

# Study on the Path and Countermeasures of Blockchain Technology to Promote High-Quality Development of Digital Economy in Guangzhou

Qing Guo, Wenlan You, Keying Hu, Yiyi Chen, Ziyu He

School of Economics and Trade, Guangdong University of Foreign Studies, Guangzhou, China

Email: qingguovip@gmail.com

**How to cite this paper:** Guo, Q., You, W. L., Hu, K. Y., Chen, Y. Y., & He, Z. Y. (2022). Study on the Path and Countermeasures of Blockchain Technology to Promote High-Quality Development of Digital Economy in Guangzhou. *Open Journal of Business and Management*, 10, 3305-3326.

<https://doi.org/10.4236/ojbm.2022.106163>

**Received:** September 21, 2022

**Accepted:** November 18, 2022

**Published:** November 21, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

At present, there are still some bottlenecks in the development of digital industrialization and industrial digitalization of blockchain in Guangzhou, which are mainly manifested as follows: firstly, it is not easy to land the digital business model of blockchain industry; secondly, the digital industrialization of blockchain is limited by the existing infrastructure and technology level. In order to further grasp the status of Guangzhou blockchain in the international and domestic arena, we compare and analyze the development status of the top five blockchain cities, including Guangzhou, Beijing, Shenzhen, Shanghai and Hangzhou, from four perspectives: industrial policy, development scale, talent cultivation and application scenarios; and compare and analyze the typical examples of Guangzhou in China, Hamburg in Germany, Seoul in Korea, New York in the United States, and Melbourne in Australia from three aspects: governmental decision, talent cultivation and education, and application scenarios. The comparison and analysis of typical examples are from Guangzhou, Hamburg, Seoul, New York and Melbourne, in order to obtain the experience and lessons for the future development of blockchain in Guangzhou, on this basis, the development opportunities of blockchain in Guangzhou are carefully analyzed. The following favorable conditions for the development of blockchain in Guangzhou during the 14th Five-Year Plan period are considered: firstly, the support of national strategic policy provides a broad prospect for the development of blockchain in Guangzhou; secondly, the good business environment and strong strength provide quality soil for the

---

blockchain industry; thirdly, the international business capital provides a broad application scenario for the development of blockchain. In view of the above research, this paper proposes the ideas and policy focus for blockchain development in Guangzhou during the 14th Five-Year Plan period.

### **Keywords**

Blockchain in Guangzhou City, Development Status, Domestic and International Comparison, Favorable Conditions, Countermeasure Suggestions, Firm Power

---

## **1. Introduction**

Today's world economic situation continues to be turbulent, and shocks from outside are affecting the healthy and stable development of China's economy more and more frequently. The world's major economies have experienced a persistent downturn since the global financial crisis, and the trend of counter-globalization has become more pronounced. At the same time, trade friction between China and the United States continues to escalate, facing the risk of decoupling, as well as the persistence of the new crown epidemic, the spread of globalization is further affecting Guangzhou to achieve stable economic development, greatly increasing the risk and uncertainty of Guangzhou's economic development, tourism, catering, transportation and other service industries have been affected by the huge impact from the outside, while the manufacturing industry has also been affected to a certain extent, facing the problem of underemployment. All these situations have increased the pressure of economic growth in Guangzhou in the short term, and the pattern of science and technology, economy and industry is facing a major adjustment. In the afternoon of October 18, the 34th collective study of the Political Bureau of the CPC Central Committee was held, and General Secretary Xi Jinping delivered an important speech on how to promote the healthy development of China's digital economy. At this meeting, General Secretary Xi Jinping pointed out that the Internet, big data, blockchain and other emerging technologies rise quickly, increasingly integrated into the whole field of China's economic development process. In particular, the digital economy is developing rapidly and is becoming a key force in China's economic development. Since the 18th National Congress was held, the Party Central Committee has shown a high degree of attention to the development of China's digital economy and put forward the network power strategy and the national big data strategy, which has pointed out the direction for the development of China's digital economy. The digital economy represented by "blockchain" technology has a broad prospect of development and abundant technical application fields, which is expected to become a new engine to support the sta-

ble growth of Guangzhou's macro economy. Guangdong Province, as one of the regions with early layout of blockchain industry in China, takes the initiative to grasp the major strategic opportunities of blockchain development and actively encourages the integration of blockchain technology with economic construction and social governance. As a frontier of reform and opening up and a big manufacturing city, Guangzhou has also issued supportive policies for blockchain, for example, the Huangpu District of Guangzhou has issued the Measures for Promoting Blockchain Industry Development in Guangzhou Huangpu District Guangzhou Development Zone. In March 2020, Guangzhou was officially approved by the Ministry of Industry and Information Technology to create a Blockchain Development Advance Demonstration Zone, becoming the first city in China to be approved to create a Blockchain Development Advance Demonstration Zone, which marks Guangzhou. This marks another important step on the road of developing blockchain industry in Guangzhou. The digital economy has become an engine of global economic growth, and governments around the world are vigorously promoting the development of the digital economy. As a frontier of reform and opening up and a big manufacturing city, Guangzhou adheres to the requirements of high-quality development, continuously promotes the innovation and development of digital industrialization and industrial digitalization, accelerates the improvement of the digital economy policy system, supports the construction of digital infrastructure, and provides strong leadership and support to promote Guangzhou to realize the new vitality of the old city and the four new outstanding colors. The Guangzhou Digital Economy Promotion Ordinance points out that the annual added value of Guangzhou's digital economy has already exceeded one trillion yuan, belonging to the first echelon of the national digital economy. By 2022, Guangzhou will have built more than 8 major innovations in the circulation and governance of data elements, 15 major innovation experimental platforms, 30 major industrial transformation and upgrading projects, and 100 demonstration projects of quality application scenarios with leading technology. From the data, Guangzhou city has made certain achievements in digital economy development, but as a testing ground and frontier base for digital economy development, there are still some bottlenecks in the digital industrialization and industrial digitalization development of Guangzhou blockchain, which are mainly manifested as follows: firstly, it is not easy to land the digital business model of blockchain industry; secondly, the digital industrialization of blockchain is limited by the existing infrastructure and technology level. Therefore, by comparing and mastering the status of Guangzhou blockchain in the country and the world, it is important to study the path and countermeasures for Guangzhou blockchain to promote the high-quality development of digital economy, which is enlightening for responding to the network power strategy proposed by the Party Central Committee and the national big data strategy.

## **2. Analysis of the Current Situation of the Development of Blockchain Industry in Guangzhou**

### **2.1. The Concept and Characteristics of Blockchain and Digital Economy**

#### **2.1.1. The Concept of Blockchain Concept and Characteristics**

The concept of blockchain was first mentioned by Sstoshi Nskamoto (Satoshi Nakamoto) in 2008 in the white paper “Bitcoin: A Peer-to-Peer Electronic Cash System”. Blockchain is a distributed ledger (database) technology that connects blocks of data in an orderly manner and cryptographically guarantees that they cannot be tampered with or falsified. Broadly speaking, blockchain technology is a new distributed infrastructure and computing method that uses blockchain data structure to verify and store data, distributed node consensus algorithm to generate and update data, cryptography to secure data transmission and access, and smart contracts composed of automated scripting code to program and manipulate data.

