Blockchain Business Bridge

China's Blockchain Ecosystem

Industry Mapping Report

MINISTRY OF FOREIGN AFFAIRS OF DENMARK
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Preface

Trust is fundamental to all relationships. In industry and commerce, trust has traditionally been associated with concepts such as authority and transparency. With globalization and modern technology, supply chains are becoming increasingly complex, decentralized ecosystems are emerging, and numerous other novel business scenarios altogether call for new ways of providing transparency in business transactions without strong dependence on a centralized authority. Trust has become an ever more sought-after resource among stakeholders and in the past decade, one particular technology has established itself echoing to this demand – *blockchain*.

The Danish Industry Foundation is dedicated to bringing Danish companies and especially SMEs to the forefront of technological application. Therefore, the foundation has initiated a comprehensive blockchain program, supporting blockchain projects with a diverse range of focus areas, including green energy, the maritime sector, international trade, and design. Denmark-China Blockchain Business Bridge is one of these projects.

Innovation Centre Denmark has – in collaboration with the European Blockchain Center at IT University of Copenhagen, the Confederation of Danish Industry, and Danish-Chinese Business Forum – initiated the Denmark-China Blockchain Business Bridge. By bridging the gap between Danish and Chinese blockchain ecosystems, Blockchain Business Bridge enables Danish businesses to learn from the valuable experience in China and encourage Danish start-ups and SMEs to take advantage of China's unmatched blockchain resources.

As a world leader in blockchain, China has already established a good number of ambitious projects in both the private and public sector. This creates the optimal environment for exploring the versatility of blockchain's application scenarios. The Danish Industry Foundation and the Innovation Centre Denmark believe this will help generate rich technological insights and business cases and benefit the long-term development of Denmark's blockchain industry.

Therefore, we strongly encourage all Danish start-ups and SMEs with blockchain ambitions to participate in the project and become part of a movement towards making blockchain more available and value-adding in Denmark. We hope this report will arouse your interest in the blockchain technology.

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INDUSTRIENS FOND FREMMER DANSK KONKURRENCEEVNE
The Danish Industry Foundation

MINISTRY OF FOREIGN AFFAIRS OF DENMARK
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Introduction

Blockchain and the so-called DLT (Distributed Ledger Technology) have been one of the most popular emerging technologies in China in recent years, especially since the ICO (Initial Coin Offering) mania and the price boom of cryptocurrencies represented by Bitcoin. To control and eliminate the potential financial risks induced by speculative bubbles in cryptocurrency markets, the Chinese government implemented a strict ban on ICOs and tight restrictions on cryptocurrency trading in September 2017. However, Chinese policymakers have been showing great interest and enthusiasm towards the innovative blockchain technology derived from Bitcoin. Chinese president Xi Jinping has deemed blockchain as an important pillar in the next round of technological innovation and industrial transformation. In October 2019, Xi emphasized that China should "seize the opportunities" presented by blockchain and take the global lead in this technology (People's Daily, 2019). Since then, the hype around blockchain in China has risen to a new level that no other major country can match.

In this report, our research focuses on the blockchain industry's development in China ("China" refers to "mainland China" throughout the whole report). We will concentrate on blockchain and DLT. The crypto market in China will not be discussed. We assume our readers already have a basic understanding of blockchain, which is why we have chosen not to include an explanation of blockchain's definition, basic concepts, terms, and its fundamental characteristics[1].

We will examine the development of the blockchain industry in China from the following perspectives: First, we outline how the Chinese government regulates and supports the development of the blockchain industry through different levels of authorities and departments. We also review the market implications. Second, we map the powerhouses of China's blockchain industry, the leading blockchain start-ups, and major corporations/institutions that have embarked on blockchain projects. In addition, we highlight major successful blockchain applications in China and depict blockchain's value in selected industries. Third, we provide suggestions for start-ups looking to enter China's blockchain industry. Fourth, we list the Chinese academic institutions that conduct significant research on blockchain technology and describe the human talent and skillsets needed for the blockchain industry. Finally, we highlight opportunities in China's blockchain industry, bring suggestions on how to handle the developments in the industry, and present our forecasts for the future to come in blockchain.

1 If you want to know more about the basic concepts of blockchain and the development of blockchain in Denmark, we recommend the report *Study on The Economic Impact of Blockchain on the Danish Industry and Labor Market* published by ITU, 2019.

Chapter 1

Market and Policy Overview

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Overview of the Blockchain Industry in China

It has been over a decade since Satoshi Nakamoto introduced Bitcoin to the world by publishing *Bitcoin: A Peer-to-Peer Electronic Cash System* in October 2008, thereby conceptualizing the underlying technology of cryptocurrencies – blockchain. In 2013, Bitcoin started to draw the public's attention as its price soared from less than $100 to over $1,000, with trading activities and trading volume surging tremendously around the globe. Following this, the Chinese government began to introduce regulations on cryptocurrencies to strengthen supervision of Bitcoin trading websites and address possible financial risks arising with Bitcoin's expansion, such as money laundering. This did not make the use of blockchain technology illegal. Rather, the Chinese government drew a line between crypto and blockchain technology to regulate them separately. While crypto is strictly regulated, blockchain technology and industrial applications are fully encouraged to develop in a rather free environment.

The fundamental values of blockchain technology have been gradually recognized by the Chinese public and appreciated by the Chinese government. In October 2016, the Ministry of Industry and Information Technology released *The Whitepaper on China's Blockchain Technology and Application Development (2016)*. The paper summarized the development status and typical application scenarios of blockchain domestically and abroad. It further introduced the development roadmap of China's blockchain technology as well as the future directions and current process of blockchain technology standardization. In December 2016, the State Council of China issued *the 13th Five-Year National Informatization Plan*, which included blockchain technology as part of the national informatization plan, marking the beginning of the Central Committee and the State Council promoting blockchain technology and the development of blockchain applications.

Since 2017, the scale of the ICOs has exploded, bringing new risks to the market, including fraud, illegal security issuance, and illegal fund raising. In this context, China's regulation of cryptocurrencies and other digital tokens has been gradually strengthened, while China continues to actively support the application and innovation of blockchain technology with local governments at all levels actively promoting application and industrial experimentation with blockchain. The attention from the Central Committee, the State Council and government departments at all levels has created a favorable policy environment for the blockchain industry's development. Since 2017, the industry has enjoyed a wave of innovations and entrepreneurship. Many large enterprises and institutions, represented by technology giants and large financial institutions, have also carried out their own blockchain initiatives and projects.

The ongoing maturation of blockchain technology and regulations makes industrial projects much more likely to further serve the real economy. Meanwhile, China's thriving digital economy and tremendous Internet industry have created a broad market for blockchain technology and blockchain application. In recent years, as various industries have been realizing blockchain technology's great potential in innovating business models and optimizing business processes, and invested in the research and development of blockchain, many breakthroughs have been made in areas such as infrastructure platforms, consensus algorithms, distributed storage mechanisms, privacy protection mechanisms, and smart contracts. As a result, many domestic enterprises have prototyped, piloted and implemented blockchain-powered platforms and industrial applications developed by themselves.

What Is Encouraged, What Is Regulated?

Navigate Chinese Blockchain Policy

China tightly controls the proliferation of cryptocurrencies within its borders, likely because of cryptocurrencies' ability to circumvent capital flight controls. China's central bank (PBOC) has repeatedly stated that Bitcoin is a virtual asset and does not have the same legal status as a currency. Bitcoin is therefore not allowed to be used as a currency or collateral in the Chinese market. All types of capital raising activities through cryptocurrencies, for example ICO and STO (Security Token Offering), are banned in China, the reason being potential financial crimes involved in ICOs and STOs, such as the illegal issuance of tokens or securities, illegal fundraising, financial fraud, or pyramid schemes (Zhang, 2019).

Meanwhile, PBOC started to explore the possibility of launching its own digital currency to cut the costs of circulating traditional paper money and boost policymakers' control of money supply. According to the deputy director of PBOC's payments department, PBOC is "almost ready" to issue the country's own sovereign digital currency (Reuters, 2019).

On January 1, 2020, China's first cryptography law officially became effective. The law aims to promote the steady and sound development of cryptography as well as ensure the effectiveness of China's cybersecurity systems. It classifies cryptography into core, common, and commercial cryptography, stipulating core and common cryptography are used to protect national secrets and should be governed by the strict and united administration of cryptography authorities. The law is furthermore intended to guarantee the information security of citizens, enterprises, and organizations to prevent users' personal details from being stolen or falsified.

By looking at the above mentioned regulatory measures, it can be concluded that China's supervision of blockchain finance is still mainly based on administrative means, applying a command based regulatory model, and adopting a strict one-size-fits-all approach. In areas other than fi-

nance, relevant specialized regulatory laws are lacking, but here China is taking a positive attitude towards accelerating the implementation of the blockchain technology applications.

Since the end of 2016, where China issued *the 13th Five-Year National Informatization Plan*, China has set out to establish national standards for blockchain technology, policy frameworks, and relevant legal standards. This plan listed blockchain as one of the key cutting-edge technologies, and emphasized the need to strengthen the innovation, test, and application of new technologies, including blockchain (State Council of the People's Republic of China, 2016).

In 2019, China's blockchain industry received a significant endorsement from the Chinese government. In August 2019, PBOC declared that it will accelerate the development of DC/EP, China's legal digital currency. In October 2019, at a meeting of the Central Politburo, Chinese President Xi Jinping stressed that blockchain technology will play an important role in the new round of technological innovation and industrial transformation, and that blockchain should be taken as an important breakthrough in independent innovation of core technologies. Xi Jinping also urged for more efforts to quicken development of the blockchain industry and to strengthen basic research and boost innovation capacity to help China gain an edge in theoretical understandings, innovation, and industries of this emerging field (Xinhua, 2019).

National Standards

Since March 2018, The Ministry of Industry and Information Technology (MIIT) has been working on the national standards for blockchain to promote the construction of a blockchain standard system based on a top-down design. These standards are released on an ongoing basis and include basic standards, business and application standards, process and method standards, trust and interoperability standards, information security standards, etc. (Reuters, 2018).

According to MIIT's official announcement, first, the whole blockchain industry needs a set of standards to define and reference the architecture so everyone can reach a consensus. Second, there should be regulatory standards because regulation is the interface between the industry and the outside world, but how regulation is used is a matter of regulatory authorities. Third, information security is fundamental for the blockchain technology, including the overall security requirements and evaluation standards, so the standard of information security is an important part of blockchain standards. MIIT is now in the process of defining terminology, reference architectures, roles, and functional modules (Odaily, 2018).

The content of China's blockchain national standards are based on *Standardization of Blockchain Technologies and Distributed Ledger Technologies (ISO/TC 307)* drafted by the International Organization for Standardization (ISO). It holds 10 components in total:

1. Terminology.
2. Overview of privacy and personally identifiable information (PII) protection.
3. Security risks and vulnerabilities.
4. Overview of identity management using blockchain and distributed ledger technologies.
5. Reference architecture.
6. Taxonomy and Ontology.
7. Legally binding smart contracts.
8. Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems.
9. Security of digital asset custodians.
10. Discovery issues related to interoperability.

As part of the ISO committee, China is responsible for editing the standards of Taxonomy and Ontology and co-editing the Reference Architecture (ISO, 2019). Therefore, China's national standards for the blockchain technology will have implications over the global blockchain industry.

Security Assurance

According to the Cyberspace Administration of China (CAC)'s blockchain regulations released on 10 January 2019, blockchain platforms are required to implement real-name registration for users via a national ID or telephone number, censor content, and store users' data. Companies found to be violating the rules could be subject to fines or prosecution (Reuters, 2019).

Registration with CAC

According to CAC's regulations, all blockchain information service providers are required to register with CAC through CAC's blockchain registration system. The definition of a blockchain information service provider covers public chains, protocols, decentralized applications (DAPPs), blockchain browsers and any other businesses that provide or use blockchain technology. Any new blockchain product is also required to report to CAC or its relevant local authority to conduct a security assessment before launch. For a foreign blockchain company, if it has a legal presence in China and its business meets the definition of blockchain information service providers, or it delegates an entity in China to run its blockchain technology or nodes, then it needs to register with CAC (Cyberspace Administration of China, 2019).

Industry Sandbox

Under a regulatory sandbox, innovative blockchain firms can test and explore blockchain businesses under a controlled environment under regulators' supervision. The sandbox isolates experimentation and piloting from companies' production environments. Like any other sandbox, it protects "live" systems, data, and consumers, and replicates at least the minimal functionality needed to accurately test, pilot and/or simulate the blockchain product in development (Innovative Finance, 2017).

Since 2018, some municipal governments have collaborated with corporations to establish blockchain industry sandboxes. For example, reported by People's Daily, The Financial Services Bureau of Sichuan Free Trade Zone has cooperated with blockchain start-up PrimeLedger, a subsidiary of UCF Group, to jointly establish a financial regulatory sandbox system. The sandbox has successfully applied the blockchain system to the real-time supervision of financial data. The system will be used for detecting and managing financial risk (Ma, 2018). Another good example of a blockchain sandbox is the blockchain pilot zone in Hainan Province. Reported by Xinhua News, based in Hainan Resort Software Community, the pilot zone is composed of several local blockchain start-ups and scientific organizations working on technological innovations (Xinhua, 2018).

Photo by Jerry Wang on Unsplash

Appendix

Appendix 1.1 Chinese Authorities Overseeing the Blockchain Industry

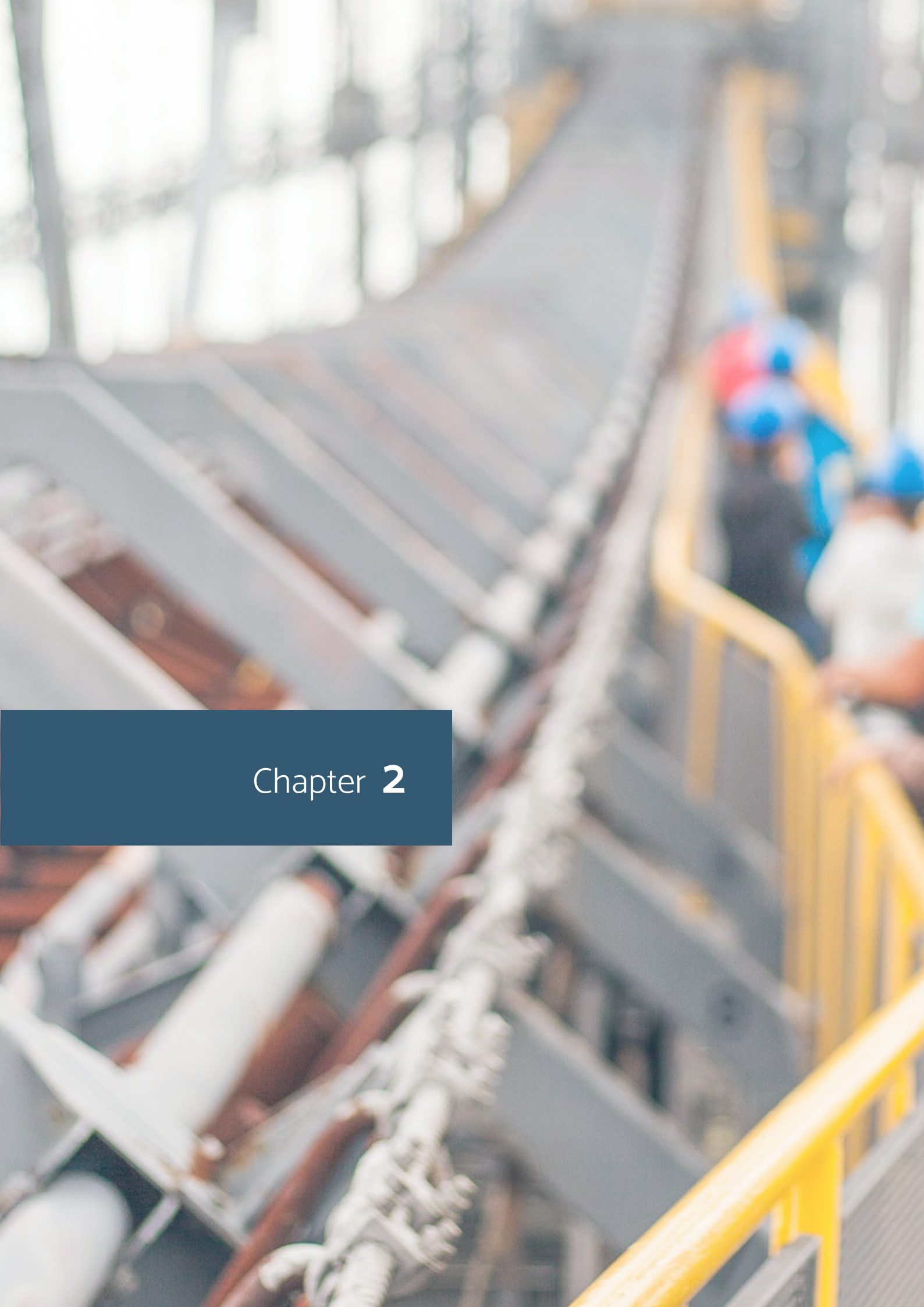
Government Department	Regulatory Duties
People's Bank of China (PBOC) 中国人民银行	Regulate financial institutions in China and draft policies to prevent financial risks.
Cyberspace Administration of China (CAC) 国家网信办	Regulate blockchain service providers.
Ministry of Industry and Information Technology (MIIT) 中国工信部	Evaluate and produce ratings for blockchain projects, organize blockchain technology research projects and blockchain forums.
State Administration for Industry and Commerce (SAIC) 国家工商总局	Regulate blockchain businesses' activities like Internet advertising and e-commerce.
China Securities Regulatory Commission (CSRC) 中国证监会	Regulate capital raising activities with cryptocurrency, push for blockchain-based financial infrastructure.
China Banking and Insurance Regulatory Commission (CBIRC) 中国银保监会	Regulate banking institutions, online-lending institutions, insurance institutions, and other deposit-taking institutions.
Municipal Finance Offices 地方金融监管局	Execute central government authorities' policies, regulate and supervise regional blockchain sector to constrain any potential financial risk.

Appendix 1.2 Chinese Government's Major Regulations on Cryptocurrency

Date	Regulator	Regulatory Role
04.09.2017	PBOC CAC MIIT SAIC CSRC CBIRC	Stop and prohibit all forms of fundraising activities in virtual currency or digital tokens. Prohibit trading platforms that 1) engage in the exchange business between legal tender and tokens or virtual currency; 2) trade in tokens or virtual currency as a central counterparty; 3) provide pricing and information intermediary services for tokens or virtual currency (Xinhua News Agency, 2017).
20.01.2018	PBOC	Prohibit financial institutions from providing services for any activity related to cryptocurrency (Beijing Youth Daily, 2018).
24.08.2018	CBIRC CAC Ministry of Public Security State Administration for Market Regulation	Issue risk warnings on illegal activities related to cryptocurrency, charging issuance of virtual currency, virtual asset, and digital assets as illegal fund-raising, pyramid schemes, and fraud (Cyberspace Administration of China, 2018).

Appendix 1.3 Chinese Government's Policies Towards Cryptocurrency, ICO, and Crypto Exchange

	Key Regulations
Cryptocurrency/ Digital Currency	China's central bank has repeatedly reiterated that Bitcoin is a virtual asset, does not have the same legal status as a currency, and should not be used in the market as a currency. For residents in China, it is not illegal to own Bitcoins and other cryptocurrencies or even to buy or sell them in China privately. In 2014, China's central bank PBOC started to explore the possibility of launching its own digital currency to cut the costs of circulating traditional paper money and boost policymakers' control of money supply. Recently, PBOC announced that it had accelerated the development of its digital currency. According to the deputy director of PBOC's payments department, PBOC is "almost ready" to issue the country's own sovereign digital currency (Reuters, 2019).
ICO	All types of capital raising activities in the form of cryptocurrency, such as ICO and STO, are banned in China to prevent potential financial crimes involved in ICOs and STOs, such as the illegal issuance of tokens or securities, illegal fundraising, financial fraud, and pyramid schemes (Zhang, 2019).
Crypto Exchange	Cryptocurrency trading platforms are prohibited from converting legal tender into cryptocurrencies, or vice versa. They are also prohibited from purchasing or selling cryptocurrencies, setting prices for cryptocurrencies, or providing other related agent services. The Chinese authorities have ordered all the cryptocurrency trading platforms to shut down their trading business in China (Zhang, 2019). As a result, the cryptocurrency exchanges are forced to relocate overseas. Currently, Chinese crypto investors and traders can access overseas exchanges via virtual private networks (VPNs).



Chapter 2

Corporate Applications

Photo by Claudio Hirschberger on Unsplash

Introduction to the Major Players

According to the list of blockchain companies registered with CAC and the blockchain related patents filed so far, well-known large domestic enterprises, such as the so-called "BAT" (Baidu, Alibaba, Tencent), HUAWEI, JD.com, and Ping An Group, all have independently developed blockchain projects. There are also many start-up enterprises with independently developed blockchain technology and corresponding products in China. The scale of businesses embracing blockchain technology is still expanding and the number of enterprises exploring blockchain technology is growing at a very fast pace. Many of them have already successfully utilized blockchain technology to improve efficiency of their business.

