic hub nodes, including Chengdu-Chongqing (Chengdu Intelligent Computing Center), Inner Mongolia (Yellow River Basin Ecological Environment Arithmetic Center), Guizhou, Gansu, Ningxia (East Counting and West Counting Integrated Arithmetic Service Platform); and Zhangjiakou Cluster, Zhongwei Cluster, Helinger Cluster, Qingyang Cluster, Chongqing Cluster, Tianfu Cluster, Yangtze River Delta Ecological and Green Integration and Development Demonstration Zone Cluster, Wuhu Cluster, Gui'an Cluster, Guangdong-Hong Kong-Macao Hub (Guangdong-Hong Kong-Macao Greater Bay Area Hub) Shaoguan Cluster a pattern of 10 clusters.

The "East Counts West Counts" project is an innovative exploration of mobilizing national sectoral cooperation, building policies and systems that match the digital economy paradigm, integrating the layout from a national perspective, optimizing the allocation of resources, improving the efficiency of resource use, eliminating the regional digital divide in the East, Central, West and Northeast regions, and assisting in the coordinated development of the region to share the dividends of the development of the digital economy. The innovative exploration of regional coordinated development and sharing the dividends of digital economy development. "The project aims to improve the national arithmetic level through the construction of arithmetic facilities, expand effective investment through digital industrialization and industrial digitization, drive the effective transfer of related industries through the promotion of east-west data transmission, and form a new digital economy development concept

under the guidance of the government, social organizations and enterprises to seek common development and bridge the digital divide between regions.

4.1 Infrastructure and digital system: building distributed operation mechanisms such as arithmetic facilities, server storage space, etc.

Digital equipment is an important support for the digital economy. Against the backdrop of digital transformation, digital engineering projects such as 5G base stations and industrial internet are being carried out nationwide since the "new infrastructure". These projects are particularly important in provinces located in the second and third echelons of digital economy development, as they need to support large-scale data transmission and processing through advanced network infrastructure. Among them, the arithmetic and cloud networks, through their distributed and highly technologically supported nature, ensure smooth data transmission between different regions, thus promoting coordinated regional development.

The distributed architecture of computing and cloud networks enables local economies to better integrate into global digital networks. While traditional centralized network architectures may result in the aggregation of information and resources at a central node, distributed arithmetic and cloud networks are able to distribute computing and storage resources more evenly across different regions. This distributed architecture helps break down geographic isolation and facilitates cooperation and sharing between regions. Regions are able to share data and applications more flexibly and increase the level of regional computing power, thereby promoting the collaborative development of the digital economy.

The decentralized nature of the arithmetic and cloud networks helps to improve the robustness and security of the overall system. Compared to the traditional centralized network, the decentralized architecture not only implies the simultaneous construction of inter-regional digital infrastructure, but also means that in digital security, there is no single point of failure in the system, and even if a node has a problem, the other nodes are still able to continue to operate, which is crucial for guaranteeing the reliability of the digital infrastructure and constructing an integrated national digital infrastructure. At the same time, the decentralized nature also improves the level of digital security and provides a solid technical foundation for the development of nationally unified data rules.

Breaking down regional barriers depends not only on the support of underlying technology, but also on nationally unified access policies and a relaxed institutional environment. Firstly, through the establishment of nationally integrated access standards and norms, it ensures that regions enjoy equal opportunities and rights in the digital economy, provides policy support for the elimination of local access barriers, and encourages a freer flow of enterprises and talents, which is a major contribution to the balanced spread and application of digital technologies across the country. Secondly, it establishes a more flexible and adaptive policy in terms of regulations, taxation and supervision to meet the development needs of different regions, help industries with advantages in each region better adapt to the rapid changes in the digital economy, stimulate the innovation vitality of enterprises, lower the threshold of digital transformation, and promote the balanced development of the digital economy across the country. Thirdly, through the establishment of a platform for sharing digital technologies and the promotion of inter-region cooperation on digitalization projects, we have prompted the formation of a synergy among regions in the research, development and application of digital technologies, which is conducive to the realization of resource sharing, reduce the regional differences in digital technology, and promote the overall enhancement of the national digital economy.

4.2 Realization of digital industrialization and digitization of industries to expand effective investment

The national integrated data center system constructed by the government, enterprises and other subjects, gives top-level design from five dimensions of "digital network, digital link, digital chain, digital brain and digital shield", and integrates "data center + network + cloud + big data + artificial intelligence + security" into one. Although the popularization of the Internet at this stage has already met the requirements of the primary stage of the digital economy, digital technology still needs to be further developed to meet the needs of empowering enterprise production and people's life in the use of high-end technology, and to provide the inherent impetus for the digital transformation of traditional industries and the development of new industries and new models.