Blockchain is transparent, secure and efficient, so it is particularly suitable for businesses that are inefficient and for empowering new business models based on distributed markets and technologies.

#### **2.1.2. The Concept and Characteristics of the Digital Economy**

The digital economy refers to an economic system in which digital technologies are widely used and as a result bring about fundamental changes in the overall economic environment and economic activity. The digital economy is also a new socio-political and economic system in which information and commerce are digitized, and transactions between businesses, consumers and governments are growing rapidly via the Internet.

The digital economy focuses on the production, distribution and sale of goods and services that all rely on digital technology. The business model of the digital economy itself works well because it creates a win-win environment for both businesses and consumers. The growth of the digital economy has brought about a dramatic impact on management practices including competitive strategy, organizational structure and culture. As advanced web-based technologies are put into practice, our old ideas about time and space are being challenged head-on as business organizations struggle to figure out how to integrate business with customers, suppliers, and partners in terms of data information systems, workflows, and work practices, all of which have their own different standards, protocols, traditions, needs, incentives, and workflows.

### **2.2. Analysis of the Current Situation of the Development of Blockchain Industry in Guangzhou**

The performance of blockchain to boost the high-quality development of Guangzhou’s digital economy is mainly reflected in: first, digital industrialization, using emerging technologies to collaboratively drive the high-speed and high-

quality development of digital industry. Blockchain technology plus information and communication industry then forms blockchain information and communication industry. These industries cover new industries such as blockchain information technology facilities, cloud computing, Internet of Things, data centers, and databases formed by blockchain (Chen, Zhang, Ye, & Xu, 2021). Second, the digitization of industries and the deep integration of blockchain technology with the three industries in China promote the realization of efficient development of digital economy industry empowerment. This is mainly reflected in the combination of blockchain core technology and real industries, digitizing China's existing industries, helping traditional industries to successfully realize transformation and upgrading, reshaping industrial chains and improving industrial levels, as well as helping to improve the quality and efficiency of industrial development (Lin & Shao, 2019). As for the current situation, the development of digital industrialization and industrial digitization in terms of blockchain in Guangzhou is shown as follows.

### **2.2.1. Blockchain Industry Digital Business Model Is Not Easy to Land**

General Secretary Xi pointed out at the 34th collective study session that the development of digital economy is a strategic choice to grasp the new round of technological revolution and new opportunities for industrial change. Blockchain industry digitization is an important initiative to improve China's international comprehensive competitiveness as well as effectively promote the transformation and upgrading of traditional industries. Based on modern information technology, industrial digitization allows the deep integration of emerging technologies such as cloud computing, Internet of Things, artificial intelligence and blockchain with China's traditional three industries through the transmission mechanism of incremental quantity driving stock and innovation leading tradition, which in turn improves China's total factor productivity and taps new potential for China's economic growth. The process of digital development of blockchain industry is the process of following the development direction of the trend of the times, using emerging technologies to upgrade and transform traditional industries in line with the future development direction of our country, and further promoting the realization of sustainable and high-quality development of Guangzhou's economy (Gong, Ban & Zhang, 2021). In terms of the current mode of blockchain in Guangzhou city in practical application, it is difficult to realize the landing application of pure business model, which requires clear project planning and policy support from the government, reliance on the scenario of technology application, and the need to let enterprises see the convenience, safety and efficiency and profitability of blockchain technology applied in the real field. Practical experience tells us that this is often a long process of multi-party collaboration and joint efforts, not overnight.

There are currently three major obstacles to achieving the goal of digital industrialization of blockchain in Guangzhou. One is that a large number of suitable

blockchain technology application scenarios cannot be found yet. The Guangzhou Digital Economy Promotion Regulations state that as far as industrial enterprises themselves are concerned, they do not have a deep understanding of digital technology, so on this basis, based on information asymmetry, they will be subjectively reluctant to undergo digital transformation. For some enterprises in Huangpu District, Guangzhou, blockchain technology has not yet been able to significantly reduce their business production costs and improve operational efficiency, or the ratio of input to output has not yet shown a significant ratio, so some enterprises do not have the expectation of vigorously implementing blockchain technology in actual production. Secondly, there is a certain problem of multi-party cooperation. Therefore, it is crucial to coordinate the interests of multiple parties and make concerted efforts to promote blockchain projects. Field research found that there is still a shortage of blockchain in Guangzhou in this regard. Thirdly, it is difficult to implement some innovative solutions. This is mainly because innovative solutions must bring sustainable benefits to all parties involved, and at the same time, the solution can be replicated and applied on a large scale, as well as meeting the requirements of the existing regulatory system in the market. Although Guangzhou has introduced several policies to promote the development of blockchain industry, there are fewer regulatory policies on blockchain. It is difficult to provide a suitable solution that satisfies all three conditions at the same time under the existing conditions, and it is also difficult to implement.

### **2.2.2. Blockchain Digital Industrialization Is Limited by the Existing Infrastructure and Technology Level**

Blockchain digital industrialization refers to the deep integration of blockchain and three industries. As emphasized by General Secretary Xi Jinping at the meeting, it is necessary to promote the integrated development of the digital economy and the real economy, to promote the digitization of the service, agricultural and manufacturing industries, and to improve the total factor productivity of our society. The traditional communication industry can be digitally industrialized through information and communication technology, and then form a modern and efficient digital communication industry through the path of industrial upgrading. Digital communication industry mainly includes the Internet, telecommunications communications, software and information technology services, artificial intelligence and other industries (Luo, 2019). However, nowadays, if Guangzhou wants blockchain to be applied on a large scale, it needs to solve the problems such as the existing infrastructure construction of the society is not yet perfect enough, the resource consumption to output ratio is too large, and the arithmetic power is insufficient (Wen & Hu, 2020). If the new blockchain technology is to become a new engine and support for Guangzhou's economic growth, it is inevitable that it cannot be supported by a solid physical infrastructure. It should also be noted that the information infrastructure required for the large-scale application of blockchain technology is of a higher

standard, which requires the support of new information network facilities and digital infrastructure that are secure, high-speed and ubiquitous. Therefore, we should respond to the call of the Party Central Committee, accelerate the construction of new infrastructure, strengthen the strategic layout, accelerate the investment in research and development of key core technologies and the process of conquering them, and firmly hold the “bull’s nose” of independent innovation. At present, it is difficult for Guangzhou to effectively realize the deep integration of blockchain technology industry and its application on the ground, so the government needs to make more efforts jointly with all sectors. On the one hand, in the current research stage of blockchain technology development in China, the research results have not yet enabled the Guangzhou society to realize the interconnection and interoperability of cross-chain systems, and there are still obstacles in the practical application of blockchain technology. On the other hand, blockchain digital industrialization is still at the stage of small-scale pilot, and has not explored a path that can be applied on a large scale in the society, with high replication efficiency and obvious commercial significance, and lacks typical demonstration cases.