Tech Giants Working on and Experimenting with Blockchain

Blockchain technology has been implemented in various industries and sectors across people's daily life in China, and the variety of blockchain applications is still growing. Other than blockchain start-ups, nearly all the Chinese Internet giants have been involved in blockchain, and many of them have launched their own BaaS products (Blockchain as a Service). Meanwhile, China's financial industry, led by the People's Bank of China, has also carried out many pilot projects on blockchain technology. The application of blockchain in the financial industry has been implemented in business scenarios, such as supply chain finance, trade finance, cross-border finance, global settlements, transactions, bill & note, inclusive finance, and digital currency.

Ant Blockchain[1]

Alibaba Group (Hangzhou) is a multinational conglomerate specializing in e-commerce, retail, Internet, and technology. In August 2018, Alibaba's cloud computing services provider, Ali Cloud, announced the launch of enterprise-level blockchain services to cross-enterprise and cross-regional blockchain applications. Ali Cloud BaaS currently provides three blockchain technology frameworks including self-developed Ant Blockchain, Hyperledger Fabric, and Ethereum for Enterprise – Quorum. Ali Cloud and Ant Financial, Alibaba's online payment services provider, have been actively cooperating with the government and financial institutions. So far, dozens of blockchain projects in various business scenarios, such as cross-border payment, electronic bill, supply chain finance, retail, justice, transportation, and logistics, have been accomplished. One of the largest, Ant Open

1 https://www.alibabacloud.com/products/baas

Consortium Blockchain (Ant Blockchain), was released in September 2018 and aims to provide individual developers and institutional clients around the world with a one-stop DAPP development platform and blockchain-based business solutions.

Tencent Blockchain

Tencent (Shenzhen) – the creator of WeChat, China's most popular messaging app – is a multinational conglomerate specializing in various Internet-related services and products, entertainment, artificial intelligence, and technology. Tencent set up their blockchain team in 2015. In April 2018, Tencent Cloud, Tencent's cloud compute service, launched the blockchain service TBaaS, which provides users with one-click blockchain deployment services and multiple functions, such as business channel management and smart contract management. Tencent's blockchain projects have been implemented in supply chain finance, gaming, government administration, public service, and many other scenarios.

JD Digits

The e-commerce giant JD.com (Beijing), also known as Jingdong, is China's leading online retailer. JD.com set up their blockchain development team in 2016, launched their blockchain-based anti-counterfeiting traceability platform in June 2017, and released JD BaaS and announced the JD Blockchain in August 2018. In June 2019, JD Digits, the financial technology arm of JD.com, launched the market's first blockchain-based ABS (asset-backed securities) standardization solution, the first application in the field of digital finance. The ABS blockchain solution makes full use of the JD BaaS platform independently developed by JD.com to help asset owners, asset managers, law firms, rating agencies, accounting firms, custodians, and other ABS business participating institutions to optimize their business processes and improve the efficiency of ABS issuance.

WeBank

WeBank (Shenzhen), initiated by Tencent, became China's first digital bank upon receiving its banking license in December 2014 and now has one of the largest user bases in the world. WeBank was part of starting The Financial Blockchain Shenzhen Consortium (FISCO), which was established in 2016 and has attracted and admitted more than 110 members. Members are from sectors including banking, securities brokerage, insurance, fund management, regional equity exchanges, technology companies, and universities nationwide. In December 2017, the FISCO open source working group initiated by WeBank launched FISCO BCOS, an open consortium blockchain platform . FISCO BCOS has been deployed in areas like inter-institution reconciliation, real estate registration, arbitration, supply chain finance, tourism finance, and copyright registration.

Ping An OneConnect[2]

OneConnect (Shanghai) is an associate company of the insurance conglomerate Ping An Insurance (Group) (Shenzhen). OneConnect has innovatively developed the FiMAX S3C fully encrypted blockchain architecture to address the challenges in privacy protection, system performance, and interoperability in the development of blockchain. The company has applied the technology in business scenarios, including trade finance, asset-backed securities, supply chain finance and reinsurance. OneConnect not only provides customized blockchain solutions for business entities but also creates BNaaS (Blockchain Network as a Service) that can be implemented on a large scale. Unlike traditional BaaS (Blockchain as a Service) platforms, where a blockchain and its nodes are generated by a single account, BNaaS enables users to independently create and publish new blockchain networks as well as joining existing commercial blockchain networks through BNaaS Marketplace (OneConnect Financial Technology, 2019). These networks include:

- International trade finance network eTradeConnect, a blockchain trading platform led by the Hong Kong Monetary Authority, designed, developed, and configured by OneConnect, launched in October 2018.
- IFAB Trade Finance Network, built by Ping An OneConnect in association with Internet Finance Association of Small and Medium-sized Banks based on blockchain, launched in March 2019.
- Tianjin Port Blockchain Cross-Border Trade Verification Pilot Project, built by Ping An OneConnect, the first cross-border trade network and ecosystem powered by blockchain technology in China, launched in April 2019.

Wanxiang Blockchain

Wanxiang Group (Hangzhou) is a multinational conglomerate and one of China's largest automotive component manufacturing companies. Since 2015, Wanxiang has been involved in the blockchain field. In July 2017, Wanxiang, WeBank, and blockchain start-up Juzix jointly launched the open source blockchain infrastructure platform BCOS. Wanxiang's supply chain financial service platform based on BCOS has reached cooperation with a number of banks to achieve financing for many SMEs. In 2018, Wanxiang launched the PlatON network, aiming to establish cross-industry data exchange and collaborative computing infrastructure. In September 2019, Wanxiang launched PlatONE, a consortium blockchain platform jointly created with Juzix. Wanxiang has invested in nearly 200 blockchain projects around the world, covering multiple fields, such as underlying infrastructure and business applications.

2 https://www.ocft.com/index.php?s=en/business_solutions

HUAWEI[3]

Huawei (Shenzhen) is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. In April 2018, Huawei launched Blockchain Service (Huawei BCS) based on the Hyperledger Fabric platform to help enterprises quickly, efficiently, and cheaply build enterprise-level blockchain applications on Huawei Cloud. Huawei's blockchain platform is closely combined with other basic technologies of Huawei Cloud Service to ensure reliability and scalability. In September 2019, Huawei Blockchain started to support Huawei Kunpeng computing cluster. Currently, Huawei BCS mainly focuses on directions such as data management, IoT, finance, telecom operation, supply chain, and government affairs.

Qulian Technology[4]

Established in 2016, Qulian Technology (Hangzhou) is a high-tech company providing technical products and application solutions of blockchain. Qulian's blockchain products include 1) self-developed blockchain underlying platform Hyperchain, providing enterprise-level blockchain network solutions for blockchain technical needs of enterprises, government agencies, and industry alliances; 2) distributed data collaboration network BitXMesh, providing enterprises with data storage, data sharing, and distributed computing environment; 3) one-stop BaaS platform Filoop, providing blockchain deployment, monitoring, operation, and maintenance services to help users conduct business on blockchain. Qulian has achieved blockchain applications in various business scenarios, including supply chain finance, digital assets, healthcare, insurance, public service, digital certificates, supply chain traceability, and energy assets.

ZhongAn Technology

ZhongAn Insurance (Shanghai) is the first Internet insurance company in China, jointly launched by Ant Financial, Tencent, and Ping An Group in 2013. Its subsidiary, ZhongAn Technology, has been actively using blockchain technology to improve the quality and efficiency of insurance business. ZhongAn has developed the blockchain asset agreement based on insurance products and has explored the tokenization of insurance assets. ZhongAn has also launched several blockchain-based industrial solutions, covering electronic contracts, digital identity, distributed encryption and storage, anti-counterfeiting traceability, depository, and supply chain, along with ZhongAn's BaaS cloud service platform.

3 https://www.huaweicloud.com/intl/en-us/product/bcs.html

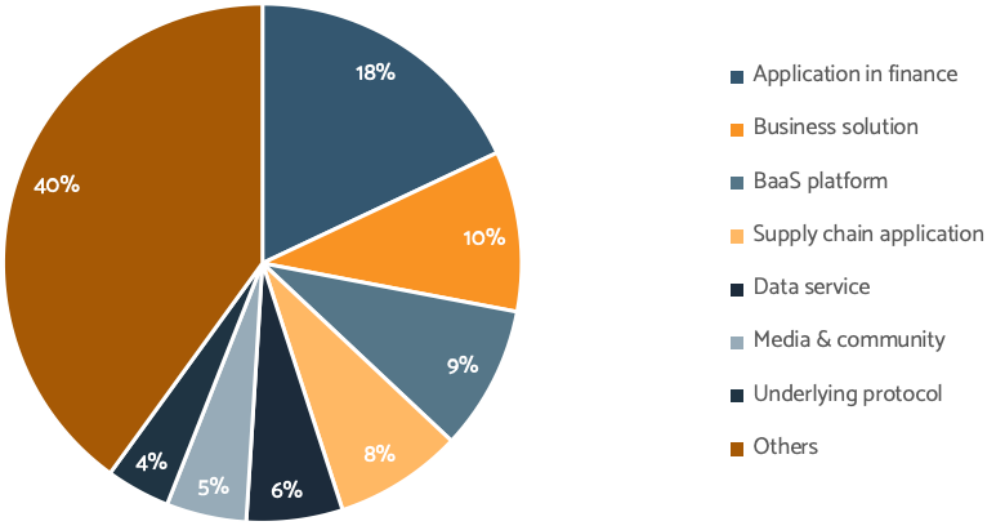
4 https://www.hyperchain.cn/en

Review of Blockchain Technology's Applications

In recent years, blockchain technology has been implemented successfully in various industries across China. In this section, we will introduce a series of successful and representative blockchain application use cases in selected industries.

According to CCID Consulting, blockchain applications in China are mainly focused on financial services and enterprise services. Blockchain applications in financial services mainly include cross-border payment, insurance claims, securities trading, and bills. Blockchain applications in enterprise service mainly include the construction of underlying blockchain infrastructure, provision of blockchain solutions for Internet companies and traditional corporations, supply chain applications, data services, BaaS (Blockchain as a Service) platform, and depository services.

Exhibit 2.1 Distribution of blockchain applications in China



SOURCE: CCID CONSULTING, PING AN SECURITIES

To successfully apply blockchain technology, appropriate solutions should be selected according to business requirements and industrial characteristics. In addition to social public services, business scenarios suitable for blockchain technology should meet three basic conditions: 1) efficiency and trust in fairness, with more emphasis on the latter; 2) multi-party cooperation is required and there should be no clear subordinate relationship among parties; 3) participating parties are willing to, or have the need to share, transfer or trade their data. Currently, there is a prevailing phenomenon of blockchain being applied to transform traditional centralized infrastructure, which is unprofitable and unnecessary. So there is a need to continuously improve the technical performance of blockchain while excavating other potential advantages of blockchain to continuously expand its possible application scenarios.

Exhibit 2.2 Main advantages of blockchain technology

Safe & reliable	The transmitted data cannot be tampered with by any participating node, and each node can keep a permanent information record to achieve accurate digital tracking through the whole process.
Privacy protection	Blockchain's encryption mechanism can ensure that the core data content of one party in the system is only visible to certain parties.
Highly transparent	Shared ledgers and open source programs ensure that information and data can be reviewed by participants across the blockchain system.
Convenient to share	Because consensus needs to be obtained before the distributed ledger gets updated, errors can be prevented during the information transmission and sharing, and information will always be consistent.
Decentralized	There is no centralized hardware or mechanism on the blockchain, data storage is secure, and data can be trusted by consensus mechanism/algorithm.

Exhibit 2.3 Scope of blockchain-based industrial applications

Financial sector	Problems blockchain can address
Supply chain finance	Transparency and financing difficulties for SMEs.
Trade finance	Interbank information synchronization of letters of credit, letters of guarantee, forfaiting, factoring and bills.
Credit	Information sharing of capital market credit rating agencies, commercial market rating agencies and retail market rating agencies.
Trade settlement	Redundancy of clearance procedures and long clearance process, resulting in high cost and time consumption for account reconciliation.
Insurance	Identity uniqueness verification, insurance fraud prevention.
Securities	Complicated processes, opaque information and low efficiency among the central bank, central registry, asset custodians and securities brokers.
Financial management	High cost of operation, low efficiency, difficulty in supervision resulted from large number of accounts, complex categories, and inefficient communication among corporations.
Non-financial sector	**Problems blockchain can address**
Product tracing	Transparent information sharing during production, processing, transportation, circulation, and retail.
Copyright protection	Digital copyright confirmation, redundant procedures and low efficiency in copyright's value circulation.
Digital ID	Association between personnel information and social identity in digital information system.
Electronic evidence	High cost in evidence collection and arbitration, low efficiency of multi-party cooperation for judicial institutions, arbitration institutions and audit institutions.
Internet of Things (IoT)	High operation and maintenance costs resulted from centralized equipment procurement and management.
Public welfare	Lack of trust among multiple parties and redundant procedures.
Manufacturing	Multi-party collaborative production, digital security, asset digitalization and other manufacturing transformation and upgrading issues.
Energy	Data isolation and low efficiency in energy production, energy trading, investment and financing of energy assets, energy conservation and emission reduction.
Marketing	Lack of trust between advertisers and advertising agencies due to false traffic and advertising fraud.
Public service	Information security issues related to cross-level and cross-departmental data connectivity that lowers government efficiency.
Healthcare	Privacy protection of sensitive patient information and secure sharing of data by multiple agencies.

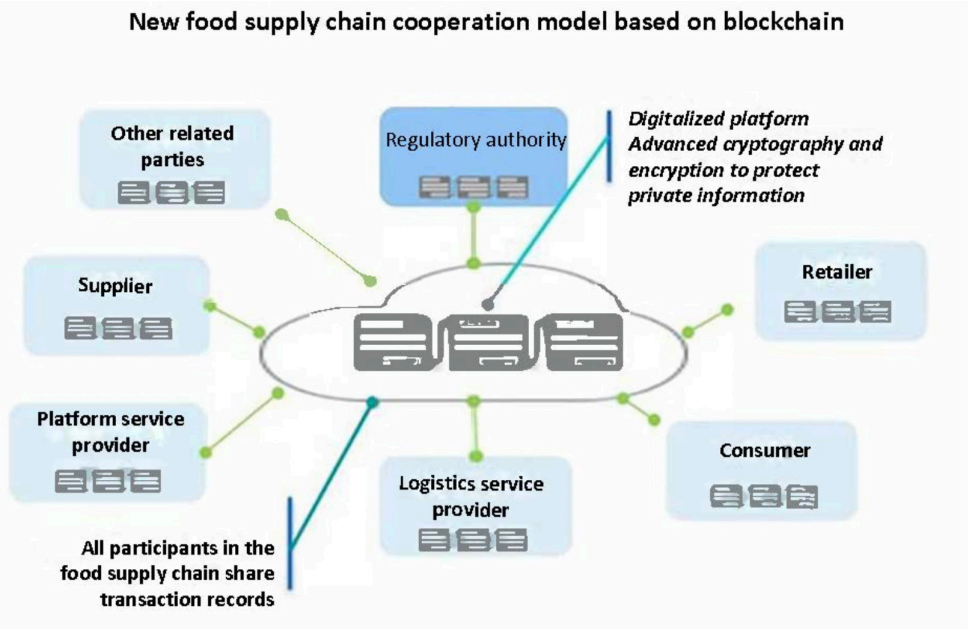
Agriculture

In the traditional agriculture sector, the circulation of agricultural products is composed of a long and complicated supply chain with a low degree of intensive production, leading to low efficiency and waste of resources. Information asymmetry incurred through the product circulation also leads to the lack of trust among all parties on the industrial chain, which leads to capital pressure in upstream and sales pressure in downstream. Banks do not trust agricultural products production and processing enterprises, so they are unwilling to lend, leading to difficulties in capital turnover of agricultural products production and processing enterprises. Likewise, consumers do not trust the sellers of agricultural products. China has notably been hit by numerous food safety scandals in recent years, from milk contaminated with melamine, to virus-carrying pork and chicken. Therefore, improving the quality and efficiency of the circulation of agricultural products can bring obvious marginal benefit.

The combination of agricultural product traceability and supply chain finance will be a huge application area for blockchain. The agricultural product tracing system based on blockchain technology can record all the agricultural data into the blockchain ledger to offer complete traceability of the agricultural products' quality and interacting parties, make information more transparent, and offer tracking services with a higher level of quality and utility. The blockchain-based tracing system can ensure the safety of agricultural products, improve the brand value of high-quality agricultural products, crack down on fake and shoddy products, as well as guarantee the quality and price fairness of agricultural products.

By utilizing blockchain's characteristics listed above, the farms, farmers, certification authorities, food processing enterprises, sellers, logistics companies, warehousing companies and other relevant parties can form a consortium blockchain platform to boost consumer trust in agricultural products, so as to build high-end rural brands, to change the market position of farmers and rural brands, and to expand the border of rural finance. In addition to agricultural insurance, based on the asset data on the blockchain, banks can reduce the threshold for entrepreneurial farmers to obtain financial services and promote the development of rural entrepreneurship by assessing the risks of farmers' loans more precisely.

Exhibit 2.4 New food supply chain cooperation model based on blockchain



SOURCE: WALMART

Parties & Processes on Blockchain-based Food Traceability Database				
Farming & Breeding	Processing & Storage	Transportation & Logistics	Sales	Consumer

Blockchain Application Cases in the Agriculture Industry

Walmart's blockchain-based Food Safety Initiative

Located in Beijing, the Walmart Food Safety Collaboration Center promotes and fosters close collaboration between Chinese universities, associations, and government to achieve positive impact on food safety. Since September 2016, the Walmart Center, IBM, and Tsinghua University, China's top university, have jointly launched a pilot project using blockchain technology to strengthen the food supply chain's traceability, hoping to create a new technological breakthrough for China's food safety supervision. Walmart, IBM, and Tsinghua university targeted pork products for their first joint blockchain experiment in China.

In June 2019, Walmart China teamed up with VeChain and PwC and launched the new "Walmart China Blockchain Traceability Platform", which already boasts 23 product lines tested and listed. According to Walmart China's own press release, they expect to see the fresh meat products tracked on the platform accounting for 50 percent of its total sales in that category. Further, blockchain-tracked products will account for 40 percent of the total vegetables sales and 12.5 percent of seafood sales by the end of 2020.

Problems targeted by blockchain

With the continuous trend of miniaturization and localization of food production, the food system in China and the rest of the world is becoming increasingly complex. A pig farmer, for example, sends the meat to a processing plant where it is processed and sent to a warehouse or distribution center, and from there onwards to a retailer, restaurant, or household. Before, these data were recorded on paper at every step and if consumers wanted to trace the origin of the food they bought, it could take days to check the paper records. With the blockchain technology, they can get the answer in seconds.

Full-process traceability empowered by blockchain

The innovative cooperation model of food supply chain based on blockchain enables all food supply chain participants (suppliers, platform service providers, logistics providers, retailers, consumers, regulatory authorities, etc.) to share transaction records through a digital platform that protects private information with advanced cryptography technology and encryption mechanisms. When using the blockchain technology to obtain information, it can include not only the information used for tracing, but also provide further information, such as the production time, the temperature at the time, whether there is food safety certification, whether there is organic production. Therefore, blockchain technology has played a positive role in promoting the establishment of safer, more economical, and more sustainable food systems.

Farmer	Manufacturing Enterprise	Retailer	Consumer
Knows where the products are going and can better plan planting and breeding.	Obtain product information data, judge whether its shelf life can be guaranteed, understand the flow of processing products.	Focus more efficiently on the flow of food from farm to store.	Get fresher and more reliable products.

Example of a blockchain-based food product traceability system

In a blockchain solution for food product traceability, in this example packed pork, every box of packed pork will have a unique QR code and all necessary product details will be uploaded to the blockchain platform through this QR code. This way, any authorized user can get access to the trusted information to confirm the operational details of any node in the system.

To illustrate this, we can imagine ourselves as a supplier responsible for delivering goods to the Walmart distribution center: First, we create a shipping record and enter the cargo truck's number. Next, we scan the QR code of the pallet to be loaded onto the truck. The system then displays the distribution center to which the shipment will be transported to and the corresponding purchase order. With this solution, we only need to upload pictures of the shipping orders and receipts to the blockchain in order to create a tamper-proof digital file for each authorized user to log in and read instantaneously.

The documents on the blockchain can be read by any authorized food safety regulator. In the past, if errors were found, food safety managers had to manually examine each document to determine the scope of the problem's impact. In this scenario, blockchain technology can help shorten the time to find documents, enhance the credibility of these documents, and effectively prevent unauthorized tampering of information and other integrity issues.

Results

The pilot project has proven that the application of blockchain technology can track the source of food safety problems and improve the transparency of supply chain: relevant documents related to food safety can be shared electronically, pork products can be traced back to the original farms, and information, such as production date and specific batch, is clear at a glance. To summarize the solution:

- Verified the reliability of the digital storage platform for food safety: authorized users can update the data and the updated data will be displayed to all users of the blockchain in five minutes.
- Realized efficient and fast food recall: it takes less than 10 seconds to locate a batch of products and half a minute to retrieve the relevant documents of individual products.
- Realized traceability on the entire supply chain: when inquiring about a product's information and data, it only takes a few seconds to display the information of the product from the original farm to its current location on the supply chain.

