Blockchain Technology Leading the Transformation of the Digital Economy and Related Fields?

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Abstract: The blockchain economy is the first of its kind with blockchain technology and a brand-new economic industry sprouted, which is a kind of mutual trust, sharing, cooperation and exchange based on the Internet economy . How does Internet technology help the development of digital economy? How can it catalyze changes in other related fields? How can it benefit public life and improve the quality of our public life? These are the basic questions that this paper should respond to.

Keywords: Blockchain, Blockchain economy, Digital economy, Social development

1 Introduction

Blockchain technology was first proposed in 2008 in the article "Bitcoin: A Peer-to-Peer Electronic Cash System". Subsequently, the term blockchain has frequently appeared in various fields such as economy, education, healthcare, electricity, etc., and has become a new impetus for future competition and development in various industries. Blockchain application projects generally have the following common qualities: high requirements for data security; high requirements for data privacy; the operation and calculation process needs to be traceable, tamper-proof, open-form, with its own independently issued token token, and the Internet application has been very mature. The "father of digital economy" Don Tepe Scott once predicted that the "black technology" that will influence the next few decades has already arrived, and it is not social media, robots, or even artificial intelligence technology, but the application and development of blockchain technology.

2 Blockchain technology leads the digital economy

On October 24, 2019, General Secretary Xi Jinping emphasized in the 18th study session of the Political Bureau of the Central Committee on the topic of "the current situation and trend of the development of blockchain technology" that "blockchain technology should be used to explore the innovation of the digital economy model, and provide impetus for the creation of a convenient and efficient, fair competition, stable and transparent business environment. environment, provide impetus for promoting supply-side structural reform and realizing the effective docking of supply and demand in various industries, and provide support for accelerating the successive conversion of old and new kinetic energy and promoting high-quality economic development."[1]

Digitization is the visible sign of the development of the digital economy, and technologization is the tool and means by which blockchain can be applied. It is different from the number of artificial intelligence words, Internet of Things technology, and artificial intelligence technology of entrepreneurship. Blockchain technology is the stabilizer of economic and social development, plays a key new force to correct and adjust the digital economy.

2.1 Blockchain empowers digital economy with underlying technology

Blockchain technology has the characteristics of traceability, non-tampering, decentralization, openness, anonymity, effectiveness and absolute security, which can establish a peer-to-peer value transmission network through distributed storage, tampering, and deniability prevention technology system, and realize the right to confirm the value of the data and digitization of the assets with the help of cryptography and other related technologies. [2]It builds a relatively safer and more efficient Internet system, which is of more practical significance for improving the current sluggish economic environment.

Blockchain can can help the digital economy in several ways:

I. Digital assetization. Based on blockchain technology, data that has been assetized can create a whole set of financial services applicable to the digital economy. On top of that, people are able to corroborate rights, assetize, provide financial services, and so on.[3]

Second, cryptography. Blockchain is based on cryptography, and many cryptographic results are used on blockchain for data privacy protection and collaborative computation after data privacy protection. The so-called full homomorphic encryption, secure multi-party computation, zero-knowledge proof and other algorithms of cryptography are used in blockchain. Through these, one can well authenticate the data, protect the privacy, and also collaborate with multiple parties to compute the data after the privacy is protected.

2.2 Blockchain triggers a new round of digital economic change

According to incomplete statistics, as of December 18, 2018, there were a total of 12 asset securitization (ABS) products applying blockchain technology, with a total issuance scale of 24.065 billion yuan. The world economy is currently undergoing a profound digital transformation, and digitalization has permeated all aspects and links of the industrial chain from product development and design, production and manufacturing to marketing management and service support, facilitating the transformation of the economy from relying mainly on inputs of factors of production, such as manpower and capital, to being driven by total factor productivity. Blockchain technology solves many of the privacy, security and credit problems of the digital economy. [4]With the help of blockchain technology in the future, we will be able to quickly realize three-minute loan applications, one-minute e-prescriptions, and one-second invoicing, which will greatly promote the transformation of the digital economy.

2.3 Blockchain technology is being touted as the future of the world economy

As blockchain technology matures, it will trigger a revolution in the reconstruction of business value in financial industries, including banking and insurance. It will collaborate with the ecosystem to form a new value-sharing application ecosystem, promote the entire industry and

economic system to achieve technological change, organizational change and efficiency change, and build a modern economic system in the world.[5] According to the estimation of relevant organizations, the scale of China's digital economy will exceed 32 trillion yuan in 2020, accounting for 35% of GDP; by 2030, the digital economy will account for more than 50% of GDP, and we will fully enter the era of digital economy. Blockchain technology has spawned a number of Internet giant enterprises, including Google, Facebook, Tencent, Alibaba, Amazon and other companies, including Alibaba blockchain technology patents amounted to 2,344, covering 16 countries.