### **3. Favorable Conditions for the Development of Blockchain in Guangzhou during the “14th Five-Year Plan” Period**

Of course, in addition to some restrictive factors, there are also some favorable conditions for blockchain development in Guangzhou, specifically the following.

#### **3.1. The Support of National Strategic Guidelines Provides Broad Prospects for the Development of Blockchain in Guangzhou**

Blockchain is becoming a global hot issue. At present, China is urgently implementing the national big data strategy and vigorously promoting the formation of a digital economy system with innovative power as the main support and key leading factor (Kuang & Peng, 2020). Guangzhou attaches great importance to the development of blockchain, focusing on supporting the development of a new generation of information technology fields, and has made a comprehensive plan to promote blockchain as a new driving force to promote the high-quality development of Guangzhou’s economy. Guangzhou has delineated Huangpu District and Development Zone as the frontrunners of blockchain technology research, development and development, fully taking into account the advantages of the solid manufacturing cornerstones that these two areas have, to continuously promote the landing application of new blockchain technologies and the clustering of digital industries, and to continuously and deeply promote the development process of Guangzhou’s digital industry. Currently, Tencent, Alibaba, Vipshop and other giants of China’s Internet industry are located in the core area of Guangzhou Pazhou, which is a pilot area of Guangzhou’s digital econo-

my and artificial intelligence.<sup>1</sup> Today blockchain technology is increasingly becoming a key factor in leading a new round of global industrial and technological change. Guangzhou also smells the new trend of future economic development, is trying to seize the new opportunities brought by this technology, intends to take advantage of this “east wind” to promote the transformation and upgrading of Guangzhou’s traditional industries to complete, and actively introduce blockchain-related policies, catalyze the application of excellent products to land, and accelerate the industrial layout.

### **3.2. Good Business Environment and Strong Strength Provide Quality Soil for Blockchain Industry**

For a long time, Guangzhou’s economic development has maintained a steady upward trend. 2020 Guangzhou achieved an annual GDP of 2,501.911 billion yuan, an increase of 2.73% over the 2019 GDP. Meanwhile the three major industries also achieved economic growth in different degrees, with growth rates of 9.8%, 3.3% and 2.3% for primary, secondary and tertiary industries respectively. According to the Economic Operation Report for the first eight months of 2021 released by Guangzhou Municipal Bureau of Statistics, from January to August 2021, Guangzhou’s overall industrial production was stable, investment was growing well, export structure was somewhat optimized compared to the past, and the overall economic operation was stable. From January to August, the city’s fixed asset investment grew by 21.1% compared to the same period of the previous year. Guangzhou’s strong economic development capability and vibrant investment and financing atmosphere create a favorable environment for the industrial development of blockchain.

### **3.3. The International Business Capital Provides a Broad Application Scenario for the Development of Blockchain**

In 2021, the “Implementation Plan for the Construction of National Digital Economy Innovation and Development Pilot Zone in Guangzhou” was considered and adopted. The implementation plan mentions two goals, namely that the gross value of Guangzhou’s electronic information manufacturing industry will exceed RMB 280 billion in 2022, while the revenue of the software and information service industry will exceed RMB 600 billion, making corresponding plans for the development of some of Guangzhou’s digital industries in the short term. Compared with Beijing and Shanghai, Guangzhou’s blockchain technology

---

<sup>1</sup>Blockchain is not a disruption of the Internet, but a comprehensive inheritance of the Internet achievements based on the core capabilities of the existing global greatest Internet platform companies extracted and sunk to the level of public infrastructure. In this way, decentralized digital identity, payment, etc. are all basic capabilities and basic services that every user can directly enjoy, and all of them are open source and open protocols, so that no platform can kidnap users through these. The relationship between blockchain and Internet is that the two complement each other and grow together.



research and development and development started late, but in the past two years, Guangzhou has seized the opportunity of blockchain development, grasped the launch of various beneficial policies, increased the investment in research and development in this area, and achieved a bend. Guangzhou City has divided Huangpu District and Development Zone as the frontrunners of blockchain technology R&D and development, fully taking into account the advantages of the solid manufacturing base of these two areas, and continues to promote the application of new blockchain technology on the ground and the development of Guangzhou's digital industry clusters. Currently, Guangzhou City leads the country in the number of blockchain industrial parks. Guangzhou has also applied blockchain technology to multiple scenarios such as smart city, taxation and government affairs. All signs show that the construction of blockchain industrialization in Guangzhou is in full swing and has achieved certain results. On the one hand, this dazzling result is certainly due to the region's ability to cultivate talents and invest in research and development, its superior geographical location and economic environment, as well as the government's timely support with appropriate policies. On the other hand, it is also related to the establishment of various alliances in the city and the optimization of the business environment brought by them. The establishment of industrial funds, blockchain alliances and industry associations has injected living water into the development of blockchain technology and provided a strong platform to support and guarantee the further development of blockchain industry clustering in Guangzhou.

#### **4. International and Domestic Comparison of Guangzhou Blockchain Industry**

In order to further grasp the actual level of development of blockchain industry in Guangzhou, the article compares the blockchain industry in Guangzhou with the representative cities of blockchain in international and domestic.

##### **4.1. Comparison of Major Domestic Cities**

###### **Industrial Policy**

We compare the blockchain industry of Guangzhou with that of domestic cities, and the results are shown in **Table 1-4**. In a word, since the opening of the domestic blockchain industry, the below five cities have followed the pace of the Party Central Committee and introduced relevant measures and policies to accelerate the implementation of the research and development, application and development process of the new blockchain technology. However, due to the geographical differences, resource endowment limitations and different development situations among regions, all five cities have combined their own development situations and introduced different degrees of policy documents to promote the incubation and development of blockchain industry, encourage blockchain technology to empower the real economy and boost the landing of several blockchain application scenarios.