Exhibit 2.5 Interface of Walmart's blockchain food traceability system

Implications

Blockchain technology greatly speeds up the process of product traceability and product recall, reducing product quality risks and the risk of foodborne diseases to consumers. In conclusion, improving the transparency of the food system is related to the structure of the whole food industry ecosystem, which requires the industry to work together to build a more transparent, efficient, and safe food system (Walmart, 2017).

Zhiwang Fintech

In partnership with IBM, Zhiwang Fintech, a fintech company in Shanghai, has developed an agricultural product traceability system. Zhiwang Fintech Agricultural Product Traceability System is a new traceability solution deeply integrated with blockchain technology. The system combines planting enterprises, agricultural material sellers, storage enterprises, processing enterprises, logistics enterprises, and sales enterprises into a consortium blockchain network in the form of nodes. Due to the large number of nodes in the consortium chain, the data security can be improved and the information about the transfer of goods between different enterprises cannot be tampered with. The system provides a data docking interface with different kinds of IoT. Through IoT technology set up by enterprises on each node, traceability data will automatically be uploaded and stored on the blockchain, forming a complete and secured information traceability loop with traceable source, verifiable destination, and accountability. Through the unique identification code on the package, consumers can inquire the product's information and its certification from seedling to seed cultivation, processing to transportation and sales. Government regulators can perform deeper information inquiries and carry out batch tracing and inspection through higher level of business authority (Zhiwang Fintech, 2017).

Business Activities	Planting & Farming	Processing	Storage & Logistics	Distribution & Sales	Supervision
Blockchain Network	Seedlings information, environmental data, inputs, operation record.	Processing information, package code, additive.	Storage information, location information, logistics timestamp.	Credit record, basic information.	Emergency release, inspection certificate, online arbitration.
User Perception Layer	Product introduction, fertilization record, farming operation record.	Process introduction, processor information, additive use record, package information.	Full life-cycle node tracking, storage & logistics, enterprise information.	Processing & processor information, additive use record.	Process introduction, processor information, additive usage information, package information.

Finance

The financial sector is the earliest and most common field for blockchain technology application. In China, almost all large mainstream financial institutions have carried out blockchain applications, mainly in cross-border payments, clearing and settlements, digital financial instruments, trade finance, supply chain finance, asset securitization, anti-financial fraud, asset management, financial auditing, and insurance claims. Currently, the most successful application cases are in supply chain finance and in trade finance. In terms of supply chain finance, PBOC Digital Currency Research Institute and Shenzhen Central Sub-branch of PBOC have promoted the "PBOC Trade Finance Blockchain Platform". BAT, Ping An Group, JD, Wanxiang Blockchain, and many other enterprises have carried out their blockchain projects in supply chain finance covering business processes in multiple industries.

Supply Chain Finance

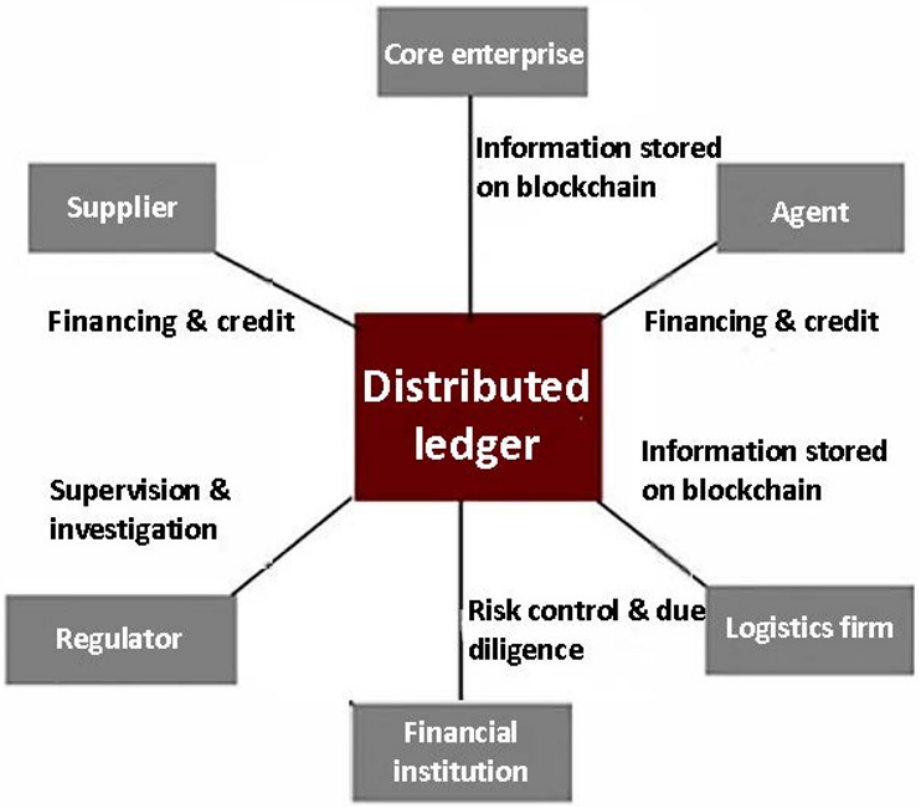
Traditional Supply Chain Finance Process

Supply chain finance, by definition, is a set of comprehensive technology-based business and financing processes that link the various parties in the upstream and downstream of supply chain – buyer, seller, and financial institution – in order to lower financial costs and improve business efficiency. Supply chain finance provides short-term credit that optimizes working capital for both the buyer and the seller.

Supply chain finance is significantly important for Chinese SMEs' financing procedure. The core enterprises in the supply chain provide credit by means of guarantee and repurchase, while the upstream and downstream enterprises obtain financing from financial institutions by providing transaction records and chattel mortgages, such as receivables, prepayments, and inventories. Supply chain finance is a typical scenario combining multi-agent cooperation, asymmetric information, imperfect credit mechanism, and non-standard credit subject, which is very suitable for blockchain application.

Blockchain Solution for Supply Chain Finance

Exhibit 2.6 Supply chain finance on blockchain



SOURCE: CICC

Benefits of this solution:

- Promotes capital flow efficiency: The operational steps, such as confirmation, circulation, and liquidation of different kinds of assets, including receivables, prepayments, and inventories, will be operated through the blockchain system. Thereby, it realizes multi-level tracing of relevant transactions of core enterprises as well as interconnection within the entire supply chain. At the same time, multi-stage allocation and circulation of funds can be realized to effectively solve the financing difficulties of the downstream.
- Reduces financial risk and operating costs: Financial institutions get access to real-time information of risks and operating conditions of relevant enterprises, thus reduce their non-performing loan rate, reduce the cost of investigation, and improve the input-output ratio.
- Promotes supply chain synergy: Through distributed ledgers, real-time synchronization and reconciliation of data in the supply chain, it can reduce the cooperation cost and credit risk among entities. In addition, the effective integration of information flow among enterprises is conducive to discovering synergy effects, enhancing the relationships in the supply chain, and improving the overall competitiveness of the whole industry chain.

In the field of supply chain finance, the blockchain ledger, based on its characteristics of traceability, transparency, and being tamper-proof, integrates the firm's background information and trade information through the supply chain, links up and cross-verifies the key data of multi-party trade, integrates logistics, business flow, capital flow and information flow, and provides relevant information needed by enterprises for financing. By uploading core enterprises' and multiple suppliers' accounts receivable data to the blockchain and digitalizing it to make it transferable and possible to split, core enterprises can build a trust penetration mechanism, SMEs can effectively widen their financing channels, thus improve their financial liquidity, the efficiency of auditing, and supervision also can be improved. In addition, the application of blockchain technology in the field of supply chain finance can enhance enterprises' credit and help them reduce financial costs. At present, through the cooperation between enterprises in the industry and blockchain technology service enterprises, several supply chain finance service platforms based on blockchain have been launched.

Blockchain Application Cases in Supply Chain Finance

Ant Blockchain

Ant Blockchain (subsidiary of Ant Financial, part of Alibaba Group) released their blockchain-based supply chain finance platform in January 2019. With accounts payable as the credit voucher, the blockchain enables SMEs' credit information to be transferred transparently among banks, guarantors, and companies involved in the supply chain at all levels, thus effectively reducing the financial risk of supply chain. Ant blockchain has provided speedy financing services to 78 million SMEs across the country. Ant Blockchain's supply chain finance platform puts different business processes, including account receivable confirmation, circulation, financing, and liquidation, on the blockchain, and the confirmation and circulation of assets are subject to the record on blockchain rather than a simple business certificate (Ant Blockchain, 2019).

Wanxiang Blockchain

Partnering with Jiangxi Bank and Zhengbang Group, Wanxiang Blockchain (subsidiary of China Wanxiang Holdings) has developed a blockchain-based supply chain finance solution with the ability to reflect the transactions in a supply chain relationship by connecting financial institutions, core enterprises, and each level of suppliers on the blockchain, leveraging proven transactions in these businesses to solve the creditability issue preventing financial institutions from lending a helping hand to businesses in desperate need of credit. At the end of 2019, the service had already provided loans to SMEs amounting to more than 300 million yuan (Wanxiang Blockchain, 2019).

Trade Finance

Trade finance is one of banks' main institutional businesses. Banks use structured short-term financing instruments to finance counterparties' assets, such as inventories and prepayments.

The core document in the trade finance business process is letter of credit (L/C) – a pledge to pay for the goods after certain conditions being fulfilled. In trade finance transactions, the exporter will only ship the goods to the importer after receiving the L/C document from the importer's bank. The exporter then will present the proof of shipping to get financing from its own bank, and eventually the exporter's bank will collect the payment directly from the importer's bank. For trade finance, every transaction must be strictly documented, due diligence for clients' credit client background, and analysis for market, transportation, storage, etc. is also required.

Currently, the main pain points for trade finance are low input-output ratio and high risk of trade fraud. The typical trade finance process usually involves many small-amount transactions, involving multiple departments and procedures for data collection and audit, etc. Banks involved in trade finance need to verify large amounts of information and data, a potentially complicated process. If the participants involved are located in different countries, the traditional method of transferring information and data will be very time consuming, thus usually completing a single transaction for trade finance may take several days.

Meanwhile, the information of the different related parties comes from limited sources, which may adequate, thus not only exposing the transaction to risks but also causing high financial costs. Particularly in cross-border trade, there are risks of documents being lost or missed, as well as forged trade documents, which can take up to one month to process. Therefore, the verification process of trade finance has traditionally been complicated, time-consuming, and risky.

Exhibit 2.7 Parties & Processes
on the Blockchain/Distributed Ledger

SOURCE: GOOD AUDIENCE

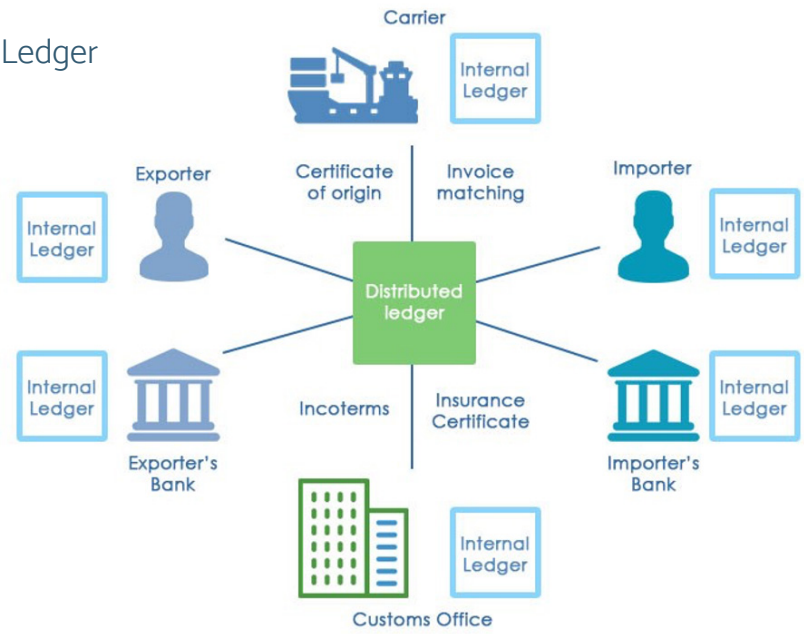
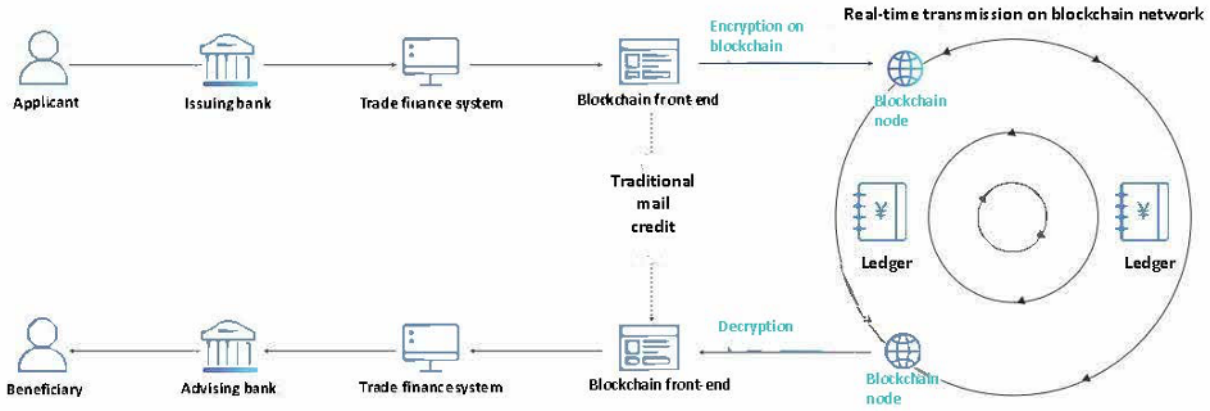


Exhibit 2.8 General framework of the blockchain solution for trade finance



SOURCE: HUAWEI CLOUD

In the process of trade finance, applying blockchain technology can effectively promote trust in market and reduce firms' financial costs and usage of paper documents by recording core documents and key trade finance processes on distributed ledgers, thus both sides of trade can instantly obtain authenticated information, and the financing can be implemented quickly through smart contract. Via the blockchain system, every authorized party can instantly see what is happening during the trade finance process, what changes have been made to documents and by whom, which could have far-reaching effects for the cost and availability of trade finance.

Another benefit of utilizing blockchain is the simplification of due diligence and KYC process. As mentioned above, many SMEs and firms involved in cross-border trade finance do not have adequate credit information for acquiring financing, resulting in difficulty for creditors to conduct risk assessment. With blockchain, banks can acquire detailed data on current and previous transactions more efficiently. It also applies to comprehensive information from all parties related to the transactions as all authorized participants on the consortium blockchain can see the real-time changes in the documents. In other words, with the help of the consortium blockchain network, more accessible and more trusted information is shared among different stakeholders, therefore the SMEs who demand the credit and the creditors can better align with each other.

The implementation of blockchain technology in trade finance can also help create a data pool for potential clients and their transaction histories. This could make it easier for new entrants, such as large institutional investors or fintech firms, to offer financing or refinancing options. Blockchain can also help expand the scope of companies that can access trade finance. Making financing more accessible would also give importers more choice of goods and help boost the global economic development (Fletcher, 2019).

Blockchain Application Cases in Trade Finance

PBOC Trade Finance Blockchain Platform

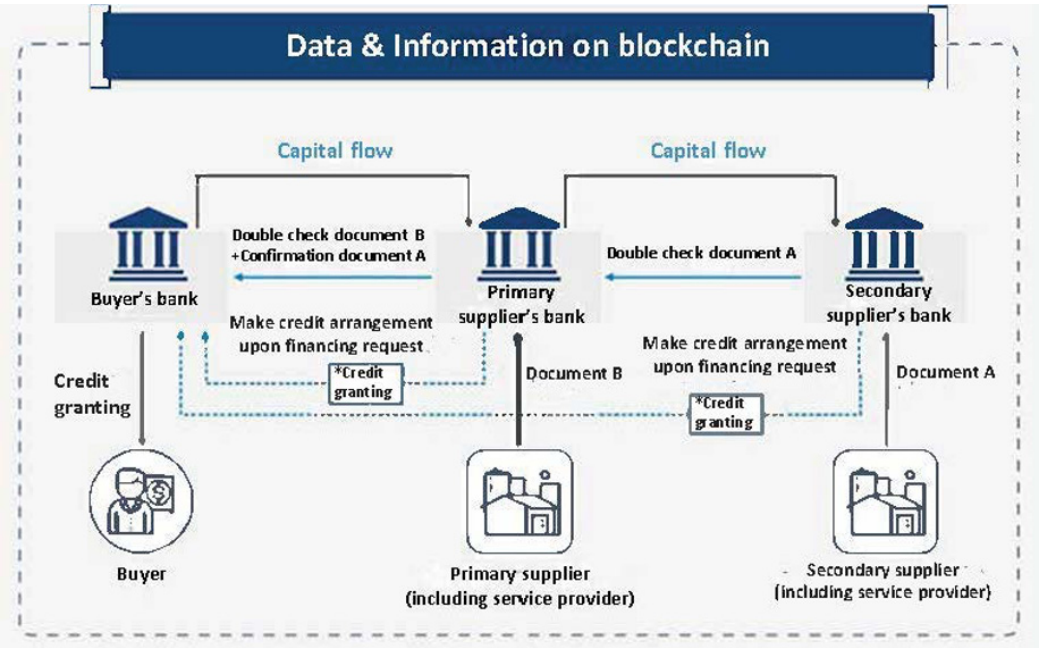
PBOC Trade Finance Blockchain Platform was launched in September 2018. The platform supports multi-level financing of receivables in the supply chain, cross-border financing, supervision of international trade accounts, tax filing form of external payments, etc., and also facilitates dynamic real-time monitoring for regulators. The platform is positioned as a financial infrastructure providing public service for trade finance. It is neutral, professional, and reliable, which can effectively promote the formation of market trust mechanisms, guarantee the authenticity of trade background for financial institutions, and lower the threshold of data acquisition. Its members include more than 40 banks, including Bank of China, China Construction Bank, China Merchants Bank, Ping An Bank, and Standard Chartered Bank, as well as manufacturing companies, such as BYD, a Chinese automaker. So far, the transaction amount on the platform has exceeded 90 billion yuan.

BYD and its tier one suppliers are among the first participants in the central bank's trade finance blockchain platform. Having a large supply chain with many suppliers, BYD was invited to participate in the development of the platform. As a core enterprise in the supply chain, it is relatively easy for BYD to obtain bank credit. On the trade finance blockchain platform, BYD suppliers can use BYD's credit line to finance their accounts receivable, which solves the problems for financially weak suppliers who are in lack of credit. Usually, financing for them is difficult and expensive. In the past, for a trade finance deal, the financial costs might reach 8% or 7% for SMEs. Now, by using the blockchain platform, the financial costs can drop to 6% or even 5.5%. In addition, a loan that used to take two to three weeks to be completed can now be made within one day (Shanghai Securities News, 2019).

The platform utilizes blockchain technology to record core documents and key business processes, making each step in the trade financing business interconnected. Both sides of the trade, as well as any intermediate participant, have quick access to authentic information and use smart contracts as a tool to facilitate rapid transaction execution, thereby reducing the total cost of corporate financing. As blockchain can realize real-time sharing of unified ledgers among the members on the platform, commercial banks and PBOC/SAFE can have real-time access to information that cannot be tampered with from enterprises that input cross-border trading information This will simplify the verification process and improve the efficiency of enterprises, financial institutions, and regulators.

Regulators can conduct penetrating supervision over the whole process and life cycle of trade finance through PBOC's blockchain platform. Due to the high transparency of the underlying assets, the focus of supervision has also gradually upgraded from the compliance level of financial institutions to the level of systematic risk identification to prevent accumulation and outbreak of financial risks, maintain financial stability, and regulate the development of the market while promoting financial innovation (Wang F. , 2019).

Exhibit 2.9 Blockchain solution for L/C management in trade finance



SOURCE: BLOCKSHINE

State Administration of Foreign Exchange (SAFE) Cross-Border Finance Blockchain Platform

SAFE Cross-Border Finance Blockchain Platform is a trusted and collaborative financial services platform. Its core technology is the Blockchain Registry Open Platform (BROP) developed by Zhongchao Blockchain Technology Research Institute, a subsidiary of the China Banknote Printing and Minting Corporation. Launched in March 2019, SAFE Cross-Border Finance Blockchain Platform aims to solve the problem of difficult and expensive cross-border financing for SMEs and comprehensively promote the development of cross-border trade and finance business by utilizing blockchain's technical features.

By the end of October 2019, 20 Banks had joined SAFE Cross-Border Financial Blockchain Service Platform, with completion of 6,370 receivables financing transactions and total loan amount of $6.77 billion. 1,262 enterprises had been served by the platform, of which SMEs accounted for about 70%.