As a concept under the "National Integrated Big Data Center Collaborative Innovation System", East-West Computing aims to promote the integration of technology, business and data, and to realize the "hardware" foundation for cross-level, cross-territory, cross-system, cross-department and cross-business collaborative management and services. On the one hand, the "East Counts West Counts" project realizes the purpose of helping enterprises in digital transformation, cost reduction and efficiency, for example, Ningxia has introduced new measures to promote the rapid development of big data industry, and will support the big data industry to become bigger and stronger and realize high-speed development in various aspects, such as lowering the price of electricity, financial support, and tax exemption and so on. On the other hand, the "East Counts West Counts" project improves the network throughput between regions in China, guarantees the quality of data transmission, reduces latency, optimizes the relationship between supply and demand of national arithmetic, builds an integrated arithmetic scheduling system, promotes the coordinated construction of data centers and the cross-domain circulation of data elements, and is an important path to achieve industrial aggregation and coordinated regional development.

In terms of application empowerment, with a view to bridging the regional digital divide, the "East Counts, West Counts" project should pay more attention to creating application benchmarks for the digital transformation of industries in key areas such as industry, finance, health care, transportation, energy and education. By strengthening cross-regional digital cooperation and information sharing, the "East Counts, West Counts" project will bring into play the balanced coordination in key areas to ensure that the digital transformation levels of different regions can be better aligned and synergized, thereby realizing the comprehensive upgrading of the digital economy in the fields of industry, finance, and healthcare. These benchmarks will provide advanced digital solutions for various industries, promote innovation and development in various fields, and lay a solid foundation for the upgrading and transformation of China's digital economy at the industrial level.

4.3 Driving the effective transfer of related industries

On the one hand, traditional industries are actively using arithmetic to realize their transformation and upgrading, and to promote the rapid development of industrial digitalization; on the other hand, arithmetic itself has spawned a series of emerging digital industries around the application of data generation, storage, calling and other scenarios. It can be said that arithmetic power is not only a key pillar for the transformation and upgrading of traditional industries, but also constitutes a new economic growth point.

With the promotion of the "East Counts, West Counts" project, the imbalance between supply and demand in the eastern and western regions has been solved, and an effective transfer has been realized in the development of the industrial chain, which has injected new impetus for the healthy development of regional coordination. The core of the "East Counts, West Counts" project is to optimize the data center industry chain, matching the computing power and energy demand of the

eastern region with the green and clean energy of the western region through the reasonable allocation of technology and energy. This innovative initiative not only extends the data industry chain, but also makes it possible to quickly fill the short board in the supply of arithmetic and energy in the eastern region, which not only improves the quality of arithmetic and lays the foundation for the efficient operation of the whole industry chain, but also reduces the cost of network power and practices the goal of "carbon peak and carbon neutrality" at the macro level. At the same time, it promotes the excellent growth of the energy industry in the western region and brings more development opportunities for enterprises.

The data center industry chain effectively drives the upstream and downstream industries to transfer value to the western region, and builds the data center industry ecosystem to promote the upstream equipment manufacturing industry of the data center and the downstream data elements circulation, data innovative applications and new consumption patterns and other industries to gather and land. On the one hand, the upstream equipment manufacturing industry has been able to develop and grow to meet the needs of data center construction, provide a new economic growth point for the western region, and promote the upgrading and development of the local manufacturing industry. At the same time, in order to further support this development trend, it has led to the establishment of a professional digital technology training institution in the western region to provide digital skills training related to data center construction and equipment manufacturing. Training courses related to the latest digital technologies and equipment manufacturing, it can help them better adapt to the needs of industrial development and enhance the digitalization level of the entire industrial chain. On the other hand, the flow of downstream data elements has become more convenient, providing enterprises and innovators in the western region with more convenient ways to access and exchange data resources, thus stimulating more innovative vitality and forming a data-centered innovation ecosystem. In terms of innovative data applications and new consumer industries, the "Counting East, Counting West" project promotes the establishment of innovation bases and science and technology parks, introduces high-tech enterprises and projects to the western region, facilitates positive interaction between local innovators and start-ups and introduced high-tech enterprises.

5. Conclusion

In recent years, with the development process of globalization and the complexity and risk characteristics of the external environment, regional coordinated development is facing new opportunities and challenges. Since the reform and opening up, China has achieved great results in the cross-regional resource deployment project, from the initial cross-regional deployment of water resources and energy resources to the cross-regional flow of data resources and green energy elements, which has achieved the iterative upgrading of the attributes of commodities in regional cooperation, as well as the updating of the attributes of different strategic areas in policies. It has realized the iterative upgrading of commodity attributes in regional cooperation, and also presented the updating of attributes of different strategic fields in policies.

The “East Counts West Counts Project” not only solves the mismatch between the supply and demand of electricity and computing power resources in the east and west regions, but also becomes an important engine to promote the coordinated development of the region, bridge the digital divide, and accelerate the high-quality development of the digital economy at the macroscopic level. By constructing a new type of arithmetic network system, the project organically combines the dense data demand of developed regions in the east with the rich natural resources and lower land and energy costs of less-developed regions in the west, thus realizing the optimal allocation and efficient use of data resources.

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