**Table 1.** Comparative analysis of industrial policies.

Guangzhou	<p>The “Measures for Promoting Blockchain Industry Development in Huangpu District, Guangzhou” is the earliest policy document on blockchain issued in Guangzhou, which was published in December 2017, about one year and four months after the earliest policy document on “blockchain” was issued in China. The policy mentions “ten blockchain articles”, including subsidies and incentives covering seven areas. Guangzhou selected Huangpu District and Development Zone as the pioneer of blockchain technology development, and examined the development of blockchain from a local perspective first. In the “Guangzhou Huangpu District, Guangzhou Development Zone on Accelerating Blockchain Industry and Leading Change Measures”, it is mentioned that Guangzhou Development Zone will set up a fund of 1 billion to encourage the development of blockchain industry, in which the subsidy for “coinless” public chain projects can reach up to 10 million yuan. In March 2020, Guangzhou was approved by the Ministry of Industry and Information Technology, becoming the first city in China to be approved to create a demonstration zone for blockchain development. On the way to promote the development of blockchain industry, Guangzhou has taken another major step in the development of digital economy.</p>
Beijing	<p>Beijing is the earliest city among the five cities to release policies related to “blockchain”, and the earliest policy related to blockchain is the “2016 Annual Performance Task of Beijing Municipal Bureau of Financial Work” released in August 16. The policy hopes to use the Zhongguancun Blockchain Alliance to promote further optimization of the development environment of Beijing’s financial industry. In order to accelerate the development and application of new blockchain technologies, the incentive and support measures given by Beijing will give enterprises a certain amount of financial support, which will be based on 30% of the amount of the signed procurement agreement or technology application contract, while the maximum amount of support for a single blockchain project may not exceed 5 million yuan.</p>
Shenzhen	<p>Shenzhen is the second city to release a policy related to “blockchain”. In November 2016, the Shenzhen Finance Office released the “Thirteenth Five-Year Plan for the Development of Shenzhen’s Financial Industry”, which was the first policy document in Shenzhen to include the word “blockchain”. In the “Shenzhen Financial Industry Development Measures”, Shenzhen mentioned that it will establish a special award for financial technology. For blockchain, digital currency and other areas of outstanding outstanding projects, the award can be awarded up to 6 million yuan to the research and development side.</p>
Shanghai	<p>The “Key Points of Financial Services in Baoshan District in 2017” issued by Baoshan District Government in 2017 is the earliest policy involving blockchain words proposed in Shanghai. The document mentions the need to effectively track and serve the construction of blockchain technology industry incubation bases. One of Shanghai’s measures to stimulate and support the development of new blockchain technology is to give a one-time incentive of up to 10 million yuan to eligible blockchain enterprises.</p>
Hangzhou	<p>Blockchain was first mentioned in the “Policy on Blockchain Industrial Park in Hangzhou, China” introduced in May 17, 2018. Hangzhou became the first city in China to involve blockchain words in the local government work report. It can be seen that Hangzhou strongly supports the completion of blockchain industrial park construction through the introduction of policies, and attracts high-level blockchain talents to settle in the industrial park by giving subsidies and rewards. In the aforementioned policy, the Hangzhou government promised subsidies of up to 3 million yuan for the purchase of houses. Meanwhile, in early April 2018, Hangzhou established the “Xiongan Global Blockchain 10 Billion Innovation Fund”, which is the first blockchain fund of 10 billion in scale in China, fully reflecting the importance Hangzhou attaches to “blockchain” technology.</p>

Source: Compiled by the author.

**Table 2.** Comparative analysis of development scale.

Guangzhou	Practice shows that cities with better business environment will attract more blockchain enterprises (Wang & Wei, 2020). As of July 6, 2021, the number of blockchain enterprises in Guangzhou, as shown by SkyEye, is 24,301, which is far ahead of the five domestic cities mentioned in this article and has an outstanding advantage in the total number of blockchain enterprises. The number of blockchain industrial parks in Guangzhou is 5.
Beijing	Considering the direction of the distribution of the number of enterprises, the number of blockchain enterprises in Beijing is 1173; considering the direction of the distribution of the number of industrial parks, the number of blockchain industrial parks in Beijing is 2.
Shenzhen	Examining from the direction of the distribution of the number of enterprises, as of July 6, 2021, the number of blockchain enterprises in Shenzhen is 8505, second only to Guangzhou; considering from the direction of the distribution of the number of industrial parks, Shenzhen currently does not have the blockchain industrial park in Guangzhou.
Shanghai	Considering the direction of the distribution of the number of enterprises, the number of blockchain enterprises in Shanghai is 542; considering the direction of the distribution of the number of industrial parks, the number of blockchain industrial parks in Shanghai is 4.
Hangzhou	Considering the direction of distribution of the number of enterprises, the number of blockchain enterprises in Hangzhou is 3903; considering the direction of distribution of the number of industrial parks, the number of blockchain industrial parks in Hangzhou is 5.

Source: Compiled by the author.

**Table 3.** Comparative analysis of talent development.

Guangzhou	Sun Yat-sen University, Guangzhou University and South China University of Technology all offer blockchain-related professional courses in the city. Meanwhile, the well-known universities in Guangzhou City have followed the footsteps of technological innovation and basically set up special blockchain research laboratories (institutes), for example, CUHK and UWI have set up special blockchain laboratories (Li & Lu, 2020), which is sufficient to reflect the importance of the new blockchain technology in promoting economic growth.
Beijing	A total of six colleges and universities in Beijing have offered relevant blockchain professional courses. Among them, the construction of blockchain courses can be traced back to as early as July 2016, and Central Finance was the first higher education institution in China to set up blockchain-related professional courses.
Shenzhen	There is only one school that offers professional courses related to blockchain, and that is Shenzhen University. It is worth mentioning that, as one of the leaders of economic development in Guangdong Province, Shenzhen is not behind Guangzhou. Southern University of Science and Technology and Shenzhen University have opened blockchain special labs to lay out research related to new blockchain technologies.
Shanghai	There are five universities in Shanghai that offer blockchain courses, namely Shanghai University of Finance and Economics, Shanghai University, Fudan University, Shanghai Jiaotong University and Tongji University, the number of universities offering courses is only as high as Beijing.
Hangzhou	There is only one university that offers blockchain-related professional courses, and that is Zhejiang University.

Source: Compiled by the author.

**Table 4.** Comparative analysis of application scenarios.

Guangzhou	According to the statistics of Mutual Chain Pulse, among the 846 blockchain projects landed in 2019, the number of projects in the field of government and finance accounts for the largest number, and the number of landings in these two fields is basically equal, leading the list. In July last year, Guangzhou City issued the “Blockchain + Business Environment Work Plan for Guangzhou Municipal Government”, which means that Guangzhou will vigorously promote “blockchain + government services” to be at the forefront of the country, and 12 of the 20 landed projects are in the government category.
Beijing	As of the end of October 2020, Beijing has 34 blockchain landed application projects, ranking first in the country in terms of the number of landed projects, with the projects focusing on government data applications. It also has a good development in the traceability of cold chain food.
Shenzhen	In May 2016, Shenzhen established the Financial Blockchain Cooperation Alliance. The alliance focuses on exploring the specific aspects of new blockchain technology for financial scenarios, which allows Shenzhen to seize the first-mover advantage in the financial sector and vigorously develop “blockchain + finance” projects.
Shanghai	The “Blockchain Construction Specifications for Government Services” introduced in Shanghai in October 20 is the first document in China aimed at building standards in the application of blockchain technology in the field of government services. As a well-known financial center in China and the world, Shanghai has a unique advantage in the financial sector. Among the well-known blockchain companies in Shanghai, those focusing on projects in the financial sector account for more than 30%, second only to the number of companies focusing on the underlying blockchain platform and application projects.
Hangzhou	Hangzhou has outstanding performance in the traceability of cold chain food, and is also a leader in the application of electronic medical records in the field of “blockchain + medical health” nationwide.