The platform takes "export accounts receivable financing (after delivery)" as the business scenario, and through the tamper-resistant blockchain data, it manages the whole business process on the platform. The platform verifies the authenticity of information on the "customs declaration form", export trade finance's core document, through the blockchain system. It also automatically calculates the financing balance corresponding with the customs declaration form to prevent repeat or excess financing. Financing efficiency is greatly improved at the same time as import/export financing time shortened from 1-2 days to 15 minutes.

Logistics

With the rapid growing e-commerce market, logistics has become an indispensable and important industry in China. Traditional logistics industry is prone to a series of risks and problems due to the large number of participants and long logistics process:

- Mutual distrust among shipper, logistics contractor, actual carrier, and receiver.
- Order information and transport information can be tampered with.
- Difficulty in supervision: logistics information is not easy to monitor, information authenticity is also hard to distinguish.
- Financing difficulties: in traditional logistics industry, because of the high advance payment, contractors have high demand for financing, yet, due to the risks and problems mentioned above, it is hard for them to obtain bank credit.

The underlying technical infrastructure built by blockchain technology will link up the enterprises, financial institutions, warehousing, and logistics platforms, etc. Data of the business processes, including procurement, production, trading, finance, and logistics, will all be uploaded to the blockchain to realize transparent information sharing, improve transaction efficiency in all aspects, and minimize social transaction costs.

Application of blockchain in the field of logistics has the following advantages:

- Logistics information is shared by multiple parties and cannot be tampered with.
- Order information can be acquired by all parties in real-time, which is convenient for monitoring and management.
- Easy connection with supply chain finance to solve the problem of enterprise financing.

Blockchain Application Cases in Logistics

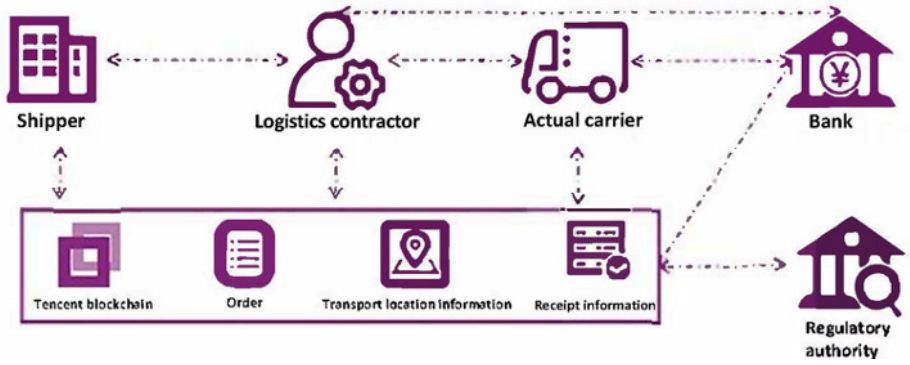
Tencent Blockchain

Tencent has developed a blockchain-based waybill system that can broadcast the order, transportation location, receipt address, and other information to the nodes of the entrusting party, the main contractor, the carriers, the regulatory authority, and even the banks, so as to realize the coordinated management of the whole logistics process.

Meanwhile, to solve the financing difficulties faced by logistics contractors, enterprises can establish a logistics data chain recording the real operation data by connecting shipper, logistics contractors, actual carriers, financial institutions, including banks and regulatory agencies, through Tencent's blockchain system. Information including order data, transport location, and receipt information is recorded, confirmed, and verified by the relevant parties involved in the logistics chain. The data and information stored on the blockchain is tamper-resistant, authentic, transparent, and

updated in real-time with complete traceability. Through the underlying blockchain infrastructure, the logistics system ensures the funding parties complete monitoring of their funds and guarantee of capital return in order to reduce the logistics contractor's financial costs, as well as to simplify the logistics process (Tencent Research Center, 2019).

Exhibit 2.10 Tencent blockchain-based logistics waybill system



SOURCE: TENCENT BLOCKCHAIN

Wanxiang Blockchain

Logistics Union Chain ("运链盟") is a blockchain-based service platform that integrates logistics, settlements, and supply chain finance for the automotive logistics industry. Jointly developed by Wanxiang Blockchain, BAIC CCL, and DBS, Logistics Union Chain has proven to be an efficient and robust solution for stakeholders in the industry. With the increased connectivity, orders and waybills can be issued electronically while upstream and downstream enterprises can reconcile their transactions online.

The benefits of this application are significant compared to the paper-based practice traditionally adopted in the automotive logistics industry. With regards to lowering costs, the new model of using electronic orders, waybills, and online reconciliation has helped reduce the operational and transaction costs significantly. Also, small and medium carriers can leverage their transaction relationships with automotive OEMs (Original Equipment Manufacturers) and records on the blockchain to explore better financing options with financial institutions. As for regulatory improvement, it enables a see-through business model, which could lead to a more compliant and healthy industry.

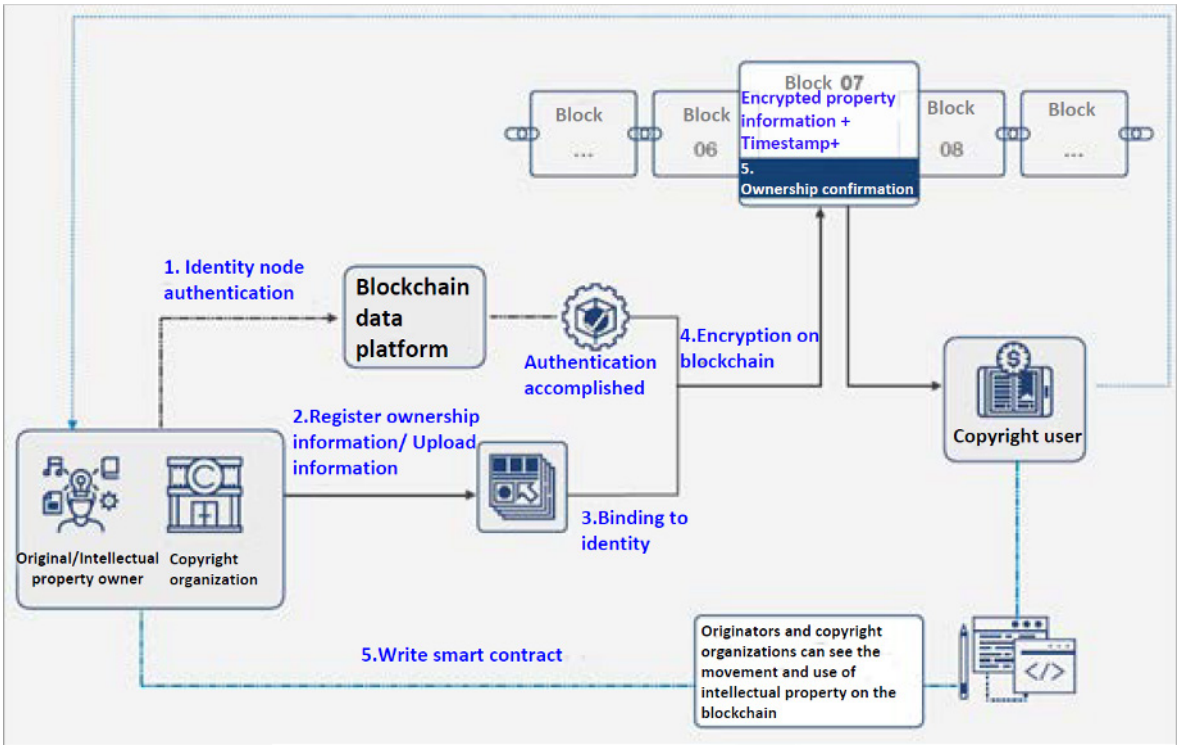
Copyright Protection

Traditional copyright registration requires the owners to provide identity information and relevant materials, which often involves a lot of paperwork. In addition, it takes a long time for the relevant authorities to go through the reviewing and proving processes. By using blockchain for copyright registration, the owners only need to submit their works and basic information to the blockchain platform, and the platform will generate a digital ID for each piece of work through the cryptographic algorithm that contains the content, owner's information, submission time, and other information of the work. The generation of the digital ID is written into the block and is permanently saved by all nodes in the network. The transfer of copyright is the transfer of the corresponding digital identity on blockchain. This not only improves the efficiency of copyright registration but also reduces the cost of registration.

For some small works, such as texts or pictures, the owner can directly register on the blockchain and broadcast them to it, and then the users on the blockchain platform can get the dissemination information of the work and decide whether to pay for the it. The decentralization of blockchain helps reduce or even eliminate the cost of centralized service institutions and cut the intermediary fees of the platform. Furthermore, this form of public blockchain also enhances people's recognition of copyright since copyright disputes can now be broadcasted to all users on the blockchain platform and plagiarists exposed immediately.

On the blockchain copyright platform, the submission of one's works, the purchase by clients, and the subsequent transaction have a corresponding timestamp proof, which is open and transparent on the blockchain. In the case of copyright disputes, the judicial department only needs to trace the copyright according to its digital ID on the blockchain to easily retrieve the historical transaction information of the copyright. Therefore, on the open and transparent blockchain copyright platform, it will be much easier to solve copyright disputes.

Exhibit 2.11 Blockchain-based solution for copyright protection



SOURCE: BLOCKSHINE

Blockchain Application Cases in Copyright Protection

Ziggurat Copyright Protection Platform

Located in Xi'an, Ziggurat Technology is a blockchain technology enterprise providing one-stop industry-level solutions. Ziggurat Technology has been committed to using blockchain technology to rebuild the value of copyright by building a trusted copyright database and providing infringement detection, legal rights protection, and other related services. Ziggurat Technology stores the original works' registration time and digital fingerprint information on the Ziggurat blockchain platform through digital data storage technology based on blockchain. The Ziggurat blockchain platform provides free online registration of the original works and provides the copyright registration certificate on the blockchain to clarify the copyright ownership. At the same time, Ziggurat has established an automated and intelligent corporate-scale copyright database that can identify the copyright ownership of digital works efficiently and quickly.

Ziggurat's blockchain copyright registration solution takes "timestamp + blockchain" as its basis, in which the timestamp is the description of the creation time of the original works. The timestamp fully conforms to the relevant provisions of the electronic signature law. The blockchain copyright depositary service encrypts the information of "applicant + release time + release content" registered for the copyright, and then copyright information will be permanently preserved and cannot be tampered with.

All information about the blockchain copyright certificate is synchronized to the notary office to ensure that a notarization certificate can be issued at any time with the highest judicial effect. When infringement occurs, the copyright monitoring system will quickly alert the interface of infringement forensics and submit the URL of infringement to the infringement forensics system. The system analyzes the URL address, crawls the infringing web page to collect evidence, and saves it to the blockchain, which is permanently stored and cannot be tampered with, thus meeting the legal requirements for electronic evidence.

Energy Efficiency

Blockchain's feature of decentralization exactly conforms to the characteristics of distributed energy, which can greatly reduce the transaction cost of distributed power and improve the transaction efficiency. This application could in turn revolutionize the distributed power industry.

At present, the power industry in China is still very centralized, which makes the value monopolized by a few large corporations. Moreover, power failures and power shortages happen frequently across the country. For example, in Western China, many wind and photovoltaic power plants often waste power due to overcapacity. Meanwhile, in economically developed areas like Beijing and Shanghai, electricity demand is very high, resulting in high electricity prices. With the advent of blockchain technology, a number of potential solutions to these challenges have become available. With their mutual reliance on intelligent devices, energy Internet and blockchain share many similarities. Both blockchain and energy Internet emphasize decentralization, autonomy, marketization, and intelligence. In addition, blockchain aims to make future energy consumption more intelligent and enable consumers to benefit from energy supply through decentralized, autonomous, and efficient system recording device ownership and operation status, automatic reading of smart meters, all combined with artificial intelligence to predict energy demand.

On one hand, blockchain can complete accurate digital management of energy by utilizing digital mapping of every kilowatt hour of electricity. Therefore, it can further re-model the power network to achieve accurate management and settlement. On the other hand, blockchain can record, verify, and execute financial and business transactions through smart contracts. These transactions may involve selling and buying electricity without going through an intermediary. Given the boom of distributed energy resources, for example batteries and solar panels, the market for blockchain applications in the energy industry will grow rapidly.

However, for blockchain application in the energy industry, access to the related IoT devices is a fundamental obstacle in China. For example, every household has electricity meters but most of the electricity meters are owned by the power grid companies, including their data. A third party cannot apply blockchain without the power grid companies sharing the data with the consumers and others.

Blockchain technology can improve the current energy industry mainly in terms of efficiency. The use of blockchain technology can achieve point-to-point direct transactions without central clearing and settlement institutions. For instance, in the electricity retailing scenario based on blockchain, it is no longer necessary to rely on an electricity retailing company to complete the clearing and settlement of electricity production and consumption. The role as intermediary between supply and demand previously held by the third-party power retailing company is carried out by the blockchain distributed ledger instead, which can also reduce the trust cost of the transaction.

Blockchain can be used to record real-time production and cost information as well as transaction and price information of different power systems. Smart contracts can automatically respond to demand changes, match retailers and buyers, and execute power transactions. In addition, a certificate and trading platform for carbon emission permits can be established by using blockchain. The blockchain platform can record carbon emissions and carbon trading behaviors in real-time and impose fines on enterprises exceeding the emission standards.

Blockchain Application Cases in Energy and Utility

State Grid's Blockchain Applications in Electricity

State Grid Corporation of China has set up a subsidiary specialized in blockchain technology – The State Grid Blockchain Company. Its innovative products, such as blockchain electricity bill finance and blockchain supply chain finance, have been a central part of various business scenarios of fintech and "power + IoT" constructions.

State Grid has created blockchain-based fintech solutions throughout the entire industry chain, including electronic contracts, power settlements, supply chain finance, electricity fee finance, big data credit, etc., adapting to various application scenarios, such as guarantees, financing, and transaction.

The supply chain financial products based on the blockchain platform have realized the functions of on-chain certificate storage, data encryption, credit ownership confirmation, tracing for important bills, and contract information generated in the supply chain transactions, such as accounts receivable, accounts payable, etc. These blockchain-based products have benefited businesses, such as factoring financing of accounts receivable, financing of e-commerce procurement of materials, corporate credit, joint rewards, and punishments, etc.

The financial service products developed based on the blockchain technology provides functions such as bill preservation, on-chain auditing, bill tracing, circulation management for utility-related financial services related to utility, realizing full-cycle bill inspection, verification, credibility, and traceability. Blockchain-based electronic contract, relying on the core node of Beijing Internet court's judicial blockchain system called the Scale Chain, provides enterprises and individuals with legally

effective online contract whole-process management, certificate storage, and evidence collection services by combing smart contracts and blockchain's authentication mechanism (The Beijing News, 2019).

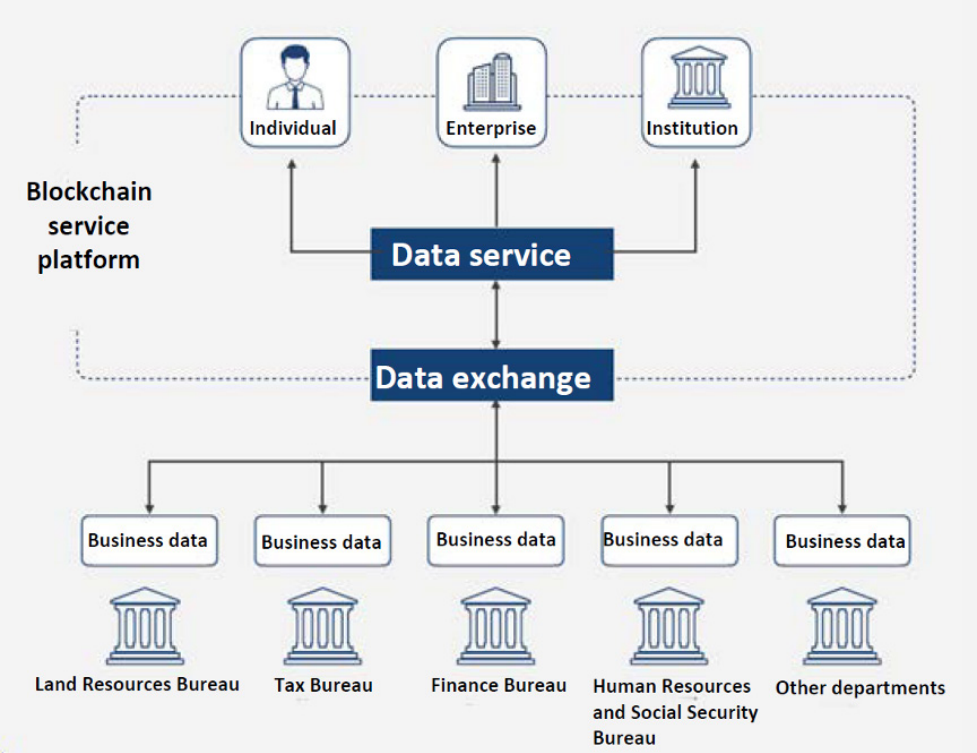
Blockchain Solution for IoT

State Grid has also partnered up with Qulian Technology to develop a blockchain solution that has IoT capabilities. Through the blockchain platform, State Grid can track data with sustainable equipment, such as photovoltaic panels, and enable trading of electricity on an open, transparent platform (Hyperchain, 2019).

Public Service

Utilization of blockchain technology can realize data sharing between government departments at all levels, which can help improve work efficiency, reducing administrative costs, and bringing better government service experience to the public. At present, some local governments are exploring the possibility of constructing a resident identity consensus database based on blockchain that will collect residents' identity, tax payment, work experience, and other relevant information on an ongoing basis. Thereby, residents will not need to submit identity data repeatedly when handling different matters with government agencies.

Exhibit 2.12 Blockchain-based information sharing for public service/government departments



Blockchain Application Cases in Public Service

Electric Invoice/Tax Bill

Electronic bills and invoices built on blockchain have full-process traceability and tamper-proof information, which can effectively help avoid fake invoices and improve the invoice supervision process. In addition, blockchain electronic invoices can be traced back to their origins as well as checked for authenticity and relevant accounting information in order to solve problems such as overstatements, false declarations and reimbursements, and difficulty in verifying authenticity. In addition, blockchain's decentralization features and distributed consensus are beneficial for building trust in multi-party cooperation.

In cooperation with Tencent blockchain, the Shenzhen Tax Bureau launched blockchain-based electronic invoices in August 2018. Blockchain-based electronic invoices can be used on demand without physically reaching the tax department to obtain and purchase invoices. Users can also apply for invoices by themselves after consumption. By the end of October 2019, more than 10 million invoices had been issued and more than 7,600 enterprises had joined the blockchain electronic invoice system with the invoice amount exceeding 7 billion yuan. At present in Shenzhen, blockchain-based electronic invoices are widely used in financial services, insurance, retail, accommodation, catering, parking, etc. (Yin, 2019).

Charity

Trust is an essential factor in the charity industry. Charity organizations must demonstrate their trustworthiness when handling charity funds. With blockchain, every input and output of a donation can be recorded on an immutable ledger shared by different stakeholders, leading to improved transparency. Aside from only saving records on a blockchain, there have been pilot cases to distribute immutable electronic food stamps to distressed refugees in certain refugee camps.

Application in Response to the Coronavirus/COVID-19 Outbreak

During the COVID-19 outbreak, blockchain has been playing an important role in charitable donations as well as epidemic prevention and control. According to People's Daily, a number of enterprises led by China Xiongan Group and Qulian Technology jointly proposed to launch a charitable donation platform based on blockchain technology. The platform makes use of a consortium blockchain network to make the donation process all open, tamper-proof, traceable, and subject to public supervision. According to the statistics of the charitable donation management platform, the total amount from charitable donations on the platform has exceeded 740 million yuan while the number of charitable donations has exceeded 500 (Liu, 2020).

This platform is dedicated to the whole process of charitable donations, including the procedures

of "seeking donations – matching donors and receipts – granting donations – tracking logistics – confirming donations", to ensure transparent and efficient operation of donations. For each single donation, the platform assigns the corresponding block information, block height, unique certification and timestamp, and clearly identifies that the donation has been registered on the Qulian blockchain.

Blockchain technology can effectively solve the problems of complicated processes and shady operations in traditional charity and public welfare projects. The circulation data of each donation is stored on the blockchain, which is convenient for the regulatory authorities to track and supervise. Alipay also launched a similar information service platform for epidemic prevention. The platform uses Ant Blockchain to review information, such as the demand, supply, and transportation of goods and record it on the blockchain.

In terms of epidemic prevention and control, blockchain is mostly used in the management of identity information. Blockchain technology can play an important role in tracking people's movement and in community governance. After uploading the data to the collaborative system for epidemic prevention and control, the blockchain system can ensure secure encryption, improve the efficiency and security of data acquisition, and make the data tamper-proof to enhance the credibility of data. Data in the system can be traced through the whole process, providing credible data support for epidemic prevention and control as well as decision-making assistance for government departments to implement adequate and precise policies..

Other Application Areas

Intelligent Manufacturing

Blockchain can empower product R&D and business model innovation for intelligent manufacturing, which can effectively improve trust and efficiency in the industry, thus further promote the industry's value. Blockchain's decentralization can help the manufacturing industry provide better service and support the development of sharing economy. In particular, the output, circulation, and incentive of digital tokens issued on blockchain can effectively promote manufacturing innovation.