3 Application of blockchain technology in other areas Blockchain in the Military

At present, the application of blockchain technology has gradually expanded from the financial field to the military field. Many countries and international organizations, including the United States and NATO, are actively trying to promote the application of blockchain technology in the military field. They are studying the potential of blockchain applications to protect highly confidential data such as military satellites and nuclear weapons from hacking and to improve the security of critical systems. Engineers from the Advanced Research Projects Agency are also trying to use blockchain technology to create a secure information service system that cannot be hacked.

3.1 Blockchain in the power sector

At present, research in the blockchain power industry is mainly focused on energy markets and transaction settlement in the financial sector extension, and very few are exploring the use of blockchain to solve the actual physical problems faced in the operation of the power system and the personnel and asset management mechanism of the main bodies in the power system. [6]State Grid Corporation Limited is investing in blockchain technology-based outage insurance, photovoltaic subsidies and shared energy storage . China Southern Power Grid Co., Ltd. on the other hand, has already utilized blockchain technology to achieve certain results in green certificate transactions and electronic invoicing for electric vehicles. General Electric Co. has developed the first quantum-safe blockchain that collects gas turbine operational data and executes smart contracts in real time.[7] Siemens is more focused on providing blockchain applications on IoT operating systems, hoping to transfer sensory data from customized IoT sensors directly to the blockchain.A number of energy companies such as Shell, ExxonMobil, Chevron and others have formed a blockchain consortium, VAKT, with the aim of conducting a proof-of-concept of blockchain technology to explore the benefits of applying blockchain technology to the energy industry.

3.2 Blockchain in the media sector

The decentralized nature of blockchain may set off a change in media. DNN (Decentralized News Network), a U.S.-based decentralized news network, is a typical blockchain news platform built on an ethereum data chain. The platform invites all users to contribute and pushes UGC content randomly to a set of reviewers, who will review and approve it for publication.In addition, Civil News (Civil) in the United States is a news platform based on

blockchain technology that "allows users to autonomously create newsrooms and radio stations, allowing readers and editors to mix and match to build a news vehicle" . Blockchain technology breaks the traditional professional boundaries of the media industry, subverting the traditional news production process, professional journalists and professional editors are replaced by users participating in the blockchain, and news production is transformed from "centralized" production by organizations to "decentralized" collaborative production among users. News production has changed from "centralized" production by organizations to "decentralized" collaborative production among users.

Although blockchain has a good market and prospect in many fields, and there are many organizations exploring the application of blockchain in different fields, but things have two sides, blockchain in various fields of booming development, there are also many hidden dangers and yet to be perfected, for example, in the structure of the data storage, the consensus mechanism of the smart contract, security and privacy, etc. There are still a lot of shortcomings.

4 Blockchain Risk Dilemma Analysis

4.1 Blockchain technology is still very immature

The first obstacle to the actual application of blockchain technology (and even the financing of innovation and entrepreneurship) is the technology itself. In addition to the famous "impossible triangle" (blockchain technology can't take into account efficiency, security and decentralization at the same time), there are at least two obstacles to the landing of blockchain technology in our country: on the one hand, blockchain technology itself needs to be combined with encrypted data technology in order to adapt to practical application scenarios. [8]Although blockchain guarantees the privacy and non-tampering of information through a series of encryption means, if the application of encrypted information only stays at the level of "fidelity", and is not available for people other than the owner of the information to carry out a certain degree of information query and calculation in the form of Cryptography with authorization, then naturally there is nothing to be gained. This is naturally of no practical significance. This is especially true for the financing of innovative entrepreneurial activities. Before the investment relationship is fully determined, it is impossible for the entrepreneurial enterprise to inform the investor of all the details of the patented technology and core business secrets, and the investor needs a certain degree of real information to price the entrepreneurial financing, which constitutes a relatively contradictory relationship, and the simple blockchain architecture is not capable of resolving such a contradiction.[9] On the other hand, the encrypted information of the blockchain itself is not completely impenetrable. In fact, from a technical point of view, although the transaction information of the blockchain can be anonymized based on the public and private key mechanisms, the hash value and sequence pointer stored in each block are actually completely shared by all parties (which is precisely the performance of the "transparency" characteristic of the blockchain). For example, Bitcoin, with which we are most familiar, has been shown to be able to track blockchain information and observe nodes' transaction behavior and transaction networks in order to deduce personal information about traders.