Source: Compiled by the author.

Regarding the industrial policy, Beijing is one step ahead and occupies the first-mover advantage, followed by Shenzhen. Guangzhou is the latest city among the five cities to introduce relevant policies, but in general, the time difference between the enactment of each city is not too far. Among them, Guangzhou has divided Huangpu District and Development Zone as the early zone, trying to develop blockchain from a local perspective. Hangzhou, on the other hand, focused on promoting the construction of blockchain industrial parks. Shenzhen, Beijing and Shanghai choose to take the financial industry as the entrance of “blockchain+” and gradually promote the layout of blockchain. As the top five cities in the country in terms of comprehensive strength of blockchain, all five cities have set up relevant blockchain industry funds. Among them, the fund established in Hangzhou is the first blockchain fund with a scale of 10 billion yuan in China, followed by Shanghai with 5 billion yuan. The fund scale of Beijing, Shenzhen and Guangzhou is 1 billion yuan in the first period, 500 million yuan in the first period and 1 billion yuan respectively. Compared with the remaining four cities, Guangzhou’s fund size is smaller.

However, in terms of subsidies and incentives, Guangzhou's support is greater than other cities. The "Guangzhou Huangpu District, Guangzhou Development Zone to promote the development of blockchain industry" is currently recognized as the strongest and most supportive policy for blockchain technology model breakthroughs in China. Although Guangzhou City is not the first city to fire a blockchain policy, it has made a strong move in terms of top-level design. Meanwhile, among the five cities, only Guangzhou and Beijing have promulgated the "three-year blockchain development plan" at this stage. From the plan, it can be seen that Beijing's policy support is weaker than Guangzhou's, while Guangzhou's provisions include a more comprehensive and specific range of support. Among the five cities, Guangzhou and Beijing have issued special action plans for the development of blockchain industry, and have made a top-down overall layout for blockchain. Compared with Guangzhou, the development goals and plans proposed by Beijing for blockchain applications are more detailed. Although the other three cities have not issued special action plans, they have released district-level blockchain development policies, but they still lack top-level design at the municipal level.

Regarding the scale of development, Guangzhou has a great advantage in both the number of blockchain enterprises and the construction of blockchain industrial parks, both of which hold a dominant position among the five cities. The next two cities are Hangzhou and Shenzhen. Hangzhou has more industrial parks but fewer enterprises, while Shenzhen has the opposite, with more enterprises but fewer industrial parks, and even no relevant blockchain industrial parks. Therefore, it can be seen that the blockchain industrialization construction in Guangzhou and Hangzhou is more rapidly developed and the infrastructure is more perfect. Hangzhou's industrial park is strong, occupying three positions in the list of top 10 industrial parks in 2020, among which Hangzhou Blockchain Industrial Park is ranked first; Guangzhou has one industrial park (Antmie Blockchain Crowd Space) on the list, ranking fourth in the country, and its strength should not be underestimated. Regarding talent cultivation, universities in many places aim to cultivate compound blockchain talents, and focus on building blockchain course content and system, or actively explore the cooperation mode between schools and enterprises to set up blockchain laboratory research platform. From the perspective of the number of universities offering relevant professional courses, Beijing and Shanghai have the advantage, as these two regions have richer higher education resources and have the prerequisite advantage of investing heavily in talent cultivation. Shenzhen, Hangzhou and Guangzhou are a bit weaker in this regard, and they still need to continue to work hard in the cultivation of talents in blockchain technology, in order to win later. Among them, CUHK, Huagong and the majority, as the leading universities in Guangzhou for blockchain talent cultivation, should increase cultivation efforts, optimize cultivation programs and cultivate more new blockchain technical talents.

Regarding application scenarios, since 2019, all five cities have attached great

importance to this, and have successively introduced policy documents to further promote the research and development of blockchain technology and landing application-related aspects, among which Beijing, Guangzhou, Shenzhen and Hangzhou have performed more prominently. According to incomplete statistics, Guangzhou is the first in the field of industrial and commercial registration and justice; Shenzhen has made a major breakthrough in electronic bills; Hangzhou's advantage is in the field of judicial deposit; the first blockchain notary certificate issued in Beijing marks a brand new stage in the development of notary certificates in China and opens the era of blockchain notary services. In addition, Shenzhen and Shanghai occupy the high ground in the field of "blockchain + finance". Shenzhen is the highest city to launch digital currency, and Shanghai is a well-known financial center in China and internationally, both of them have unique achievements in "blockchain + finance". Compared with the two, the remaining three cities in the five cities are slightly weaker in this regard. In terms of the application of blockchain technology on the ground, each of the five cities has shown its own strengths and played well in their respective areas of expertise, enriching the application ecology of blockchain technology in China.

## 4.2. Comparison of Major International Cities

### Government Policy

We further compare the blockchain industry of Guangzhou with that of international cities, and the results are shown in **Table 5-7**. All in all, the development of blockchain technology varies more between countries than between cities in China due to the vast differences in institutional systems, cultural customs and resource endowments at home and abroad. For example, for various reasons, the existing blockchain systems in the United States and China are far from the future direction of the new systems of next-generation blockchain technology. However, in general, each country today attaches importance to the development and application of new "blockchain" technologies. In terms of governmental decisions, from the perspective of policy support, Seoul has invested more funds in blockchain technology, but Guangzhou has a wider range of financial support and more types of subsidies and incentives; from the perspective of governmental blockchain action planning and management, Hamburg, Germany has set up a special department to deal with blockchain-related matters, while Seoul has established a blockchain governance group. Both of them have special control over blockchain from top-down perspective. Guangzhou, on the other hand, currently does not have a special department for the integrated management of blockchain, but mainly starts from the policy level by issuing a series of policy documents related to blockchain and combining with the actual situation, calling for multi-departmental linkage and enforcement to jointly lead blockchain to the right path of development. Regarding talent cultivation and education, same as Seoul, New York and Melbourne, most famous universities in Guangzhou have added blockchain courses and have related research institutions.