Industrial Internet

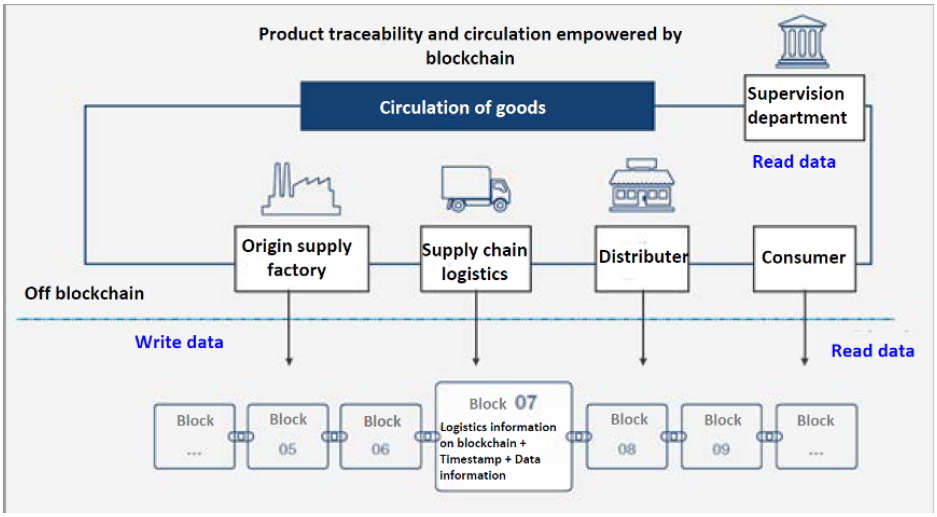
Industrial Internet has successfully connected people, machines, and devices by deeply integrating information technology into industrial technology. Blockchain can empower industrial Internet by promoting data sharing, optimizing business processes, reducing operating costs, and improving collaborative efficiency. The combination of blockchain with big data, IoT and artificial intelligence can be applied as a tool to handle industrial big data and build a more credible industrial Internet. Through blockchain and IoT devices, authenticity can be guaranteed from the source of data col-

lection as the tamper-resistance of blockchain can prevent malicious modification of data and ensure the authenticity and traceability of data. Real-time data on the blockchain is transparent and visible to users who are qualified to access the data.

Product Tracing

The prospect of "blockchain + product traceability" is promising. Product traceability is an important scenario of blockchain application as the integration of blockchain and IoT makes product traceability a reality. Blockchain stores integrated data, enables different participants to use consistent data sources, and ensures the traceability of information in order to achieve transparency, security, and sharing of information in the industrial value chain. At the same time, the penetrating regulation through blockchain can make the enforcement of regulations more accurate, make consumers feel at ease to consume, and realize the vision of consumption upgrade (The Economic Daily, 2019).

Exhibit 2.13 Blockchain-based product traceability system



Data Protection

Over the last 20 years, centralized data storage solutions have proven to be insufficient in terms of safeguarding data, leading to several high-profile data leak incidents affecting tens of millions of people. With the help of blockchain technology, data protection can become a shared responsibility among stakeholders. Utilizing cryptography technologies like Secure Multi-party Computation, authorized participants connected by blockchain can generate the computation result on certain data without the need to obtain the actual data first, therefore reducing the risk of attacks while preserving privacy.

Appendix

Appendix 2.1 Representative Blockchain Companies and Corresponding Projects in China

Company	Location	Product/Service
Bubi	Beijing	Blockchain infrastructure technology service and upper-layer application development.
PeerSafe	Beijing	ChainSQL blockchain database application platform.
Consensus Datatrust	Beijing	COBaaS, enterprise-level blockchain service platform. Blockchain-based trusted data circulation platform.
Maxchain	Beijing	Blockchain database system. Blockchain governance and control platform. Data asset protection system.
Wanglu Tech	Beijing	Wanglu blockchain platform.
Tiande Technologies	Beijing	Open TianDe BlockChain.
VeChain	Shanghai	VeChain BaaS Service ToolChain. Industrial solution service.
Wanxiang Blockchain	Shanghai	Blockchain-based solutions: automobile supply chain & logistics service platform, Supply Chain Finance platform, charity platform, Innovative Consulting Service, and PlatONE blockchain platform.
OnChain	Shanghai	Blockchain technology service, projects include NEO & Ontology.
Linkeychain Technology	Shanghai	Blockchain traceability platform.
LD-Blockchain	Shanghai	Blockchain BaaS platform. Blockchain data depository system. IoT + blockchain traceability platform. Blockchain voting platform.
Qulian Technology	Hangzhou	Hyperchain blockchain platform. Blockchain open cloud platform. Data sharing platform. Identity & traceability platform. Smart contract tools. Supply chain blockchain service. Enterprise-level blockchain network solutions.

Company	Location	Product/Service
Zhongchao Blockchain Technology Research Institute	Hangzhou	Blockchain Registry Open Platform (BROP), providing blockchain based digital identities, trusted data, and digital certificates services. Zhongchao Financial Blockchain Solution (Block-X), providing solution to help traditional financial customers quickly transform their centralized services to distributed services or enhance existing systems to support blockchain features.
Yunphant	Hangzhou	Yunphant Chain, blockchain infrastructure. Yunphant BaaS, Blockchain operation and maintenance management platform. Cloudbox Blockchain Open Service Platform, one-stop blockchain solution for enterprises to deploy blockchain applications into their business scenarios.
OneConnect (Associate company of Ping An Group)	Shenzhen	FiMAX BaaS Platform developed for financial institutions and SMEs. Application cases include: 1) Hong Kong Monetary Authority International Trade Finance Platform. 2) Blockchain Reinsurance Platform. 3) Supply Chain Finance Platform. 4) SME Loan Platform. 5) Real-time Reconciliation in Multi-institution Transactions. Smart blockchain asset management platform, ensuring the penetration of underlying assets, and achieves end-to-end credit risk management through asset anomaly tracking, risk warning, cash flow, and payback prediction. Internet Finance Alliance of small and medium-sized Banks (IFAB) trade finance network & smart supply chain finance platform, connecting core enterprises with multi-level upstream and downstream financial institutions, logistics and warehouses, realizing multi-level credit penetration.
Juzix	Shenzhen	JUICE Open Service Platform & JUGO open service platform.
ZhongAn Technology	Shenzhen	BaaS platform, credit distribution system, data safety storage, ID authentication, intelligent anti-forgery.
Xinlian Technology (Subsidiary of China Electronics Technology Group)	Chengdu	Secured blockchain service platform. Blockchain-based secured data sharing solution, trust service solution, and financial management solution. Industrial solutions, including Financial Supervision Chain, Government Affairs Chain, Traceability Chain, Healthcare Chain.

Company	Location	Product/Service
Ziggurat	Xi'an	Z-BaaS 2.0 Enterprise Blockchain Cloud Service Platform, blockchain infrastructure to provide end-to-end blockchain industry solutions. Z-Ledger Enterprise License Chain, "blockchain + copyright protection" one-stop copyright protection platform. Data governance platform, realizing cross-principal data collaboration, data privacy protection and multi-party security computing. Supply chain finance service platform, realizing 1 to N supplier accounts receivable bill flexible split, cross-level transfer and fast financing.
Rongzer Information Technology	Nanjing	Blockchain digital license sharing platform. Blockchain-based inclusive finance platform & smart medical platform.

SOURCE: CAC, CAICT, IPRDAILY

Appendix 2.2 Major Blockchain Experiments by Various Industry Leaders

Internet/TMT		
Company	Product/Service	Description
Alibaba/Ant Financial	Ali Cloud BaaS	Enterprise-level blockchain platform services, "blockchain + cloud computing", building blockchain technology on Ali cloud for product tracing, supply chain finance, data asset transactions, and digital content copyright protection, etc.
Tencent	TrustSQL	BaaS platform designed to provide all the tools necessary for enterprise-level services in areas such as digital asset management, authentication, and shared economies.
Baidu	Du Xiaoman BaaS Du Xianman Public Chain PaaS Du Xiaoman Trust Chain Application Platform	Blockchain open platform to provide enterprise-level block-chain solutions, including tracing, asset securitization (ABS), consumer finance, virtual assets, copyright protection, etc.
JD.com	JD Blockchain Open Platform	Customized blockchain-based industry solution, depends on specific business characteristics, providing one-stop products and services for supply chain finance, government and public services, etc.
HUAWEI	HUAWEI Blockchain Ser-vice BCS	High-performance, high-availability, and high-security blockchain platform services for enterprises and developers to create, deploy, and manage blockchain applications on HUAWEI Cloud, which can be applied in the areas of data, IoT management, finance, etc.

iQIYI	Blockchain Certificate System	Copyright certificate on blockchain, public warfare credit certificate on blockchain.
Suning Cloud	Suning Blockchain Platform	BaaS platform developed for retail business, transaction data, traceability information, or contracts can be deposited on blockchain, supporting product traceability system, electronic invoice, digital evidence management platform, etc.
Hundsun Technologies (Invested and partially owned by Alibaba Group)	Hundsun Sharing Ledger (HSL)	HSL is a decentralized PaaS platform for building blockchain systems for compliant financial institutions. Currently, HSL mainly expands application scenarios in trade finance, supply chain, etc.
Financial Institutions		
Institution	Area	Introduction
PBOC	Digital currency Trade finance	Sovereign digital currency attached to RMB. Blockchain trade finance platform for conducting trade and financing activities.
State Administration of Foreign Exchange (SAFE)	Cross-border finance	Their cross-border financial blockchain service platform takes advantage of blockchain to solve the problems of difficult and expensive cross-border financing for SMEs and promote the development of cross-border trade finance.
Ping An Group Lufax Ping An Bank Ping An Insurance	Internet finance Inclusive finance Supply chain finance Voting Insurance	Deployed blockchain to assist user identity authentication and used blockchain to trace the source and process of online lending transactions. Supply chain accounts receivable service (SAS) blockchain platform, establishing multi-party mutual trust mechanism to penetrate the management of underlying assets, and applying "AI + big data" to carry out smart verification and continuous monitoring of the authenticity of trade.
CITIC Bank	Trade Finance	Blockchain forfaiting transaction (BCFT) platform initiated by CITIC Bank for online contracting between banks.
WeBank (Digital bank initiated by Tencent)	Small & micro loans Financial infrastructure	FISCO BCOS, the underlying platform of the financial-level consortium chain as the infrastructure for developing blockchain applications. Interbank reconciliation platform for WeBank's micro-loan product. WeBASE, blockchain middleware platform. WeIdentity, entity identification and trusted data exchange solution. WeEvent, blockchain-based distributed event-driven architecture.

ICBC	Supply chain finance	Digital credit financing that provides online factoring financing for small and micro-sized enterprises at the lower end of the value chain. ICBC, core enterprises and third-party supply chain financial service platform, pool purchase cash flow and trade flow of core enterprises and all-tier suppliers into the collaborative platform by adopting blockchain.
Bank of China	Cross-border payment	Through the blockchain cross-border payment system, banks can instantly share payment and transaction information among participants, complete settlements within a few seconds, query the transaction processing, and track the fund dynamics in real time. At the same time, the bank can write off the account and check the information of the account position in real time, thus improve the efficiency of liquidity management.
Agricultural Bank of China	Loan	Use blockchain to keep relevant parties updated with data on borrowers and their collateral, thus streamline the manual process of loan approval and eliminate the problem of double spending (borrowers using the same piece of land as collateral to apply for loans from different banks).
China Construction Bank	Trade finance Factoring	Blockchain-based trade finance platform that facilitates online processing of letters of credit, forfaiting, international factoring, etc. The total transaction volume has exceeded 200 billion yuan with 1,757 transactions, making it the largest blockchain trade finance platform in the industry.
Postal Savings Bank	Asset custody Trade finance	U-chain custody business system realized real-time sharing of information by multiple parties. U-chain forfaiting business system. Inter-bank domestic letter of credit transaction on blockchain. Domestic letter of credit's trade finance asset information matching. Asset trading and full process business management.
Bank of Communications	Settlement Asset backed securities (ABS)	The first blockchain-based domestic letter of credit was successfully handled between Shanghai Branch and Yangzhou Branch. Full-process blockchain asset securitization platform "Jucai Chain", serving as a comprehensive investment banking operations platform that connects all participants in ABS operations and achieves high efficiency process and data integration.

China Minsheng Bank	Trade finance	Blockchain-based forfaiting transaction platform.
	Settlement	Blockchain-based letter of credit system.
China Industrial Bank	Cross-border banking	Blockchain cross-border service platform, successfully conducted accounts receivable financing through block-chain, provide full-process services of corporation financing application, bank financing acceptance, due diligence and loan registration, improve the accuracy of due diligence and the efficiency of financing business.
	Credential certificate	Blockchain digital contract service platform, identity authen-tication, online contract signing, valid digital signature and blockchain certificate depository.
Beijing Financial Assets Exchange	Debt financing	Information disclosure platform for receivables debt financ-ing (cooperated with PBOC Digital Currency), making SMEs realize direct financing and simplify financing procedures.
UnionPay	Digital credential	Blockchain-based digital credential system and global fund tracking system.
	Global transaction	
Shanghai Insurance Exchange	Insurance & reinsurance	Insurance Exchange Chain, a blockchain infrastructure tech-nology platform.
		Corporate service, digital warranty custody service, annuity transfer and continuation platform service, and reinsurance platform service based on Insurance Exchange Chain.
Suning Bank	Chattel mortgage	"Blockchain + IoT" chattel mortgage platform, combines in-formation flow, capital flow, and entity flow of chattel pledge business to effectively reduce risks and better solve the financing difficulties of SMEs.
China Securities Credit Investment	Supply chain finance	Through the credit connection of core enterprises, asset access, data verification, approval, rating capability, and ABS, asset pool management is realized and an asset trading service platform oriented to multi-stage supply chain and multi-class credit products is built.
Energy		
Company	Area/Project	Introduction
State Grid Corporation of China	Electricity IoT	Established State Grid Blockchain Company.
	E-commerce	Fintech products, including electronic contract, electronic settlement, supply chain finance, electricity finance, and big data credit.
	FinTech/Blockchain utility platform	
		Achieved automatic inspection and audit of electricity, bills, and other data and information to optimize payment pro-cess.

Manufacturing		
Company	Area/Project	Introduction
Haier	IoT Supply chain Fintech	Utilize blockchain in Internet of clothing (IoC) networked laundry solution, Internet of Food platform, blockchain contract, and blockchain invoice
Wanxiang	Industrial Internet	Use blockchain and other Industrial Internet toolkit to record key data and parameters generated in the industrial production environment to improve data accuracy, transparency and accountability.
Public Service		
Institution	Area/Project	Introduction
Guangzhou Internet Court	Judicial Digital evidence Credit governance	Use blockchain to form a smart credit ecosystem by sharing judicial, credit, and employment data, and encourage data sharing through point mechanism.
Shenzhen Tax Service, State Taxation Administration	Electronic invoice	Blockchain-based electronic invoice, helps enterprises avoid fake invoices and improve the invoice supervision process, reducing enterprise costs. The invoice information will be synchronized to the enterprise and tax bureau in real-time. More than 7,600 enterprises in Shenzhen have been connected to the blockchain electronic invoice system, with the invoice amount exceeding 7 billion yuan.
Aviation		
Company	Area/Project	Introduction
China Southern Airlines	Loyalty program	Use blockchain to convert loyalty points from third-party businesses into mileage points.
Logistics		
Company	Area/Project	Introduction
SF Express	FengsuGO tracking and tracing project	Established cross-border goods supply chain traceability system with blockchain, enhancing the transparency and credibility of the supply chain through multi-party information monitoring to achieve cross-border goods identity authentication.
Healthcare & Medical Service		
Company	Area/Project	Introduction
BGI Group	BGI BaaS Platform	This blockchain service platform for the application of genetic data is based on the premise of privacy protection, the purpose of data sharing, and the vision of value interaction, providing upstream and downstream partners in the field of life science with a one-stop blockchain solution of high performance, high availability, and high security.

Photo by Toby Yang on Unsplash

Chapter 3

Recommendations for Start-Ups

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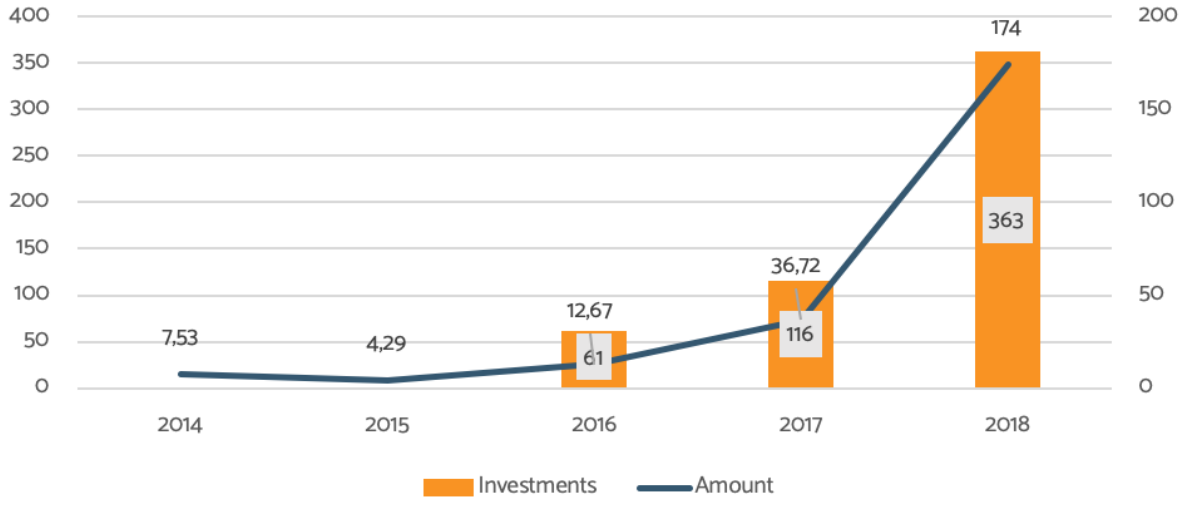
Fundraising for Blockchain Start-Ups in China

Investment Opportunities in China: Where Is the Money? How to Get Funding? How Difficult Is It?

With the rapid growth of the blockchain industry, Chinese venture capital (VC) institutions have invested in many blockchain projects in recent years. In China, capital raising in digital tokens/ cryptocurrency, such as ICO and STO, are strictly forbidden as explained in Chapter 1 of this report. Although many blockchain projects have chosen to register overseas for financing to avoid the supervision of the Chinese government, it is still the most compliant and mainstream way to seek investment from PE/VC funds, industrial funds, publicly listed companies or large groups for the blockchain projects in China.

According to the 2014-2019 statistics from VC database ITjuzi.com, China's investments in the blockchain industry experienced an explosive growth in 2018, with 405 investments, an increase of more than 268% compared to 2017, and with a total investment size of 131.2 billion yuan, which is more than 20 times of the total in 2017.

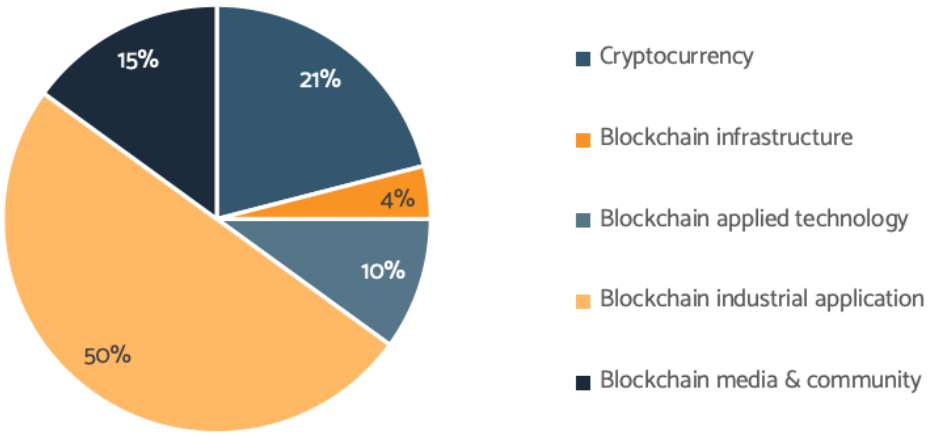
Exhibit 3.1 Investments in the blockchain industry (2014-2018)



SOURCE: ITJUZI.COM

In terms of field distribution, based on 2018's data, investments in blockchain industrial application count for half of the whole industry's investments. In addition, investments in cryptocurrency projects, blockchain media and community also account for 20% and 15% of the total number of investments respectively.

Exhibit 3.2 Sector distribution of blockchain investments



SOURCE: ITJUZI.COM

However, starting from late 2018, after the burst of cryptocurrencies' price bubble, venture investments in the blockchain industry became more rational and the enthusiasm for investment in the blockchain industry in China began to vanish. In China, according to ITjuzi.com, as of September 24 2019, the total financing amount of the blockchain industry in 2019 was 14.69 billion yuan, accounting for only 11% of the total in 2018. Similarly, the number of deals was 127, accounting for only 31% of the total in 2018. In addition, the financing scale of China's blockchain industry decreased significantly from 2018's 46% to 2019's 15%, which indicates that the development prospect of the blockchain industry is still unclear, largely due to the lack of successful large-scale commercial application of blockchain technology. Another important reason why the enthusiasm of VC institutions to invest in blockchain has declined is that there are no good exit channels for the invested projects after the crypto financing modes such as ICO were strictly regulated worldwide.