4.2 People lack trust in blockchain technology

Blockchain is a paradigm innovation in the recording and storage of data, which in turn is based on a range of cutting-edge results in cryptography and data science. But as with all other technological tools, whether for blockchains or the broader Consortium Blockchains, this revolutionary mechanism for building machine trust based on cryptographic algorithms requires first gaining human trust. Unfortunately, blockchains have not yet gained the widespread trust of human society, and therefore have no way to establish human-to-human machine trust. While this can certainly be attributed to the general unfamiliarity and fear of new technologies, in addition to this, the speculative nature of blockchain-derived assets and the immaturity of blockchain technology have exacerbated the distrust. As mentioned earlier, blockchain technology is currently not perfectly capable of guaranteeing user privacy and system stability, and while it increases the regulatory costs of transactions, there is no evidence to show in which area this technology has significantly improved market efficiency and productivity. So even those who are optimistic about blockchain technology have more or less uncontrollable and insecure concerns about this highly specialized and complex new technology.[10] In addition, there is a limit to the amount of "machine trust" that blockchain technology can establish. Even if the technology becomes mature and perfect one day, it can only guarantee that the information that has been "uploaded" will not be tampered with. But the information "on the chain" link is not the blockchain technology itself can be "fidelity", if the source of the "on the chain" link information is already distorted, then the final information of the If the information is already distorted at the source of the "upload" link, then the final information users can only get a string of "highly fidelity" distorted information. Therefore, of course, machine trust can greatly strengthen the trust mechanism of human society, but our trust in the information on the blockchain can not be bypassed by trusting the source of the information in the "upload" link. In the end, we can find that this kind of trust will return and degenerate to the traditional trust mechanism, that is, interpersonal trust or trust based on the system (external supervision).

4.3 Massive Resource Integration Needed to Get Blockchain Technology Off the Ground

In addition to the trust problem, there are many other problems that cannot be solved by blockchain technology, and one of the core problems is that the application of blockchain requires more cooperation between people and people, enterprises and enterprises, and even enterprises and governments than other technologies, and behind it is actually a large-scale resource integration within the whole society. [11]Specifically in the field of entrepreneurship and innovation financing, any entrepreneurial and innovative activities are not only isolated enterprise or individual behavior, but in fact is an important part of the whole "economic ecology" (Econ-system), so the application of blockchain in the field of entrepreneurship and innovation must be based on the integration of social resources, the formation of the "double innovation", and the integration of social resources. Therefore, the application of blockchain in the field of entrepreneurship and innovation must be based on the premise of integrating social resources and forming the economic ecology and resource network of "dual innovation". For example, the "entrepreneurship pass" model implemented in some places utilizes the fidelity characteristics of blockchain technically, but behind it is the integration and collaboration of a large number of social resources from government endorsement, information sharing, government affairs integration, market financing, business operation to bank loans and

settlement, and so on. It can be found that compared with the volume of social resources integration involved in blockchain application scenarios, blockchain itself seems to be a "technical detail". In practice, the integration of such resources is not only important for the formation of blockchain application scenarios, but also for the survival and development of the blockchain network itself.[12] In terms of economic qualities, the information network based on blockchain technology is characterized by typical economies of scale and network effects, i.e., the number of participants and users of this network needs to reach above the network's break-even point in order to attract other enterprises and individual users to join this network spontaneously. At the same time, the information platform based on blockchain technology also has certain public goods characteristics, it is difficult to build and develop through completely spontaneous market behavior. Ultimately, the integration of such a large volume and wide range of resources not only determines the "landing" of blockchain in the actual application scenarios, but also determines whether it can exist and continue to operate.

All of the above characteristics show that the landing application and development of blockchain precisely needs a centralized, platform-based, authoritative institution with governmental characteristics to carry out early application promotion, platform construction and even large-scale and large-volume resource integration. In the future, this institution can be a certain government department or several government departments, or BAT and other large-scale Internet enterprises, but no matter what, to realize the real landing application of blockchain technology, and to enhance the ability of this technology to create support for the innovation-driven growth of the real economy, it is necessary to first realize the maturation, platformization, networking and integration of the blockchain industry and the related data industry.

5 Conclusion

The blockchain economy is a brand-new economic industry that has sprouted with blockchain technology, an Internet economy based on mutual trust, sharing, cooperation and exchange. Internet technology has fuelled the development of the digital economy, spawning changes in the military, electricity, media and other related fields, benefiting the public life and improving the quality of our public life. The progress of science and technology drives the progress of society, the development of new things also brings us a lot of new opportunities, we have to do is not blindly join the capital "torrent", waiting to reap the dividends of technological development, but should be rational to see the new things, in order not to be the era of "cut leeks! ". Although the pig in the wind can take off, but if you do not understand the wind direction and strength of this gust of wind, deviated from the correct direction, flying how high will fall how bad.

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