**Table 5.** Comparative analysis of government policy.

City	Current Status
Guangzhou, China	A number of policies have been introduced to encourage the development and innovation of blockchain technology. 2020 Guangzhou wrote about blockchain in its government work report, mentioning that it should accelerate the development process of blockchain technology and industrial innovation, benefit blockchain technology to the people, actively promote and apply the new technology to livelihood, finance and other industries and fields, and build a blockchain industry cluster. Guangzhou has also set up a corresponding industrial fund covering various aspects to provide financial support for blockchain projects, with a wide and specific policy support. Guangzhou has also introduced a special action plan for the development of blockchain industry, and has laid out the development of blockchain on an overall level from top to bottom.
Hamburg, Germany	The City of Hamburg is paying particular attention to the technology and application of blockchain and wants to develop Hamburg into an internationally important location for economically significant blockchain initiatives. The Office of Information Technology and Digitalization (ITD) at Hamburg City Hall has established a special department for blockchain to improve the authorities' responsiveness and technical competence in the development of blockchain.
Seoul, Korea	Blockchain support is strong at the government level. 2018 saw the Seoul Metropolitan Government release a blockchain master plan, a project worth as much as \$109 million. In January 2019, the Seoul Blockchain Governance Panel was established. 100 panel members from a wide range of industries can come together to discuss the potential of blockchain applications in the city. In February 2019, the Seoul Metropolitan Government created the Seoul Innovation Growth Fund, a fund program focused on the development of blockchain technology. The fund announced plans to invest \$1 billion in blockchain technology R&D and applications and fintech startups for three years. The Seoul government also provided 180.6 billion won in funding to the Innovation Academy to help train innovative blockchain-related talent.
New York, USA	In September 2015 the U.S. Commodity Futures Trading Commission (CFTC) included digital currencies such as bitcoin and some other digital currencies based on blockchain technology within the definition of commodities for the first time in a document (Mo, 2017). The U.S. has used the act of legislation to exert a degree of control over some applications of blockchain that may pose some risk to the country.
Melbourne, Australia	In February 2020, Australia released the National Blockchain Roadmap: Towards a Blockchain Enabled Future. The Roadmap aims to help Australia unlock its full potential in the development and application of blockchain technology and make Australia a leader in the field. The introduction of blockchain technology in agriculture, education and finance will significantly improve the efficiency of socio-economic operations and unlock new growth poles for the country's economy. The Australian government has also proposed a 12-point action plan.

Source: Compiled by the author.

**Table 6.** Comparative analysis of personnel training and education.

City	Current Status
Guangzhou, China	Universities have also gradually realized the important position of blockchain in the future development of the country, and the number and intensity of blockchain-related courses are gradually increasing. Universities have laid out the technical research of blockchain and established research centers in the form of school-enterprise cooperation, in order to cultivate more highly sophisticated talents specialized in blockchain.

**Continued**

Hamburg, Germany The Federal Government will provide services for the qualification of education professionals related to digital professions and will strongly support the German states in proposing effective programs and measures for the qualification of faculty members in blockchain technology. The German federal government values innovation and will promote various blockchain projects and physical laboratories. The federal government will promote the certification of universities on the basis of blockchain technology. At the same time, the federal government attaches great importance to the sustainable development of the economy.

Seoul, Korea South Korea has always focused on the cultivation of blockchain talents and has already encouraged several universities in the country to offer blockchain majors in the field of higher education, such as Seoul National University of Science and Technology, Koryo University, Seogang University and other institutions of higher learning. Among them, Seoul National University of Science and Technology, located in Seoul, is one of the two famous national comprehensive universities in the city. The university has rich teaching and research resources, a scientific teaching system, the strongest faculty in Korea, and the most advanced teaching facilities that are unanimously recognized in the country. The university is offering a blockchain security course (CBS) in the second semester of 2019, which is a credit course and is open to non-majors as well without restriction in terms of who can be taught. In addition, Seoul, Korea is offering a blockchain technology training course in Seocho-gu and a financial graduate school in the financial center of Yeouido-gu in the second half of 2020. The courses are advanced theoretical and practical courses in digital finance-related fields such as big data and blockchain.

New York, USA New York, USA has several top blockchain renowned universities, such as New York University and Cornell University. Among them, as early as 2014, New York University launched a course related to blockchain and digital economy to teach students about digital economy and blockchain technology and other forward-looking industries. NYU was one of the first schools to offer courses related to the blockchain program. In addition, NYU also has organizations that specialize in blockchain and digital economy such as Blockchain Digital Asset Forum and Blockchain Lab. At the same time, NYU is committed to establishing a school-enterprise cooperation mechanism. On the one hand, the university delivers blockchain talents to enterprises; on the other hand, students can gain access to the unique social resources of enterprises through visiting enterprises or interning and working in enterprises. Companies also give NYU support in the form of sponsorship or cooperation in developing blockchain extracurricular activities. For example, Leslie Entrepreneur Lab sponsored a bitcoin hackathon at NYU in 2014. In addition to blockchain talent development at universities, there are other organizations that are actively developing talent resources and conducting blockchain-related educational activities. For example, the New York Economic Development Coalition (NYCEDC) has created a blockchain technology center in New York City that offers free educational workshops for the public, provides programming courses for professional software developers, or brings together people from various industries and government departments to discuss issues related to blockchain development and regulation.

Melbourne, Australia On September 6, 2017, the Royal Melbourne Institute of Technology announced the official establishment of the RMIT Blockchain Innovation Centre and became the first Australian university to offer a blockchain degree program. The center is the first in the world to specialize in the blockchain discipline. The blockchain curriculum has been developed in a flexible and rich format, covering courses in crypto finance, emerging technologies laws and regulations, and development of blockchain strategies. For example, the course “Developing Blockchain Strategies” is not only open to internal students, but others can also enroll in it, and the study fee is AED 1,500. The teaching content focuses on blockchain technology and explores the practical application strategy of blockchain. At the same time, Melbourne Institute of Technology is also actively exploring school-enterprise cooperation models and working closely with top companies to enable students to practice deeply in the blockchain field. For example, in August 2018, RMIT launched a collaboration with Credly, a digital certification platform, to jointly launch a certification platform based on blockchain technology.

Source: Compiled by the author.