The trend of investment in the blockchain industry in China is overall in line with the global market. As of the end of 2019, according to Rhino Data, investment in the blockchain industry in China dropped sharply in 2019, with 245 deals disclosed, 59.4% lower than in 2018. The total amount raised reached 24.4 billion yuan, 40.8% lower than in 2018. Still, the numbers of 2019 are substantially higher compared to those of 2017. With new incentive policies and more rational investment, the domestic blockchain sector may see a healthier development in 2020.

CB Insights has noted that there is not a tendency towards investors engaging more in the mature stages of blockchain companies. On the contrary, the investments in the early stages have taken a larger proportion, showing the blockchain industry is still at a very early stage and blockchain

technology derived innovation continues to appear (CB Insights, 2019). It also indicates that the "entrepreneurial mortality rate" of the blockchain industry is rather high, which means that early-stage investment cannot be effectively converted into a larger scale of follow-up growth in many cases.

In China, most mainstream VC institutions have invested in the blockchain industry and there are also many emerging VC institutions focusing on the blockchain industry. The appendix lists the major blockchain investment institutions in China.

Key blockchain clusters in China

Where Should You Start?

The Key Blockchain Clusters in China

Geographically, Beijing, Shanghai, Guangdong, and Zhejiang are the top four clusters of blockchain entrepreneurship. Beijing has strong scientific research strength and abundant talents. Located in the Yangtze river delta region, Shanghai and Zhejiang are economically developed and have a solid industrial foundation. Guangdong has a developed technology industry, providing a sound foundation for active innovation and entrepreneurship in the blockchain industry. In this part, we introduce the four major Chinese cities with high overall development level of blockchain industry and the local governments' support for the blockchain industry from the perspectives of policy guidance, industrial cultivation, and financial support.

Photo by Li Yang on Unsplash

1. Shanghai

Keywords: *financial center of China, international and modern city, innovation hub*

Supportive Policies

In July 2018, the Shanghai Committee of the Communist Party of China published a proposal to accelerate the application of blockchain and other innovative technologies in financial services, financial infrastructure construction, and financial supervision to make the financial sector better serve the real economy (Jiefang Daily, 2018).

In September 2018, the Yangpu District Government of Shanghai issued *Several Policy Provisions on Promoting the Development of Blockchain (trial)*. The regulation provides twelve supportive policies for the development of blockchain industry within the jurisdiction, including subsidies for organizational expenses, subsidies for office use, consortium support and financing support (Sina Finance, 2018).

Fund Support

In 2017, the Shanghai municipal government's special fund began to support projects for application of blockchain technology in the field of financial trade settlement and trading, as well as the research, development, and industrialization of key blockchain technology with fund awards up to 1 million yuan to the selected projects (Shanghai Municipal Commission of Economy and Information, 2017).

In January 2019, according to Shanghai Yangpu District government's press release, Yangpu District will set up a blockchain industry fund, mainly in the form of equity investment, to support the development of start-ups and high-growth enterprises. Meanwhile, Yangpu government will introduce various VC funds to increase investment in seed-stage and start-up blockchain enterprises and encourage different financial institutions to provide all-around financial services for blockchain enterprises, thus promoting the materialization of blockchain technology's application (Shanghai Yangpu Government, 2019).

China's first blockchain incubation base was set up in Shanghai. The blockchain enterprises in the incubation base can enjoy tax incentives, specialized supportive policies, and other customized services (Shanghai Municipal People's Government, 2016). In November 2018, Shanghai Yangpu District started to establish a blockchain cluster area of "fund + base + think tank + business community + training" to build a blockchain technology application ecosystem supporting innovation and entrepreneurship, as well as to boost the innovative and concentrated development of various blockchain enterprises. The Shanghai Blockchain Technology Association also started to operate inside the incubation base at the same time (Li R. , 2018).

Notable Blockchain Firms in Shanghai

Company	Major Product & Service	Application Scenario
Ant Blockchain	Open consortium blockchain, BaaS platform, evidence storage and depository platform, multi-party secure computing platform, product tracing platform.	Financial service, retail, healthcare, public service, real estates, commodity.
Wanxiang Blockchain	Research, incubation, consulting service, consortium blockchain platform.	Supply chain finance, automobile, healthcare, insurance.
VeChain	BaaS platform.	Retail, manufacturing, environmental protection, automobile, energy, media, logistics, agriculture.
Gingkoo Technology	Blockchain infrastructure, Digital Asset Registration Platform.	Supply chain finance, asset-backed securities, credit service.
Onchain	Blockchain infrastructure & business application platform.	Public service, data management, supply chain finance, equity investment, healthcare.

2. Beijing

Photo by kiti sanchez on Unsplash

Keywords: *capital of China, close to the authorities, research center and talent pools*

Regulative Policies

As China's capital city, Beijing has attached great importance to the supervision of the blockchain industry and the prevention of financial risks of blockchain. The supervision measures of Beijing on blockchain mainly focus on cracking down on scams related to cryptocurrency as well as illegal fundraising in the form of cryptocurrency.

Supportive Policies

In December 2016, Beijing Municipal Bureau of Financial Work and Beijing Development and Reform Commission jointly issued *Financial Industry Development Plan of Beijing During The 13th Five-Year Plan Period*. The document orders the acceleration of innovative techniques and applications of cloud computing, big data, blockchain, and other financial technologies in payment and clearing, digital currency, wealth management and other fields, and furthermore encourage the development of blockchain technology, trusted timestamp identification and other technologies to protect consumer rights and improve the security of Internet finance (Beijing Municipal Bureau of Financial Work & Beijing Development and Reform Commission, 2016).

In November 2018, Beijing Zhongguancun Science Park Administrative Committee, Beijing Municipal Bureau of Financial Work, and Beijing Municipal Science & Technology Commission jointly issued *Beijing's Plan of Promoting Fintech Development (2018-2022)*. In the document, it is clearly required to promote the development of distributed technology represented by cloud computing and blockchain, promote blockchain technology's application in digital identity, information storage, notarization, credibility verification, process tracing, urban management, precise poverty alleviation, etc., explore the application of blockchain technology in financial supervision and risk control, supply chain finance, inclusive finance, trade finance, credit investigation, insurance and other financial fields, support multi-dimensional blockchain technology research and development of smart contracts, actively encourage the research and exploration of the next generation distributed technology, and cultivate blockchain technology enterprises (Beijing Zhongguancun Science Park Administrative Committee, Beijing Municipal Bureau of Financial Work and Beijing

Municipal Science & Technology Commission, 2018).

Fund Support

In April 2017, Beijing Zhongguancun Science Park Administrative Committee National Demonstration Zone, overseen by The Ministry of Science and Technology, started to prioritize the development of blockchain technology with policy support. The maximum support for a single project was of 5 million yuan (Zhongguancun Science Park Administrative Committee, 2017).

In May 2018, Beijing Blockchain Ecological Investment Fund was launched under the support of Beijing Municipal Bureau of Financial Work with a fund size of 1 billion yuan.

As Beijing's first government-guided fund focusing on blockchain application investment, the fund mainly invests in blockchain education and training, blockchain application in financial sectors except cryptocurrency, research and development of blockchain infrastructure, and the blockchain technology's facilitation of transforming and upgrading traditional enterprises and industries (Xinhuanet, 2018).

Notable Blockchain Firms in Beijing

Company	Major Product & Service	Application Scenario
Baidu	BaaS platform.	Copyright, logistics, financial service, judicial service.
JD.com	BaaS platform, blockchain infrastructure, enterprise blockchain service.	E-commerce, logistics, payment, healthcare, charity, green energy, entertainment, copyright.
Bubi	Commercial blockchain underlying platform, BaaS service.	Supply chain finance, supply chain tracing, notary service, public service.
PeerSafe	Blockchain infrastructure, blockchain application platform, consortium blockchain.	Financial service, public service, public security, logistics, utility, agriculture.

3. Shenzhen

Photo by Wilson Fang on Unsplash

Keywords: *fast-growing, entrepreneurial, full of innovation and energy*

Supportive Policy

As China's most innovative city, Shenzhen has been continuously providing policy support for the development of blockchain technology. In November 2016, Shenzhen Municipal Financial Regulatory Bureau published *the 13th Five-Year Plan for the Development of Shenzhen's Financial Industry*. The document states that the municipal government will support financial institutions to strengthen research and exploration on emerging technologies such as blockchain and digital currency (Shenzhen Municipal Financial Develoment Service Office, 2016). .

Fund Support

In September 2017, the Shenzhen municipal government issued a notice to encourage financial innovation and set up a special fintech award focusing on the outstanding projects in the fields of blockchain, digital currency, financial big data application, etc. The annual award amount is up to 6 million yuan in total (Shenzhen Municipal Government, 2017). In March 2018, the Economy, Trade and Information Commission of Shenzhen Municipality released a further supportive policy, providing a maximum of 2 million yuan subsidy for each independently developed project that can promote major breakthroughs and exemplary applications of technology, including blockchain (Economy, Trade and Information Commission of Shenzhen Municipality, 2018). In addition, in April 2018, Shenzhen set up a government-led blockchain fund – Shenzhen Blockchain Venture Capital Fund (Development and Reform Commission of Shenzhen Municipality, 2018). The first phase of the fund is 500 million yuan with 40% contributed by Shenzhen Angel Investment Guidance Fund. The blockchain fund is managed by one of Shenzhen State-owned Assets Supervision and Administration Commission's subsidiary investment management companies (zero2ipo Research, 2018).

Pilot Projects

Shenzhen is leading in China when it comes to acceptance and application of blockchain technology. In January 2017, PBOC officially established the Digital Currency Research Institute in Shenzhen (Chen, Cheng, & Zhang, 2019). In June 2018, PBOC founded a wholly owned subsidiary, Shenzhen

Financial Technology Company (Li & Shen, 2019). In August 2019, the State Council of China released the *State Council Opinions Concerning Support for Shenzhen to Establish an Advanced Demonstration Zone for Socialism with Chinese Characteristics*, pointing out that the central government supports Shenzhen to undertake research into digital currencies, mobile payments, and other fintech innovations (China Banking News, 2019).

In August 2018, the "blockchain + tax" project jointly developed by Shenzhen Municipal Taxation Bureau and Tencent issued its first blockchain-powered invoice for a local restaurant. Relying on the blockchain platform provided by Tencent, enterprises can apply for invoices and declare taxes on the blockchain. After the transaction is completed, the blockchain system automatically generates the content and amount of invoices and makes out invoices in real-time (Chen & Jiao, 2018). According to the taxation authority, one year after the first blockchain-based invoice was issued in Shenzhen, about 6 million such invoices have been issued with a total face value of 3.9 billion yuan (Wang & Zhao, 2019).

In September 2018, the Bay Area Trade Finance Blockchain Platform officially set up in a trial phase in Shenzhen. The platform is jointly deployed by the PBOC Digital Currency Research Institute and the Shenzhen branch of PBOC and collaboratively developed by Bank of China, China Construction Bank, China Merchants Bank, Ping An Bank, Standard Chartered, and BYD. At its early stage, the pilot project has built the underlying platform for a trading platform based on blockchain where trade financing activities, including accounts receivable trade financing, cross-border financing, and other scenarios, could be carried out. At the same time, the platform provided a trade finance supervision system for regulators to carry out dynamic, real-time monitoring of various financial activities (Shi, 2018). As of July 2019, according to PBOC Shenzhen branch's official statement, the platform had already connected with 28 banks and 483 network points in the Shenzhen municipal area, as well as processed over 30 billion yuan in outbound payments operations (China Banking News, 2019).

Notable Blockchain Firms in Shenzhen

Company	Major Product & Service	Application Scenario
Tencent	BaaS platform, enterprise blockchain service platform.	Public service, corporate lending, media, judicial service.
HUAWEI	Blockchain application platform.	Supply chain finance, supply chain tracing, notary service.
Ping An OneConnect	BNaaS (Blockchain-Network-as-a-Service).	Trade finance, supply chain finance, asset-backed security, environment protection.
WeBank	Blockchain infrastructure.	Supply chain, judicial service, e-commerce.
ZhongAn Technology	Blockchain infrastructure, consortium blockchain, BaaS platform, distributed database, blockchain security system.	Agriculture, insurance, tracing, public service, healthcare, hospitality, copyright, supply chain finance, e-commerce, data security.

4. Hangzhou

Photo by Alessio Lin on Unsplash

Keywords: *the next fintech hub, home of Alibaba*

Supportive Policy

Hangzhou, as one of the most developed cities in China's Internet industry, has attached great importance to emerging technologies such as blockchain. At the beginning of 2018, in *Hangzhou Government Annual Work Report*, it is strongly encouraged to accelerate the cultivation of innovative sectors, including blockchain (Hangzhou Municipal Government Policy Research Office, 2018).

Fund Support and Incubation Base

In April 2018, Hangzhou Yuhang District Government, the Future Science and Technology City Administrative Committee, and the Hangzhou Yanqi Investment Management Co. jointly established the Xiong'An Global Blockchain Innovation Fund with a total fund size of 10 billion yuan. Among the three investors, "government-guided funds" accounted for 30 percent of the investment to introduce high-quality blockchain projects. Accompanied with the establishment of the fund, Hangzhou Blockchain Industrial Park, the blockchain incubation center backed by Hangzhou municipal government, launched officially (Hangzhou Municipal Bureau of Finance, 2018).

Other than the Hangzhou Blockchain Industrial Park, there are two representational blockchain incubation bases with government support in Hangzhou – Hangzhou Xixigu Blockchain Industrial Park supported by Hangzhou City Construction Assets Management Group Corporation (Hangzhou City Construction Investment Group, 2017) and China (Xiaoshan) Blockchain Entrepreneurship and Innovation Base supported by China Electronics Standardization Institute, Hangzhou Xiaoshan District People's Government and China Wanxiang Holdings (Economy and Information Tecnology Department of Zhejiang, 2017).

Notable Blockchain Firms in Hangzhou

Company	Major Product & Service	Application Scenario
Qulian Technology	Enterprise-level blockchain underlying infrastructure, inter-blockchain platform, BaaS platform. blockchain development toolbox, blockchain security and testing service, distributed data collaboration platform, blockchain operation and maintenance system.	Supply chain finance, supply chain tracing, digital certificate, energy.
Zhongchao Blockchain Technology Research Institute	Blockchain infrastructure, blockchain registry open platform, financial blockchain solution.	Notary service, cross-border finance, bankruptcy liquidation, product tracing.
Yunphant	Blockchain infrastructure, BaaS platform, developer platform.	Financial service, digital certificate.

Appendix

Appendix 3.1 List of Traditional VC Institutions Invested in Blockchain in China

Institution	Headquarter	Fund Size	Major Invested Companies/Projects
Lightspeed China Partners	Shanghai	$1.5 billion	PeerSafe, BTCC, CertiK
Matrix Partners China	Shanghai		Tokeninsight, Nervos, Rate3, InVault
Frees Fund	Shanghai	About $504 million	Nervos, Hashgard, Cobo wallet, Taxa
Gobi Partners	Shanghai	$1.1 billion	EtainPower
Starwin Capital	Shanghai	$14 million	Block Continent, HPB, Ultrain, Odaily
Eagles Fund	Shanghai	$140 million	Molecular Future
Draper Dragon	Shanghai	$140 million	TokenInsight, Vechain, Ledger, Carry Protocol
Dianliang Capitals	Shanghai		BUMO, Ellipal, Bubi, KG.COM
SoftBank China VC	Shanghai	Over $2 billion	bte.top, Project PAI, Atlas Protocol
Detong Capital	Shanghai	Over $1.4 billion	BUMO
Fosun	Shanghai		Onchain, Bianjie.AI, Hyperchain,
Milestone VC	Shanghai		IRISnet, Bubi, Ontology, BUMO, LianAn, GAEA, AmberAI, ChainNews, 1Token
IDG Capital	Beijing	Over $20 billion	Ground X, Circle, Coinbase, imToken, OneConnect, Cyber-Miles, Goopalgroup, Bitmain, Ripple, Mars Financial
Ceyuan Ventures	Beijing	$560 million	Defi, OKCoin, Nervos, Lambda, Ultrain, Standard & Consen-sus, Mars Financial, Deepchain, POINTS
Sequoia China	Beijing	Over $28 billion	Bitmain, Huobi, ChainUP, TEEX, Nervos
ZhenFund	Beijing	Over $1 billion	Huobi, Yunphant, CompuTa, Nineseals, Covalent, Lambda
PreAngel	Beijing	$84 million	Neo, Ontology, OKCoin, Deepchain
Sinovation Ven-tures	Beijing	Over $2 billion	EcomChain, Bubi
JD Capital	Beijing	$4.78 billion	Perlin, BUMO, S-labs, Token360
Gaorong capital	Beijing	$2.1 billion	Goopal Group, PeckShield
K2VC	Beijing	Over $420 million	AiLink.in, MyToken.io, IOST
Northern Light VC	Beijing	$4.2 billion	Block Continent
Baidu Ventures	Beijing	$500 million	Atlas Protocol, Warp Future, Circle
ChinaEquity Group	Beijing	$420 million	PeerSafe, Coinsuper
GSR Ventures	Beijing	$3 billion	tZERO
Unity Ventures	Beijing	$280 million	Nervos
Lengend Capital	Beijing	Over $5.6 billion	Goopal Group
SDIC Gaoxin	Beijing	$21 billion	Hyperchain
CICC Alpha	Beijing		FinChain (Shenzhen Blockchain Financial Service Co. Ltd)
Genesis Capital	Beijing		AiLink, Trip.io

Institution	Headquarter	Fund Size	Major Invested Companies/Projects
Tencent	Shenzhen		Everledger, ObeN, Bitmain, Project PAI, Blockstream
QF Capital	Shenzhen	Over $600 million	BUMO, Bubi, Btxon Wallet, 8btc
China Merchants Capital	Shenzhen	Over $37.8 billion	Bubi
Albatross Venture	Shenzhen	$140 million	Standard & Consensus, GS Technologies, ChainUP, Myshare, Fadada
Shenzhen Capital Group	Shenzhen	$48.6 billion	WeWay
Funcity Capital	Hangzhou	$140 million	Lambda, 8btc, Chaindigg, ChainDD, Mars Financial
Plum Ventures	Ningbo	Over $420 million	BHex, Token360, Deepchain, 8btc, Cobo wallet
Innoangel Fund	Tianjin	$280 million	Wanglu Technology, BUMO, Btxon Wallet
Longling Capital	Xiamen		FInsur, Ecom Chain, OKCoin, DxChain
Morningside Venture Capital	Hong Kong	Over $1.7 billion	Ultrain, CyberMiles, Chainedbox
DHVC	Palo Alto		Onchain, Cobo wallet, Atlas Protocol, PalletOne, CertiK, MoonX, Defi, TOP Network, Ultrain, POINTS

Appendix 3.2 List of Blockchain-focused VCs in China

Institution	Headquarter	Fund Size	Major Invested Companies/Projects
Fenbushi Capital	Shanghai	$70 million	Circle, Bubi, Juzix, Vechain, Top Network, Hashgard, Everledger, Lambda, ABRA, Wanglu Tech, Mobile Coin, Po.et
LD Capital	Shanghai		ChainBoard, BUMO, Top Network, PalletOne
ChainFunder	Shanghai	$14 million	VeChain, CPChain, DeepChain, everiToken
IRR Crypto	Shanghai	$100 million	Chains Guard, TokenGazer, DRsafe, 91Token
BlockVC	Shanghai	$1 billion	BHex, HitChain, Lambda
NEO Global Capital	Shanghai	$72.31 million	Ontology, Lambda, Oasis Labs, IRISnet, CertiK, Zilliqa, Open Platform, Bluzelle
Bitmain Technologies	Beijing		Circle, CertiK, TowerChain, 8btc, Lambda, Block.one, viaBTC, Asch
Viking Capital	Beijing	$28 million	Neo, ObeN, Scry.info, IOST, aelf
Genesis Capital	Beijing	$112 million	Traceability Chain, Ecom Chain, Social Lending, BiUP, BHex, PalletOne, Tomorrow
Node Capital	Beijing	$280 billion	PalletOne, Rate3, Jinse Finance, Huobi, ChainUP, Coldlar, Traceability Chain
FBG Capital	Beijing		Lambda, Rate3, Perlin, Nervos, Ultrain, Covalent, Zilliqa, Taxa
INBlockchain	Beijing	More than $100 million	EON, Trip.io, Kcash, EOS, BigONE, MobileCoin, TokenClub, Kakamf, IOST
DFund	Beijing		BHex, OneChain, Lambda, 31QU, DeepChain
Metropolis VC	Beijing		Lambda, Covalent, IOST, DATA, Cortex
Grandshores	Hangzhou	$1.4 billion	Coinsea, Btxon Wallet
Timestamp Capital	Hangzhou	$7 million	SLife, AAAChain, The Blockchainer
S. Capital	Shenzhen		EOS, OmiseGO, Filecoin, Zilliqa, Harmony, Fortuna, Merculet, Nebula AI, IRISnet, Hub

Institution	Headquarter	Fund Size	Major Invested Companies/Projects
8 Decimal Capital	Palo Alto	$60 million	BHex, Ultrain, Guten, Odaily, Zilliqa, Kyber
Collinstar Capital	Australia	$7 million	Social Lending, Molecular Future, Babel, DREP, Usechain, Deuro, HitChain
LinkVC	Singapore	$14 million	Taxa, CertiK, Standards & Consensus, AICoin, Prochain, Chain-for.com

Chapter 4

Research, Education, and Talents

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Research, Education, and Talents for the Chinese Blockchain Industry

Most of the top Chinese universities have carried out blockchain research initiatives. Chinese universities are cautious about setting up formal blockchain courses and instead they and research institutions are more inclined to corporate with industrial players to establish blockchain research institutes and labs. Beijing has the most blockchain research institutions in China, while Shanghai, Hangzhou, and Shenzhen are also substantially engaged in the blockchain field.

