Research on Sci-tech Financial Service Innovation Based on the Integration of Electronic Information Manufacturing Industry and Emerging Technologies

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Abstract: With the increasing integration of electronic information production and emerging technologies, sci-tech financial services face new challenges and opportunities. This paper conducts research on the fintech model based on integrated circuits, microelectronic circuits, and quantum computing. It analyzes the characteristics of artificial intelligence, including stability and reliability in system integration and chip design. In addition, researchers have discussed and analyzed cryptocurrencies, smart contracts, and distributed ledgers based on blockchain technology. Studies show that combining sci-tech financial services with electronic information manufacturing and emerging technologies will improve the efficiency and quality of financial services and promote industrial development and innovation.

1. Introduction

Developing new financial services to support scientific and technological development is one of the primary responsibilities of the financial industry, which promotes the progress of financial services. It can be divided into basic and non-basic services comprising financing and risk management. To promote economic development, experts in the financial industry apply scientific and technological innovation to develop and apply financial products. Since the revolution in science and technology, sci-tech financial services have become essential to financial development, and innovation has become a criterion. Unlike traditional financial services, integrating technology with finance focuses on informatization, intelligence, and globalization [1]. Therefore, we raise the issue of sci-tech financial services, and emerging technologies provide opportunities for improving financial services.

Sci-tech financial services originated from the financial system with information technology as the core. The service content contains financial innovation and is also a tool for financial services [2]. From the perspective of service structure, science and technology finance pursues high efficiency and low cost and realizes financial modernization through the combination of technology and finance. However, they are only at the theoretical level. Today, in science and technology finance, people have implemented a unique way of independent innovation. Digitalization of finance has changed financial structures to reflect financial inclusion. Moreover, it will change the nature of economic and social development and significantly impact the international financial system. Therefore, we must have a global perspective and strategy to discuss sci-tech financial services. In the context of the new era, this paper proposes a proposition based on sci-tech financial services.

In summary, sci-tech financial service is a condition and guarantee for achieving financial inclusion. From the current development point of view, science and technology finance has made progress, but there are also areas for improvement. The financial services industry has yet to find a practical approach to adapting to the new era, and relevant personnel are working hard. To sum up, sci-tech financial services need continuous innovation, which is not only a need for financial development but also a requirement for stable economic and social development.

Based on the above analysis, this paper proposes a sci-tech financial service innovation model to promote financial inclusion. We use theories and methods to solve the problem of financial services.

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The main content includes research that integrates the electronic information manufacturing industry and emerging technologies, effectively reducing financial risks and being of great significance.

2. Test Platform and Sci-tech Financial Service for the Electronic Information Manufacturing Industry

2.1 Integrated Circuit Test Samples and Fintech Models

The combination of the experimental platform of electronic information manufacturing and sci-tech financial service is closely related to technology. It reflects the level of advanced science and technology, highlights the technology-driven development orientation, and reflects the innovation strategy in the financial industry. However, it isn't easy to obtain a precise definition using traditional financial standards to construct the definition and essence of scientific and technological financial services. In the research of integrated circuit test patterns and financial technology models, innovative financial services methods that incorporate the idea of deep integration of technology and finance are constantly emerging, creating new ideas and opportunities for the transformation and modernization of the financial industry [3].

2.2 Microelectronic Circuit and Data Acquisition System

Microelectronic circuits and data acquisition systems are important standards in the electronic information manufacturing industry, and they are good expressions of digital signal processing. Related literature discusses the diverse definitions of digital signal processing from many angles [4]. Some scholars believe that digital signal processing can reflect the degree of information processing or data conversion. Because digital signal processing is highly intelligent to some extent, it belongs to digital science assisted by information technology. The history of signal processing can even be traced back to the 20th century. Its principal activities include signal acquisition, filtering, and feature extraction. At the same time, microelectronic circuits and data acquisition are closely related to the digitization of information [5]. Due to the influence of digital signal processing, the generation of electronic information has become a critical task of digital transformation. The main contribution of information theory in the digital signal-processing era is the development of information encoding and decoding techniques. Thus, the concept of digital signal processing initially focused primarily on digitized metrics based on standard attributes of information processing.

2.3 Quantum Computing Experiment

The difference between quantum computing and classical computing is that quantum computing emphasizes the interrelationship between quantum bits and entanglement and has superconductivity and quantum superposition characteristics. Although some scholars doubt that quantum computing may not be directly related to traditional computing, most scholars argue that quantum computing can make rational evaluations of complex problems. Feynman et al. proposed a classical physical model of quantum computing that contains elements of quantum mechanics, and since then, this model has become a typical tool for quantum computing [6]. It develops the concept of qubits. Scientists advocate quantum computing, which has quantum parallelism, a "quantum speed boost"; quantum computing only shows superior performance when qubits are entangled. Quantum computing is a branch of quantum mechanics. Quantum mechanics evaluates not only phenomena represented by specific values but also everything in between and the resulting uncertainty. In addition, scholars summarize quantum computing into two models: a general model based on qubits and a quantum-specific model based on quantum entanglement. The former focuses on general computing, while the latter focuses on solving specific problems, that is, quantum advantages. Quantum computing has experienced some failures in practice. Still, from the perspective of quantum effects, it has the potential to surpass traditional computing, and quantum computing has gradually become more popular in the research and practice of quantum science and technology.