**Table 7.** Comparative analysis of application scenarios.

City	Current Status
Guangzhou, China	<p>In July 2020, the “Guangzhou Blockchain + Business Environment Work Plan for Government Services” was introduced, aiming to promote the implementation of blockchain applications in government services. It is also worth mentioning that Guangzhou is also the first to apply blockchain technology in the fields of industrial and commercial registration and justice. In promoting cold chain food traceability, Guangzhou has also made corresponding efforts to deeply integrate the field of food safety supervision with Internet technology, striving to create an advanced, intelligent, safe and efficient food safety modernization and governance system.</p>
Hamburg, Germany	<p>Hamburg has always regarded the development of blockchain as a key project, and the application of its blockchain technology has been extended to energy, logistics and other fields. Among them, the technology application of “blockchain + energy” is the most outstanding, and many excellent examples have emerged in recent years. For example, at the end of May 2019, the energy trade platform “Energy Chain” was officially launched. This means that participants in the Energy Chain platform can operate and trade energy on their own, free from the shackles of third parties; Enyway, a company set up by energy pioneer Heiko von Tschischwitz, is dedicated to developing a green energy network trading platform based on blockchain technology. The platform enables direct interface between customers and energy suppliers without the need for intermediaries; the Etiblogg project is a new breakthrough in the field of energy trading, aiming to use the blockchain technology of the local green grid to realize direct trading of local electricity, decentralizing the trading process and greatly improving the efficiency of energy trading. The project has received financial support from the Federal Ministry of Economics and Energy, and 12 other companies and research institutions have helped it to be carried out.</p>
Seoul, Korea	<p>Seoul City has been working to create a blockchain-based public service platform. The “Digital Seoul Wallet” is a typical example of one of these applications. It is understood that the blockchain technology application “Seoul Wallet” allows residents to store even about one hundred types of electronic certificates, including copies of registration and vaccination certificates, which greatly improves the security of personal private information and provides a reliable storage of personal private information. In addition, the city has developed a blockchain-based integrated authentication system for citizen cards and a series of citizen-friendly administrative services by collecting and storing city data in the blockchain. In order to realize the vision of “Democratic Seoul” and build a friendly relationship between the government and the people, the Seoul Metropolitan Government launched the “Blockchain Voting System” on March 1, 2019. After the launch of the platform, the government can receive any requests, opinions, and suggestions from Seoul citizens on the implementation of existing policies. If 1,000 Seoul residents support the proposal of one of the citizens, the proposal will be responded to by the mayor of Seoul. Also, since each citizen’s identity will be tested by blockchain technology, the problem of duplicate voting is effectively avoided. This also solves the problem of fraudulent voting that has plagued Korea’s petition system.</p>
New York, USA	<p>In 2019, the U.S. Customs began to conduct experiments in the application of blockchain technology, and the results obtained from the experiments can be very satisfactory. For example, the pharmaceutical supply chain management blockchain project, led by the U.S. government and involving enterprises, has achieved profitability while ensuring the safety of people’s medicine, fully revealing the huge commercial potential and development prospect of blockchain technology landing application. The system can not only increase the degree of protection of people’s lives, but also improve the convenience of supply chain finance, making the insurance business more efficient and smooth, generating huge economic value. In addition, four years ago, the U.S. government began to promote a blockchain traceability project for manufacturing parts. This project is of great significance to the innovation and development of manufacturing industries such as parts for automobiles, aircraft and precision instruments (Shi, 2020).</p>

**Continued**Melbourne,  
Australia

The scope and application of blockchain technology is in fact very broad. Australia hopes to apply blockchain technology to its agriculture, education, and financial sectors as a way to drive its economic development. The Australian Stock Exchange, for example, is attempting to apply blockchain technology to its settlement and clearing system, automating the matching of buyers and sellers by means of smart contracts, and automating the clearing and settlement process during the transaction through a distributed digital registration system, which greatly saves transaction time (Qin, 2016).

Source: Compiled by the author.

In terms of school-enterprise cooperation, they also basically follow the same pattern. However, in comparison, Guangzhou started late in the planning of blockchain talents training in universities, so it lacks systematization yet. In addition, the three foreign cities mentioned above have more diversified forms of blockchain talent cultivation, especially New York, where in addition to the basic courses, there are also extracurricular activities and clubs for blockchain. Regarding application scenarios, like Seoul, South Korea, Guangzhou is currently putting part of its blockchain technology application efforts in public services and government services. The common purpose of both municipal governments in promoting blockchain applications for government services is to “facilitate the people and benefit the people”. Under the subdivision scenarios of this field, the two cities’ explorations have their own characteristics and meet the actual local development needs. Compared with Hamburg, Guangzhou started its exploration in the field of “blockchain + energy economy” later and is still in the stage of continuous exploration. Hamburg, on the other hand, has a lot of experience to learn from, as it has been focusing on this field earlier and has developed relatively faster and has better technical strength.

## **5. Ideas and Policy Focus of Blockchain Development in Guangzhou during the 14th Five-Year Plan**

Based on the above research, this paper further puts forward the idea of blockchain development in Guangzhou city and the direction of future policy focus and effort, mainly.

### **5.1. Accelerate the Digital Transformation and Upgrading of Traditional Industries**

Give full play to the advantages of Guangzhou blockchain to accelerate the digital transformation and upgrading of agriculture, manufacturing processing industry, service industry and other industries. First, we should step up the implementation of the strategy of promoting blockchain innovation and development. Invest more to incubate several cross-industry and cross-discipline modern industrial Internet platforms based on new blockchain technologies, and implement the action of “chain” for 100 industrial enterprises. Carry out pilot

demonstrations on the integration of manufacturing and blockchain development, and cultivate and grow new models and new business models for blockchain development. Second, to promote agricultural intensification, modernization, intelligent development (Qu, 2020). Let the new technology of blockchain be deeply integrated in the agricultural production industry to improve the modernization of agricultural production, the added value of agricultural products and the level of integration of the agricultural industry chain, and thus improve the overall production efficiency of agriculture. Through the combination of blockchain technology and the agricultural digital economy, promote the construction of a standard system for the sales process of agricultural products electric network and promote the development process of rural electric business. Third, we should continue to vigorously and deeply promote blockchain technology innovation in the service industry. In the digital penetration process is slower in productive services and other fields such as technology, logistics services and other industries, the government should accelerate the promotion of blockchain technology in the actual production of applications (Yu, 2017). Strengthen the innovative application of blockchain technology in the life service industry, improve the production efficiency of products in this field, and improve the overall industry refinement and personalization level.

## **5.2. Explore New Models Such as Blockchain Application Demonstration Unveiling Project and Sandbox Supervision**

In order to accelerate the landing of blockchain applications, and drawing on the experience of Hainan Free Trade Port, Guangzhou can announce a number of blockchain application demonstration projects covering various areas such as electronic evidence, digital identity, financial management, etc. A global-oriented unveiling campaign will be conducted to obtain the title of outstanding enterprise through selection, and the enterprise will be promised the opportunity to be recommended to Guangdong Industrial and Information Industry Investment Fund if it chooses to register and settle in Guangzhou. Based on foreign experience, Guangzhou can also explore the potential of blockchain applications in the financial sector, and explore the establishment of a feasible “blockchain + finance” sandbox regulatory mechanism that is in line with the actual development of Guangzhou, so as to improve the error correction rate and fault tolerance rate of the market environment and stimulate the vitality of financial innovation. In addition, Guangzhou should actively develop new blockchain industries by establishing blockchain industry gathering areas, supporting Internet information parks to cultivate projects, establishing blockchain technology public service platforms, introducing high-quality teams and excellent enterprises, strengthening international cooperation in blockchain and conducting technology entrepreneurship activities, etc., and gradually forming special industry gathering areas.