In terms of academic disciplines, blockchain currently belongs to the category of computer science. More than 10 universities in China, including Tsinghua University, Central University of Finance and Economics, Zhejiang University, Fudan University, and Southwestern University of Finance and Economics, have launched blockchain-related courses, which mainly cover the fundamentals of blockchain technology. The Central University of Finance and Economics is the first university in China to offer a blockchain-related course with the textbook *Blockchain Technology and Application*. In July 2016, the Central University of Finance and Economics and Beijing 21vianet Broadband Data Center jointly established the first blockchain laboratory in China. In September 2016, Tsinghua University opened the course *Beyond the Cognitive Foundation of Discipline* where blockchain, as the most cutting-edge innovative application of distributed technology, was systematically taught. Tsinghua University already has a number of courses covering blockchain content but blockchain has not yet become a major in itself. In addition, some universities are also conducting training through school-enterprise cooperation. For example, Huobi cooperates with Xiamen University to carry out training courses to let students know what blockchain is and introduce them to development trends and application scenarios of blockchain through practical cases, which may turn out to be an effective way to fill the talent gap in the blockchain industry.

Exhibit 4.1 List of top Chinese universities' blockchain initiatives and relevant courses

University	Location	Introduction
Tsinghua University	Beijing	Credit course offered by Tsinghua University: *Beyond the Cognitive Basis of Academic Discipline*. During the course, blockchain will be systematically introduced as an innovative application at the forefront of the distributed holistic world view. The postgraduate course *Cybersmart Economy and Blockchain* systematically teaches the concept of cybersmart economy and the role of blockchain in the new economy system. Tsinghua University also opened a course called *Blockchain and Cryptocurrency* for postgraduate students in 2019. Tsinghua University's School of Economics and Management established the Center for Blockchain Finance Research in 2018. Website: http://cbfr.sem.tsinghua.edu.cn/.
Peking University	Beijing	Peking University's Guanghua School of Management established a blockchain lab in 2018. The lab is focusing on the application of blockchain technology in the financial sector. Peking University's Institute of Digital Finance, which is committed to conducting academic, policy, and industry research in the fields of digital finance, inclusive finance, and financial reform, has added blockchain as one of the research fields of the institute. Website: http://idf.pku.edu.cn/.
Renmin University of China	Beijing	Renmin University held blockchain seminars with an on-job master's degree for business executives about blockchain, including macroeconomics, basic concepts, development status, legal regulatory policies, industry standards, technical principles and implementation, business applications and innovation, future development trends, etc.
Central University of Finance and Economics (CUFE)	Beijing	CUFE opened the course *Blockchain Technology*, which was the first course related to blockchain in a Chinese university. They published the book *Blockchain Technology and Application* as the course material. Blockchain cooperation project jointly launched by CUFE & 21Vianet Group, the first university-enterprise joint laboratory based on blockchain in China.
China University of Political Science and Law Business School	Beijing	The innovative course *Blockchain and Digital Economy* is designed to actively promote the cutting-edge theoretical research and policy guidance of token economy and blockchain technology.
Beijing Institute of Technology	Beijing	The credit course of *Blockchain Technology* is offered for graduate students of computer school and software school. The goal is to enable students to master the basic theory and key technology of blockchain.

University	Location	Introduction
Beihang University (Beijing University of Aeronautics and Astronautics, BUAA)	Beijing	Beihang opened the courses *Blockchain Principles and Technology and Blockchain Experiment and Engineering Practice* for undergraduates. Beihang's Digital Society & Blockchain Laboratory is one of the first teams to start researching blockchain technology in China. The lab focuses on the research and application of technologies such as blockchain, smart contracts, computational law, and digital society with their self-developed blockchain product Beihang Chain. Website: http://digitalslab.buaa.edu.cn/.
Shanghai Jiao Tong University	Shanghai	The Emerging Parallel Computing Center has blockchain consensus mechanisms and applications as one of their major research directions.
Tongji University	Shanghai	Led the establishment of Shanghai Blockchain Technology Research Centre.
Zhejiang University	Hangzhou	Zhejiang University's School of Computer Science opened a course called *Blockchain and Digital Currency* for senior undergraduates and postgraduates. The course focuses on Hyperledger's technical architecture and development techniques and introduces blockchain application cases as well as blockchain and cryptocurrency development trends. A textbook called *Blockchain Technology Advancement and Practice* was written and published for the course. Zhejiang University Blockchain Research Center was established in 2018. At present, it is in a leading position in the areas of key algorithms and platform development of the blockchain in China. Institute of Digital Assets and Blockchain, International Research Center for Data Analytics and Management, Zhejiang University, focuses on developing traceability systems based on blockchain technology and talent development. Website: http://idam.zju.edu.cn/institutes.php?cid=52.
Xidian University	Xi'an	Xidian opened courses *Blockchain and Innovation Entrepreneurship* and *Blockchain Technology and Implementation* for undergraduates. Xidian held a seminar course called *Principles of Blockchain Technology and Actual Development*. The seminar course focuses on combining theory with practice, covering the principles, development basis, application, and innovation of blockchain. At the end of the course, students will be issued with certificates recognized by several well-known blockchain enterprises and priority will be given in terms of internships and employment recommendations there. In addition, excellent projects can get investment to incubate.
Southwestern University of Finance and Economics	Chengdu	Offered the course *Blockchain Technology and Cryptocurrency* for both postgraduate and undergraduate students.

University	Location	Introduction
Chengdu University of Information Technology	Chengdu	Offered the course *Blockchain Engineering* for undergraduate students.
Nanjing University	Nanjing	Offered the course *Blockchain + Artificial Intelligence and Financial Innovation*. The main content of the course is blockchain programming and artificial intelligence programming emphasizing practical application.

Exhibit 4.2 List of major blockchain research institutions in China

Institute	Location	Founder
Center for Blockchain Finance Research	Beijing	Tsinghua University
Tsinghua University Blockchain Technology Joint Research Center	Beijing	Tsinghua University, Arxan Fintech
Guanghua Blockchain Lab	Beijing	Guanghua School of Management, Peking University
Big Data Blockchain and Regulatory Technology Lab	Beijing	Renmin University of China
Blockchain Media Lab	Beijing	Renmin University of China, Baidu, Cover Media
China Blockchain Research Institute	Beijing	Renmin University of China, Hanqing Advanced Institute of Economics and Finance
NIFA Blockchain Research Group	Beijing	National Internet Finance Association of China (NIFA)
PBOC Digital Currency Research Institute	Beijing	People's Bank of China (PBOC)
Baidu Finance Blockchain Labs	Beijing	Baidu
China Blockchain (Sandbox) Research Center	Beijing	China Society for World Trade Organization Studies
Trusted Blockchain Open Lab	Beijing	CAICT
Blue Sapphire Blockchain Lab	Beijing	CAICT, Beihang University
Digital Society & Blockchain Laboratory	Beijing	Beihang University
Beihang-Consensus Datatrust Blockchain Joint Lab	Beijing	Beihang University, Consensus Datatrust
CUFE-21Vianet Blockchain Joint Lab	Beijing	CUFE, 21Vianet Group
360 Finance Blockchain Research Center	Beijing	360 Finance
CPCN Blockchain Research Institute	Beijing	China Payment & Clearing Network Co., Ltd.
Beijing University of Posts and Telecommunications Blockchain Lab	Beijing	Beijing University of Posts and Telecommunications (BUPT), Blockchain (Beijing) Technology Co., Ltd.
BUPT-Shenzhen Capstone Blockchain Joint Lab	Beijing	BUPT, Shenzhen Capstone Industrial Co., Ltd.
CFIP Blockchain Lab	Beijing	China Federation of IT Promotion (CFIP)
Wanxiang Blockchain Labs	Shanghai	Wanxiang Group
Blockchain Joint Research Center	Shanghai	China Academy of Information and Communications Technology (CAICT), Shanghai International Auto City

Institute	Location	Founder
Blockchain Technology Innovation Center	Shanghai	School of Computer Science and Technology, Fudan University, IBM
Fudan-ZhongAn Blockchain and Information Security Joint Lab	Shanghai	Fudan University, ZhongAn Technology
Shanghai Blockchain Engineering Technology Research Centre	Shanghai	Fudan University, ZhongAn Online P&C Insurance, Peoplenet
SJTU Blockchain Technology Joint Innovation Center	Shanghai	Shanghai Jiao Tong University (SJTU)
ECNU-Ouyeel Industrial Internet Big Data and Blockchain Laboratory	Shanghai	East China Normal University, Ouyeel
Artificial Intelligence & Blockchain Intelligence Lab	Shanghai	Tongji University
Blockchain Research Institute	Shenzhen	Southern University of Science and Technology Big Data Innovation Center, China Merchants Securities, Foresea Life Insurance, Bitbank, BGI Group, XY Venture Capital
PLAIEU Blockchain Research Institute	Shenzhen	PLA Information Engineering University (PLAIEU)
SZU Blockchain Research Technology Research Institute	Shenzhen	Shenzhen University (SZU)
The PeerTech Innovation Lab	Nanjing	Nanjing University
Suning Finance Blockchain Research Institute	Nanjing	Suning Group
Alibaba Blockchain Lab	Hangzhou	Alibaba Damo Academy
Zhejiang University Blockchain Lab	Hangzhou	College of Computer Science and Technology, Zhejiang University
Zhejiang University Fortuna Blockchain Research Center	Hangzhou	Zhejiang University, Fortuna
Academy of Internet Finance Blockchain Lab	Hangzhou	Center for Internet & Financial Innovation, Zhejiang University
Institute of Digital Assets and Blockchain	Hangzhou	International Research Center for Data Analytics and Management, Zhejiang University
CBPM Blockchain Research Institute	Hangzhou	China Banknote Printing and Minting (CBPM)
Big Data and Blockchain Collaborative Innovation Lab	Hangzhou	Hangzhou Normal University, DataQin
Suzhou Tongji Blockchain Research Institute	Suzhou	Tongji University, Suzhou Municipal Government
Nankai University-Powerleader Blockchain Research Centre	Tianjin	Nankai University, Powerleader Science & Technology Group
Cryptography and Blockchain Technology Lab	Wuhan	Wuhan University
XJTU Blockchain Technology and Legal Innovation Research Lab	Xi'an	Xi'an Jiaotong University (XJTU)
XJTU Smart Blockchain Technology Research Lab	Xi'an	XJTU School of Electronic and Information Engineering, Ziggurat

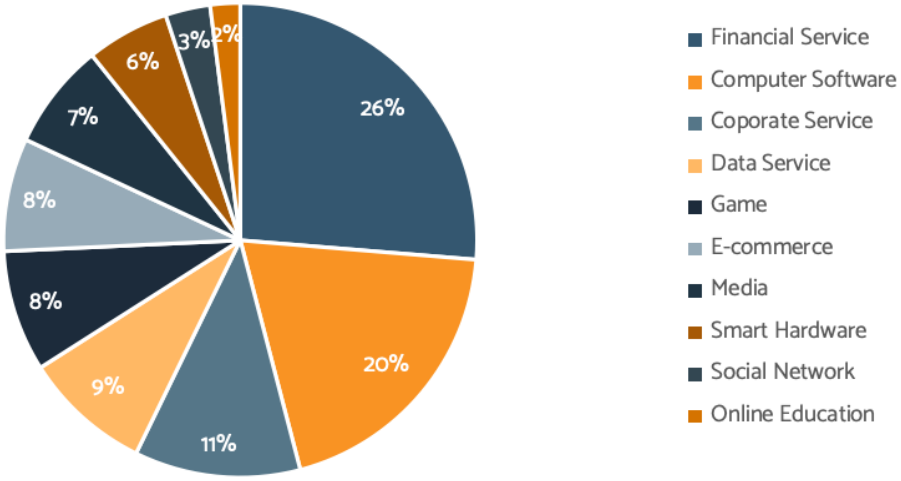
Institute	Location	Founder
Blockchain and Security Computing Lab	Xi'an	Xidian University
Guiyang Blockchain Innovation Research Institute	Guiyang	Guizhou Province Blockchain Industry Technology Innovation Alliance
CCID Blockchain Research Institute	Qingdao	China Center for Information Industry Development (CCID), Tiande Technology
CQUPT-Jinvovo Blockchain & Big Data Joint Lab	Chongqing	Chongqing University of Posts and Telecommunications (CQUPT), Jinvovo Technology
China Blockchain Research Center	Chengdu	Southwestern University of Finance and Economics (SWUFE)
Xiamen University Blockchain Research Center	Xiamen	Xiamen University
Hunan University – iKang Blockchain Finance Research Center	Changsha	Hunan University, iKang Healthcare Group
Peking University Northeast Blockchain Research Center	Shenyang	The National Center for Financial Research at Peking University

How and Where to Find Blockchain Talents in China?

As a rapidly developing industry with the support from policies and capital, the blockchain industry has had a great demand for talents in recent years. The most sought-after talents are still technical talents like programmers. Due its technical complexity, the core technology of blockchain requires professionals to be highly skilled and educated, which in many cases would mean holding a master's degree.

According to China's recruitment website BOSS Zhipin's survey statistics, companies recruiting blockchain talents spread over many industries. Companies recruiting blockchain talents mainly focus on finance, computer software, and corporate services, accounting for more than 50% of the total, while gaming, smart hardware, and online education are also hiring blockchain talents (BOSS Zhipin Research Institute, 2019).

Exhibit 4.3 Industry distribution of companies recruiting blockchain talents

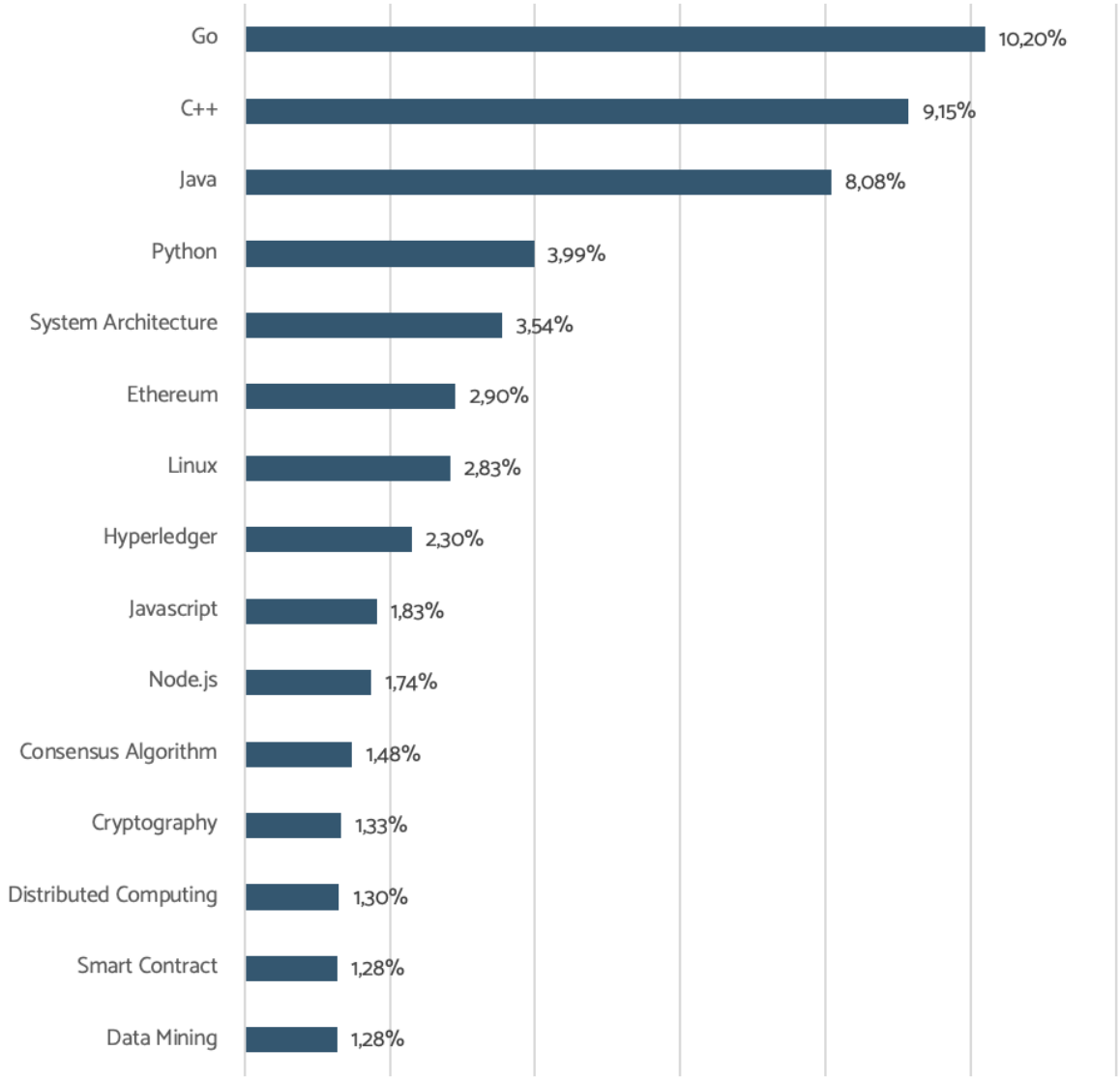


SOURCE: BOSS ZHIPIN

Core blockchain technical positions include blockchain solution expert, system architect, system development engineer, security expert, test engineer, etc. The top skills required for blockchain positions are basic programming languages, like Go, C++, and Java, and familiarity with Linux/Unix systems and databases. Familiarity with cryptography and distributed computing is a plus but not a requirement for every job. Therefore, engaging in the development of blockchain technology does not require mastering any particular new skills but the core technology's development of blockchain still needs to be done by experienced programmers. From the perspective of technology, blockchain talents can be divided into two categories: one is the underlying infrastructure developers, and the other is the application development talents. The data layer at the base of the architecture can use existing engineers who work on big data and encryption algorithms, which the Internet companies already have in reserve. However, few programmers have previously worked on distributed systems so there is a shortage of talents who are proficient in the core technology of blockchain, such as consensus algorithms.

In addition to programmers, the blockchain industry needs industry researchers. As an application-oriented technology, blockchain technology has broad application prospects in the financial industry, manufacturing industry, and government administration. Therefore, consulting talents with vertical industry experience and blockchain-related knowledge, business managers who control the implementation and output of specific projects, and theoretical research talents are also needed. Versatile talents who know both blockchain technology and industries are also in great demand. This kind of talent is usually found in the financial sector, research institutions, or universities.

Exhibit 4.4 Top 15 skills required for blockchain positions

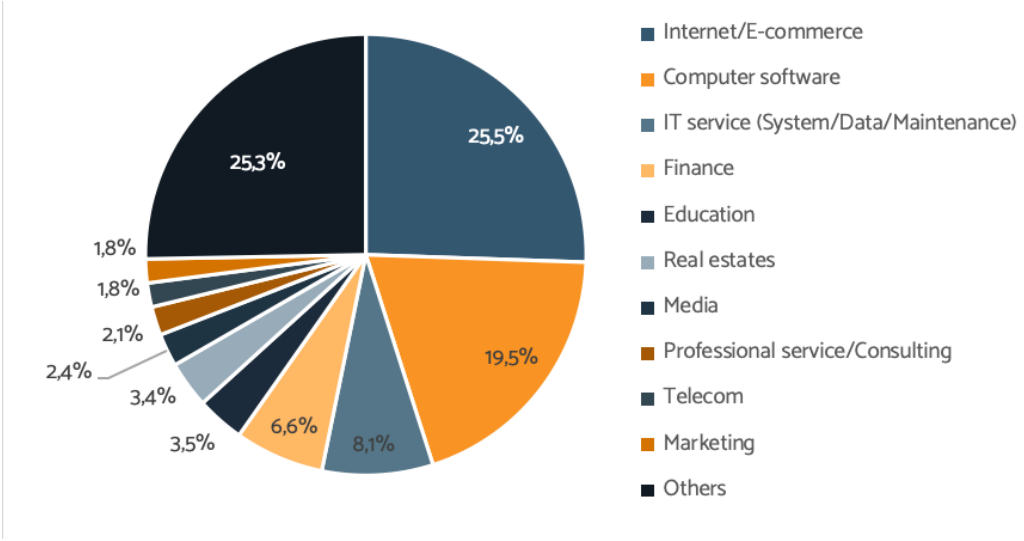


SOURCE: BOSS ZHIPIN

According to zhaopin.com's *2019 Blockchain Talent Supply, Demand and Development Report*, the number of enterprises recruiting blockchain-related talents surged in 2018 and the year-on-year growth rate reached its peak in 2018 Q2, then gradually cooled down with the growth rate of the number of recruiting enterprises and the number of recruitments decreasing quarter by quarter. In 2019, with the tightening of regulations, the recruitment demand became more stable and the focus of blockchain practitioners started to shift to application development.