3. Artificial Intelligence Test Results

3.1 Stability of System Integration Structure

The results of artificial intelligence experiments focus on verifying the performance of artificial intelligence in practice [7]. The system integration structure is the application of artificial intelligence thinking in system construction. The stability of the system is the focus of this research. This theory has entered the research field to overcome the system's defects as an alternative model-stability framework. The basic idea of the framework is as follows. First, the system should ensure that the stability is effectively maintained. Second, set professional standards for system output. Third, experts use advanced technology to improve the system. Fourth, the stability method is used to evaluate the system. The stability framework reconstructs the system design and improves the system's reliability, stability, robustness, and adaptability. Figure 1 shows the sci-tech financial service integrating with emerging technologies.

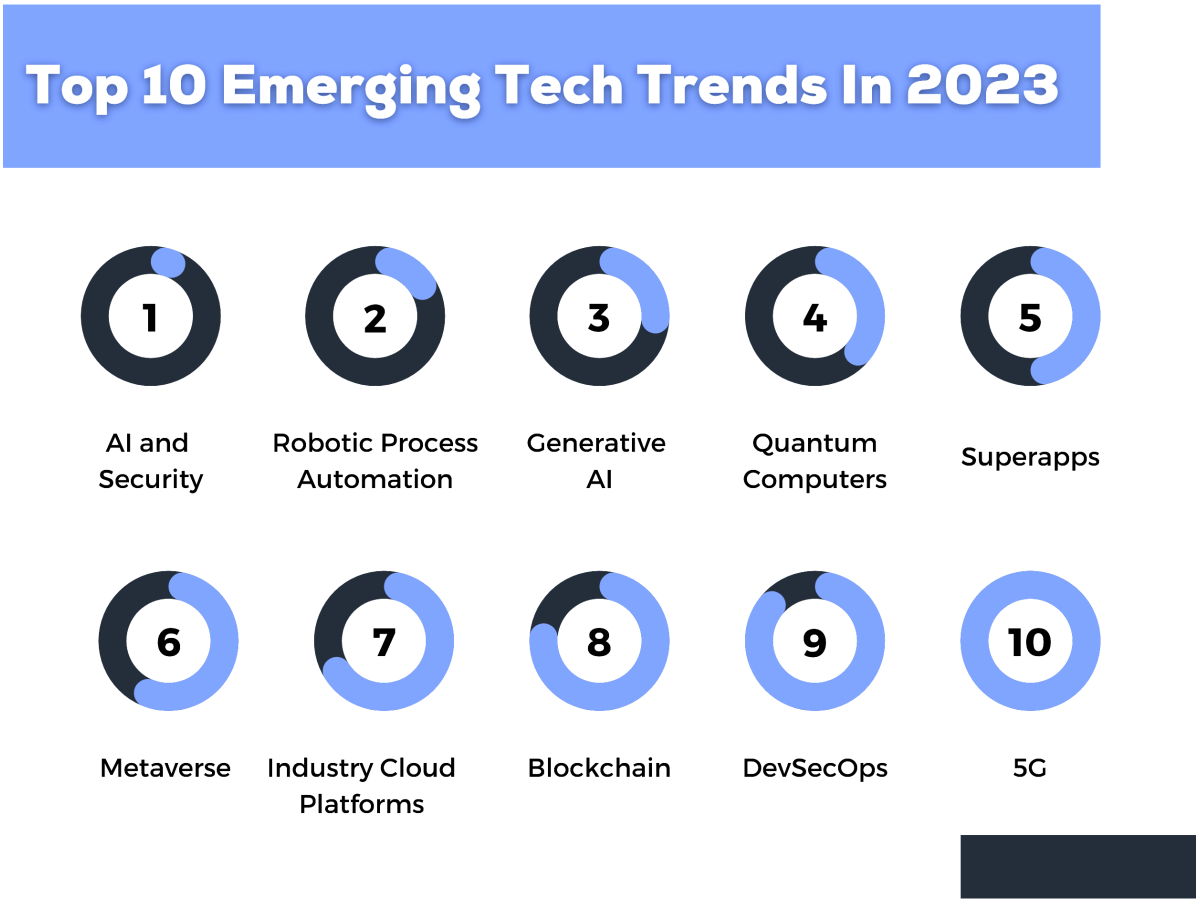

Figure 1 Sci-tech financial service integrating with emerging technologies

We need criteria to evaluate artificial intelligence from the perspective of the stability of system integration structures. Standard and effective assessment tools play an essential role in system design in a stability framework. It makes stability not only a concept but also a practical orientation. Therefore, the mechanism based on "stability" becomes the guarantee mechanism of the system. Overall, the practical deduction in the research is gradually formed based on stability, although this process contains many attempts. From theory to practice, stability is closely related to the system. We should strive to improve stability to meet the changing needs. However, there will also be difficulties, such as occasional instability. Generally speaking, the system has room for improvement in practical application, and its stability needs to be further improved, which is an essential task of the system.