### **5.3. Actively Help Blockchain Enterprises to Raise Funds through Various Channels**

From the perspective of chain value development, Guangzhou blockchain technology has not yet found a breakthrough large-scale application scenario, the business model is mostly in the exploration and trial stage, and it is difficult for the relevant enterprises to rely on blockchain technology and application value realisation to obtain substantial profits in the short term. However, from the perspective of the future development of blockchain technology, the ultimate value must be realized through various application scenarios to land (Yan, 2020). Therefore, it is necessary to support and help those enterprises that master the core of technology, practically solve problems and can bring the economic effect of blockchain technology deployment to the industry from the policy, provide them with policy support and financial support, and help them obtain financing through various channels.

### **5.4. Establishment of Blockchain Incubation Fund to Support Industrial Application Projects**

In order to support the development of blockchain, Guangzhou should join hands with domestic and foreign universities and colleges with strong scientific research strength and rich achievements, as well as well-known enterprises in the society, and invite them to cooperate to jointly build a global blockchain innovation technology research laboratory and a joint innovation platform for digital economy based on blockchain technology. We will organize the “Guangzhou Blockchain Industry Expert Committee” with the participation of domestic and foreign famous academicians, experts and entrepreneurs in blockchain technology research, increase the attention and importance of all sectors of society to the new blockchain technology, build a joint blockchain training university with famous universities and establish a blockchain innovation alliance. At the same time, a special fund for blockchain is set up to stimulate enterprises to invest in blockchain research in practical production and application, and social funds are gathered to form a capital supply effect to accelerate the process of blockchain research and development and the application of new technologies on the ground.

## **6. Conclusion**

As blockchain technology continues to mature, its ability to solve high-intensity security problems will gradually improve, and it will bring infinite value in promoting the development of a new generation of information technology industries and fostering new innovation and entrepreneurial opportunities. With the passage of time, blockchain technology will better contribute to the high-quality development of the digital economy. Therefore, Guangzhou must start from various aspects, accelerate the digital transformation and upgrading of traditional industries, and explore new paths for blockchain technology to promote the

high-quality development of the digital economy, so as to better meet future development needs.

## 7. Innovations and Main Contributions of the Study

Previous studies on blockchain in Guangzhou mainly focus on its existing problems and optimization measures, but the innovation of this paper is to compare the current situation of blockchain development in Guangzhou with that of domestic and international landmark cities, and gain a deeper understanding of the actual level of blockchain in Guangzhou and its path to promote high-quality development. At the same time, by comparing and summarizing the experiences and lessons learned from blockchain development in other cities, this paper further proposes the ideas of blockchain development in Guangzhou and the direction of future policy focus. Main contributions: 1) Few studies have compared and analyzed the current situation of blockchain industry development in Guangzhou with that of international landmark cities, and this paper enriches the study of blockchain industry development in Guangzhou to a certain extent. 2) It is of practical significance to promote the development of blockchain industry in various regions of China. This paper compares and contrasts four cities, in China such as Guangzhou, and Seoul, South Korea, and four Chinese cities, such as Beijing, in terms of governmental decision-making, talent cultivation and education, and application scenarios, from which the differences between China and foreign blockchain technology in terms of policies and talent cultivation can be drawn, thus providing a test and inspiration for promoting the development of China's blockchain industry.

## Acknowledgments

The authors disclose receipt of the following financial support for the research, authorship, and/or publication of this article:

We gratefully acknowledge Supported by the National Social Science Foundation of China (21CJL007), the Humanities and Social Science Project of China's Ministry of Education (20YJC790036), the Natural Science Foundation of Guangdong (2020A1515010629), the Basic and Applied Basic Research Project of Guangzhou (202102021185), Guangzhou Research Center for Public Opinion Governance and International Image Communication Project (2021-YB-01), Guangdong University of Foreign Studies, Guangdong-Hong Kong-Macao Greater Bay Area Accounting and Economic Development Research Center Project (YGA002), Guangzhou International Trade Centre Research Base Project (JDZB202104), Guangdong University of Foreign Studies, Pacific Island Countries Strategy Research Centre Project (2021PIC003), Guangdong University of Foreign Studies, African Research Institute Project (HX-FZ2022-2), Guangdong University of Foreign Studies, Asia-Pacific Security and Economic and Political Cooperation Research Centre Project(YT2022001), Guangdong Postgraduate Education Innovation Project (2022XSLT027).

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Chen, B. X., Zhang, X. Y., Ye, M. Z., & Xu, H. F. (2021). Research on Blockchain Technology by Global Leading Think Tanks and the Development and Regulation of Guangdong. *Science and Technology Management Research*, 41, 84-88. (In Chinese)
- Gong, Q., Ban, M. Y., & Zhang, Y. L. (2021). Blockchain, Enterprise Digitalization and Supply Chain Finance Innovation. *Management World*, 37, 22-34+3. (In Chinese)
- Kuang, J. S., & Peng, W. B. (2020). Blockchain Technology Drives the Digital Economy Development: Theoretical Logic and Strategic Orientation. *Social Science*, No. 9, 64-72. (In Chinese)
- Li, L., & Lu, Z. J. (2020). The Current Situation of Blockchain Industry Layout and Development Suggestions in Guangdong Province. *Guangdong Science & Technology*, 29, 17-19.
- Lin, H. W., & Shao, P. J. (2019). Research on the Influencing Factors of Blockchain to the High-Quality Development of Digital Economy. *Guizhou Social Science*, No. 12, 112-121.
- Luo, Y. H. (2019). Exploration of the Mechanism of Big Data Artificial Intelligence Blockchain and Other ICT for High-Quality Development of Digital Economy. *Guizhou Social Science*, No. 12, 122-132. (In Chinese)
- Mo, W. W. (2017). Strategic Deployment of Blockchain Technology in Developed Countries and Some Insights into China's Netspace Governance Strategy. *China Information Security*, No. 2, 84-87. (In Chinese)
- Qin, Y. (2016). Blockchain Disrupts the Global Financial Industry. *Financial Electronization*, No. 3, 59-62. (In Chinese)
- Qu, S. N. (2020). Blockchain Promoting High-Quality Development of Entity Economy: Mode, Carrier and Path. *Reform*, No. 1, 39-47. (In Chinese)
- Shi, F. (2020). How Do Local Governments Layout Blockchain? A Three-Part Approach to Solve Industrial Pain Points. *China Informatization*, No. 2, 36-37. (In Chinese)
- Wang, B., & Wei, X. (2020). Blockchain Innovation Enables High-Quality Development of the Real Economy. *Theoretical Discussion*, No. 4, 114-119. (In Chinese)
- Wen, F. G., & Hu, Y. Y. (2020). Research on the Path of High Quality Development of Chinese Economy Supported by Blockchain Technology. *Journal of Jinan University (Social Science Edition)*, 30, 91-98+159. (In Chinese)
- Yan, Z., Y. (2020). A New Model of Sharing Economy Based on Blockchain Technology. *Social Science Research*, No. 1, 94-101. (In Chinese)
- Yu, B. (2017). Blockchain Technology Creates New Changes to the Sharing Economy Model. *Theoretical Investigation*, No. 2, 103-107. (In Chinese)