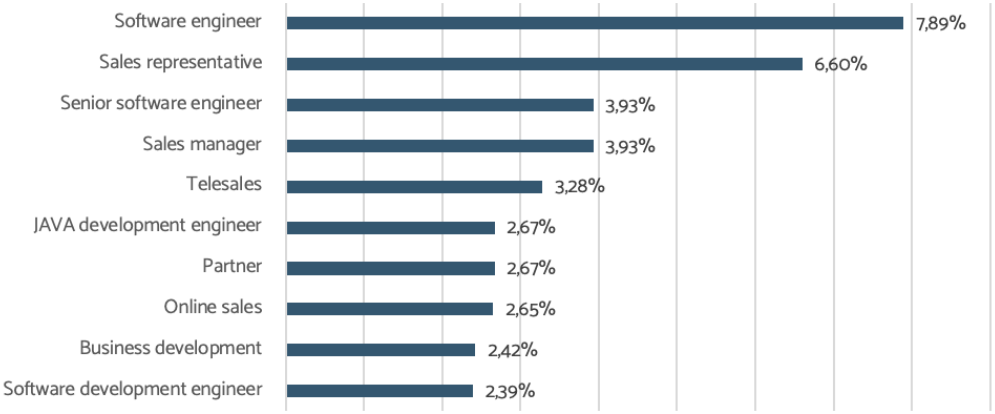
According to zhaopin.com's research, job seekers for blockchain-related positions are mainly engaged in industries such as Internet/e-commerce, computer software, and IT services. Although the blockchain industry is cooling down as a whole, technical talents and sales talents are indispensable for enterprises that have blockchain technology or products as their core business..

Exhibit 4.5 Industry distribution of blockchain job applicants' background



SOURCE: ZHAOPIN.COM

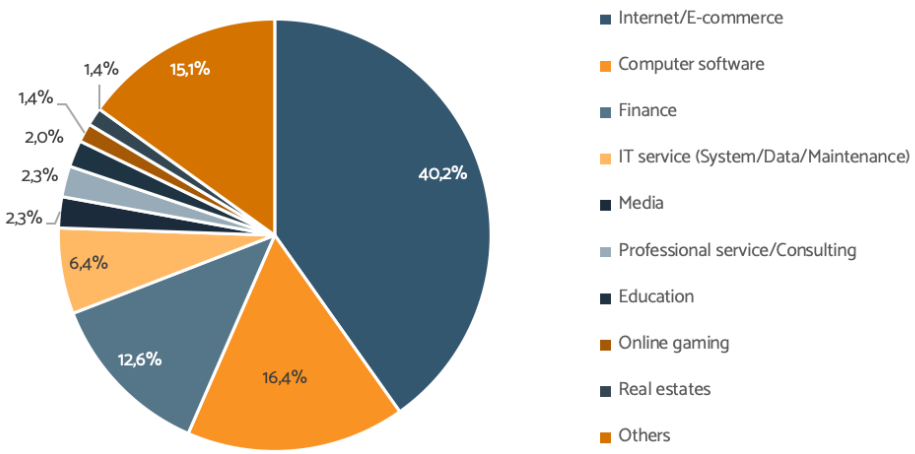
Exhibit 4.6 The 10 positions with the highest demand in the blockchain sector



SOURCE: ZHAOPIN.COM

Job seekers in the blockchain field are mainly technical talents, such as Java development engineers and software engineers. From the perspective of the academic background of blockchain practitioners, computer science, software engineering, and finance are the top three major that contribute the most blockchain practitioners, which is due to the technical nature of blockchain and the current application scenarios. From the perspective of professional background, blockchain practitioners are mainly from the Internet/e-commerce industry, followed by the computer software industry, and the financial industry. The Internet and computer software industry, which echoes the underlying technology of blockchain, has become the main source of talents. The talents from the financial industry benefits from blockchain's large-scale applications in the financial sector, therefore talents in both traditional finance and Internet finance can find their place in the blockchain industry.

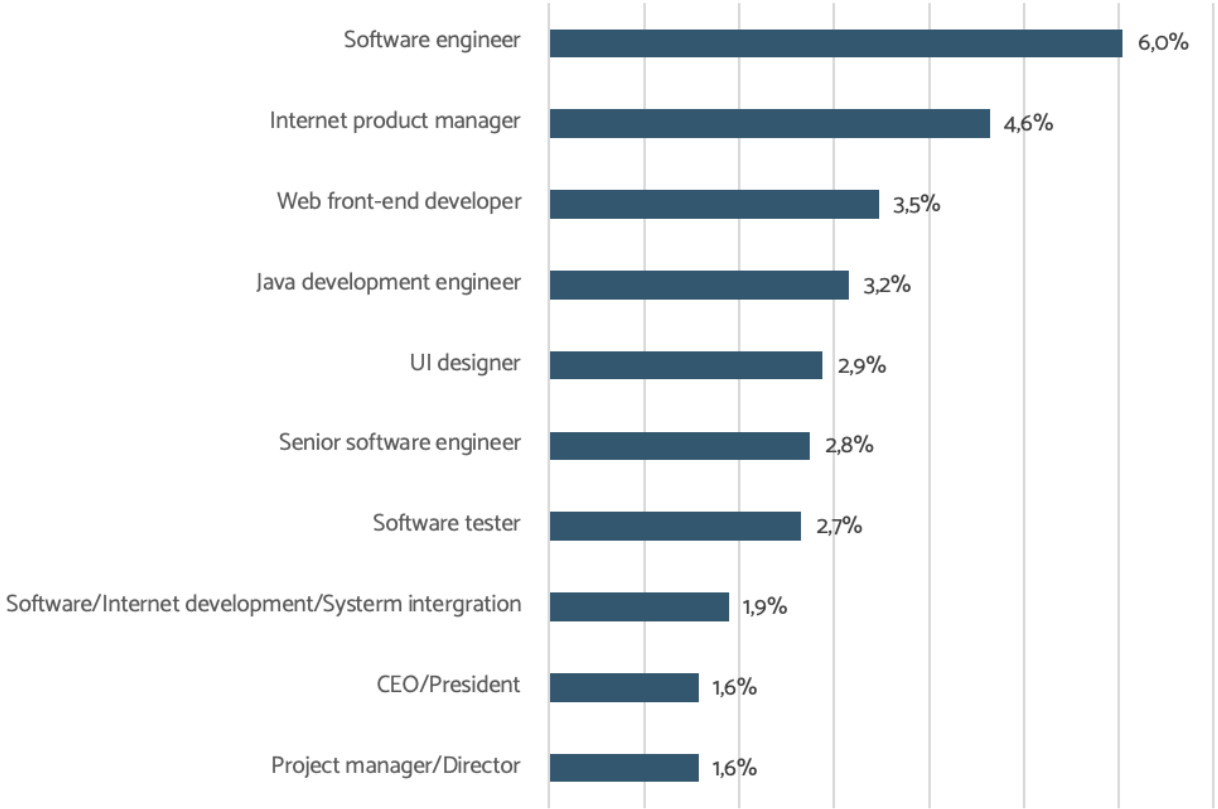
Exhibit 4.7 Distribution of current blockchain practitioners' professional background



SOURCE: ZHAOPIN.COM

Currently, the top positions held by blockchain practitioners are software engineer, Internet product manager, web front-end developer, and Java development engineer. These positions all belong to the Internet/e-commerce and computer software sectors.

Exhibit 4.8 Top positions held by blockchain practitioners



SOURCE: ZHAOPIN.COM

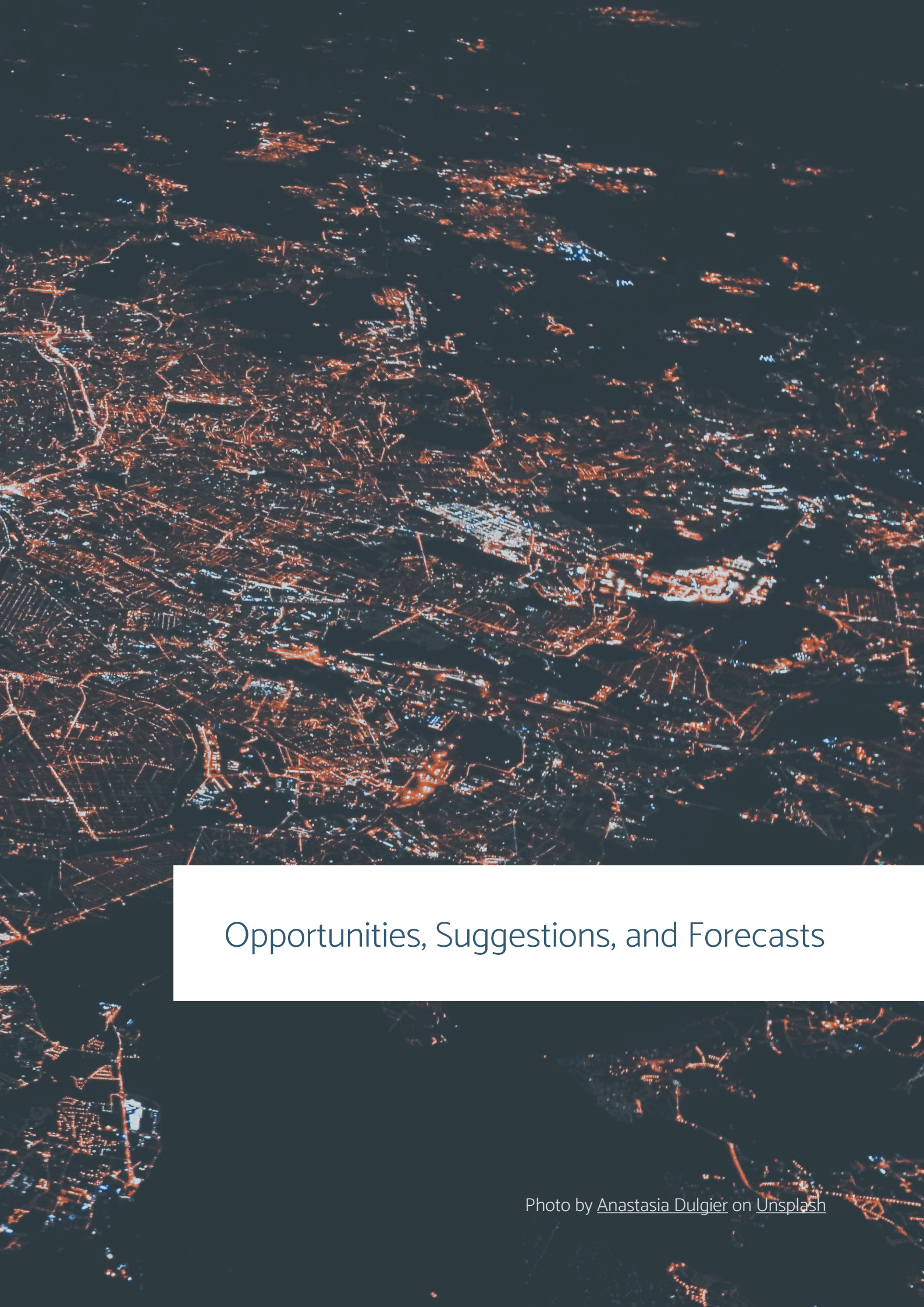
Appendix

Appendix 4.1 Introduction of Top Chinese Universities Involved in Blockchain

Name	Introduction
Tsinghua University	Tsinghua University is a major research university in Beijing and a member of the elite C9 League of Chinese universities. Since its establishment in 1911, it has graduated numerous Chinese leaders in politics, business, academia, and culture.
Peking University	Peking University is a major research university in Beijing and a member of the elite C9 League of Chinese universities. It is the first modern national university established in China. Peking University was founded during the late Qing Dynasty in 1898 as the Imperial University of Peking. Peking University has educated and hosted many prominent modern Chinese figures.
Fudan University	Fudan University, located in Shanghai, is one of the most prestigious and selective universities in China. Founded in 1905, shortly before the end of China's imperial Qing dynasty, Fudan was the first institution of higher education to be founded by a Chinese person, renowned modern educator Ma Xiangbo.
Shanghai Jiao Tong University	Shanghai Jiao Tong University is a major research university in Shanghai. Established in 1896 as Nanyang Public School by an imperial edict issued by the Guangxu Emperor, it has been referred to as "The MIT of the East" since the 1930s. It is renowned as one of the oldest, most prestigious, and selective universities in China. Shanghai Jiao Tong is a C9 League university and a Chinese Ministry of Education Class A Double First-Class University.
Tongji University	Tongji University is a comprehensive university located in Shanghai. Established in 1907 by the German government together with German physicians in Shanghai, Tongji is one of the oldest and most prestigious universities in China. It is a Chinese Ministry of Education Class A Double First-Class University.
Zhejiang University	Zhejiang University is an elite C9 League university located in Hangzhou, the capital of Zhejiang province. Founded in 1897, Zhejiang University is one of China's oldest, most selective, and most prestigious institutions of higher education.
Renmin University of China	Renmin University of China, often referred to as RUC, is an elite research university located in Haidian District of Beijing. Founded by the Communist Party of China, RUC is classified as a Class A university under the Double First-Class University Plan.

Name	Introduction
Central University of Finance and Economics	Central University of Finance and Economics is the first economics and management university, which was founded by the China Central Government and now under the direct administration of the Ministry of Education of China. The university is a national key university with subjects in economics, management, law, literature, philosophy, science, engineering, pedagogy, and art.
Beijing University of Posts and Telecommunications	The Beijing University of Posts and Telecommunications is a key national university distinguished by the teaching and research in the field of cable communications, wireless communications, computer, and electronic engineering. BUPT is ranked as one of the top engineering schools in China. It is the most famous and renowned university in the field of telecommunications in China.
Beihang University	Beihang University, previously known as Beijing University of Aeronautics and Astronautics is a major public research university located in Beijing emphasizing engineering, technology, and the hard sciences.
Xidian University	Xidian University is a public research university in Xi'an that is administered by the Ministry of Education of China. Xidian focuses on electronics and information education and research and has programs covering engineering, science, management, economics, liberal arts, and social sciences. Founded in 1931, it is a Chinese Ministry of Education Double First-Class Discipline University with Double First-Class status in several disciplines and programs in electronic engineering and computer science that are ranked very highly both nationally and internationally.

Chapter 5



Opportunities, Suggestions, and Forecasts

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Opportunities, Suggestions, and Forecasts

With endorsement and appreciation from China's supreme leader and the ruling party, we expect that scientific research institutions will pay closer attention and put greater effort into blockchain technology. Further, we expect to see more corporations launch blockchain projects. No other country appears to be embracing and holding blockchain as important as China does and it is well anticipated that China will continue to strengthen its position as a world leader in blockchain.

With regard to the next phase of blockchain application, the Chinese blockchain industry will focus more on the integration between blockchain and other emerging technologies, such as artificial intelligence, big data, and IoT. However, there is a danger that companies may launch blockchain initiatives only because blockchain is a promoted technology even though their blockchain projects have neither a valid use case nor substantial business value. This poses a threat to the general trust in the industry, which has been under pressure throughout its development due to blockchain's close association with cryptocurrency since the dawn of the technology.

In terms of the overall evolvement of the industry, blockchain is still very much in its early stages and the future of the technology remains uncertain. Since its birth more than 10 years ago, blockchain has not yet lived up to the hype and most enterprise-level blockchain projects are stuck in the experimentation phase. We assume that soon, government agencies, big corporations, and tech giants will take the lead in the exploration of blockchain. It is inevitable that more rounds of cruel industry reshuffling and restructuring will happen. From a positive point of view, in the long term, blockchain could bring benefits to the people and promote the Chinese society's development, which would require continuous effort and dedication from practitioners in the industry.

The maturity and performance of blockchain technology needs to be further improved and a lot of work still needs to be done in the field of basic and original research. As an innovative technology, blockchain is still immature in its performance, security, privacy protection, governance, cross-chain interoperability, and many other aspects. Additionally, most of the existing applications are still in the research and development phase. At the current stage, technical optimization is still an important topic. Only when the core technologies represented by the consensus mechanism, smart contracts, and cross-chain technique continue to innovate, evolve, and improve, it will be possible for the application scope of blockchain to be expanded continuously.

Yet, despite the barriers for wider industrial adoption and commercial application, we find the long-term outlook for blockchain to be very promising considering the extensive support and optimism

from public and private stakeholders in an increasingly favorable regulatory environment. We believe this setting offers an outstanding platform for Danish start-ups, SMEs, and corporates hoping to take their blockchain activities to new heights – for those seeking to develop their technology and business model for expansion in Denmark, for those looking to collaborate with Chinese partners, as well as for those aiming to enter the Chinese market with innovative products and solutions powered by blockchain.

Concluding Remarks – Creating a Successful Blockchain Business

With this report, we introduce the overall achievements of the blockchain industry in China so far and present the major actors in the ecosystem. It is our hope and belief that the report will help Danish blockchain stakeholders navigate in China's dynamic blockchain ecosystem as well as motivate and inspire Danish blockchain enterprises to venture into the Chinese blockchain industry. During the making of the report, we interviewed many Chinese blockchain professionals and entrepreneurs. To conclude the report, we briefly summarize the common key features of a successful blockchain business in China as depicted by these experts:

Firstly, a company must be able to provide competitive products and services for the Chinese market. For blockchain specifically, this involves the challenge of understanding the ever-changing digital reality in China.

Secondly, becoming familiarized with Chinese market regulations for blockchain is essential. It is crucial to consider the initial hostility towards blockchain from official side upon its emergence as an underlying technology for cryptocurrency. While an abundance of favorable polices have been introduced in recent years and are still being released on an ongoing basis, the regulatory environment is still tight in areas that are deemed to present serious potential legal threats, for example the risk of fraud presented by ICOs. Thus, companies must be wary of regulatory developments and simultaneously be attentive to advantageous policies issued by the government to both avoid pitfalls and spot opportunities.

Thirdly, it is important to have the right business scenarios available for the company's solutions. Having a clear vision for the application and sustainability of a blockchain solution is a must, which leads on to the final point – namely, that finding the right local partners will, in most cases, be what truly is able to accelerate the development of a blockchain company. Apart from assisting with understanding the local market conditions, local partners can help create the relevant use cases that a blockchain company needs to develop.

Blockchain Business Bridge – Accelerating Danish Enterprises with China's Blockchain Momentum

How can Danish start-ups, SMEs, and corporates unlock the immense opportunities held by China's thriving blockchain industry? Blockchain Business Bridge is a project established to address this challenge by offering a dynamic platform for knowledge exchange and business collaboration between Denmark and China. Funded by the Danish Industry Foundation and managed by a board of partners based in Denmark and China, Blockchain Business Bridge has deep roots in both industry and research, allowing the project to become an extraordinarily robust launchpad for Danish blockchain actors.

Denmark's blockchain industry is already well-reputed for its innovative solutions, especially within fintech, which makes Danish businesses interesting partners for international stakeholders. Still, the sheer pace of the blockchain industry's development in China, not to mention the difficulties of understanding and adapting to the Chinese market in general, makes it a tremendously difficult task for blockchain businesses to approach, navigate, and gain traction in China.

As a solution, Blockchain Business Bridge provides the following key offerings to participating start-ups, SMEs, and corporates:

- Specialist knowledge on blockchain technology based on the latest research.
- Business development mentoring by leading Chinese blockchain entrepreneurs and top industrial experts.
- Access to an extensive network of partners and investors across China's blockchain ecosystem, as well as talent pools in the Nordics and China.

By accelerating through Blockchain Business Bridge, participating start-ups, SMEs, and corporates will not only have the optimal conditions for building capacity and growing, they will also gain access to the world's largest blockchain adoption market – China – and its abundance of emerging opportunities. Equally important, participants will be prepared to operate in China's fast-moving business environment and will establish a solid network to support them in technology development and scaling. Whether participants wish to expand their activities in the Chinese blockchain industry, take advantage of their newly gained business and technology momentum to bring innovative solutions to the Danish market, or combine the two, Blockchain Business Bridge is an excellent starting point for blockchain projects and businesses to unleash their potential.

An Invitation – Become Part of Blockchain Business Bridge

We welcome all interested Danish startups, SMEs, and corporates engaged in blockchain projects to inquire about their opportunities in Blockchain Business Bridge. Please do not hesitate to contact our project manager:

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Blockchain Business Bridge

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MINISTRY OF FOREIGN AFFAIRS OF DENMARK
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IT UNIVERSITY OF CPH

Confederation of Danish Industry

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