3.2 Reliability Characteristics of Chip Design

The reliability of the chip structure is the main index of the chip design, which focuses on the high performance of the chip. The experiment directly reflects the working conditions and performance of the chips. Some components of chip design development are gradually forming, and various evaluation systems are receiving attention. However, from a practical point of view, the practice of some chip designs remains in the theoretical stage, contrary to the logical framework and generation mechanism of practical applications [8].

4. Discussion and Analysis Based on Blockchain Experiments

4.1 Cryptocurrency

In the blockchain, cryptocurrency is the essential link and the core embodiment of the blockchain. Therefore, blockchain takes cryptocurrency as its main generation logic. Cryptocurrency is the main application area of blockchain and its economic subject. At this stage, we strengthen cryptocurrency risk management and control from the supervision perspective. There are three primary forms: a real-name registration system, standardization and process optimization, and technology upgrade. First, cryptocurrency realizes identity recognition between transactions and holdings. Second, managers develop cryptocurrency and trading standards and make them public to the market to achieve standardized control of cryptocurrency. The third is process optimization and technology upgrading. In recent years, regulatory authorities have used scientific and technological means to improve regulatory efficiency and market transparency. However, compared with traditional currencies, the stability and credibility of cryptocurrency need to be further improved [9].

From the perspective of cryptocurrency, improper regulation has long constrained its ability to develop. Since the 21st century, cryptocurrency, which is associated with transactions and currency, has reshaped the transaction ecology through blockchain, but the drawbacks of supervision ways restrict its development. In the regulatory system, cryptocurrency is seen as an alternative to money. However, the actual effect of blockchain-based cryptocurrency on the economy remains to be discussed. Due to poor supervision and technical defects, cryptocurrency needs to be improved. At the same time, technical issues make cryptocurrencies less stable. Therefore, cryptocurrencies cannot achieve the goal of low risk. To sum up, cryptocurrency is facing technical problems and regulatory issues.

4.2 Smart Contract

The fundamental difference between smart and traditional contracts is their automatic execution attributes. The coding standards and execution standards of smart contracts are aimed at realizing intelligence. The development of smart contracts is mainly reflected in automation and decentralization. In the technical framework of smart contracts, accuracy, automation, transparency, and not to be tampered with are the core values and highest standards for developing smart contracts. At present, the diversity of types of smart contracts and the differences in execution methods make the market diversified. Although smart contracts have potential, the drawback is that the technology could be better, and there needs to be more regulatory mechanisms associated with smart contracts. Therefore, they are the short board of smart contracts, limiting their wide application.

4.3 Distributed Ledger Component

From the perspective of a distributed ledger, the traditional centralized system cannot comprehensively provide the information and credibility needed by the decentralized network. The focus of the distributed ledger is network efficiency and satisfaction. The relevant managers need complete information and supervision mechanisms. The root of this problem may be information asymmetry. In a distributed ledger, data is typically described as "decentralized," and its transparency to the network directly reflects its trustworthiness. However, the distributed ledger shows transaction information, but historical data is scarce. In general, data is difficult to obtain or evaluate. Information asymmetry and imperfect regulatory mechanisms are the obstacles that the distributed ledger needs to solve.

Distributed ledger systems eliminate intermediaries such as interbank clearing and allow any financial institution to transact directly, making the process relatively simple. Distributed ledgers distribute transaction data across multiple nodes in the network. Each node has a complete copy of the ledger and is agreed upon by a consensus algorithm. It requires data synchronization between multiple nodes, so the processing speed is relatively slow. With the increased trading volume, the system's performance may be limited. If nodes in the network have different interests and opinions, it can be challenging to reach a consensus, so governance mechanisms must resolve these issues. In conclusion, the business model has yet to form an industry consensus, and the application scenario is still in the exploratory stage of continuous innovation.

5. Conclusion

Artificial intelligence has been deeply integrated into many fields, which poses new challenges and requirements for sci-tech financial services. Artificial intelligence is a symbol of the progress of intelligence and an essential means of financial innovation. In addition, it meets the urgent need to realize financial intelligence and maintain financial stability, and it embodies the inherent requirements of the financial industry. Guided by sci-tech financial service, we use artificial intelligence to analyze the financial industry's theoretical analysis framework and practical mechanism. In recent years, modern information technologies such as artificial intelligence have promoted the innovation and development of the financial industry. By empowering financial services and the accuracy of data, its value fits the internal logic of the financial industry. Therefore, based on artificial intelligence, it also provides a new way for financial services. To sum up, the sustainable improvement and development of artificial intelligence will better meet the demands and help the steady development of the financial industry.

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