

## Applications of information technology in the financial industry

Chenyang Wei <sup>1,\*</sup>, Zhiyang Liu <sup>2</sup>

<sup>1</sup>College of Economics & Management, China Three Gorges University, Yichang, 443002, China

<sup>2</sup>College of Science, China Three Gorges University, Yichang, 443002, China

\*Corresponding Author: 2718744323@qq.com

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*Abstract: With the rapid development of information technology, the traditional financial industry has also been greatly impacted, and the resulting Internet finance has developed rapidly. In order to give full play to the role of information technology in promoting Internet finance, based on information technology such as big data, cloud computing and blockchain, this paper introduces the advantages and disadvantages of these information technologies, analyzes the application status of these information technologies in the financial industry in detail, and finally the application prospects of these information technologies in the financial field, looking forward to providing a path for thinking about current practice and future research and exploration in the financial industry.*

*Keywords: cloud computing; blockchain; big data; financial industry.*

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### 1. INTRODUCTION

The development of information technology has provided a new development direction and trend for the development of the financial industry. Under the background of the information age, information technology represented by big data, cloud platform and blockchain has further promoted the standardization and intensification of the development of the financial industry. Big data is a collection of data that is large enough to capture, store, manage, and analyze the capabilities of traditional database software tools. It has four features that contains a large data scale, fast data flow, diverse data types, and low value density [1]. Big data brings convenience for the analysis and mining of massive data information. Only through a large amount of data analysis can we better understand the needs of user behavior and changes in market structure, so as to make a reasonable transformation in combination with market differences [2].

Cloud computing is an innovative business computing model based on traditional computers such as distributed computing, grid computing, and virtualization, which accelerates the integration with network technologies. In this model, a large number of computers constitute a large resource pool, undertaking a large number of computing tasks, providing storage space, computing services and other hardware and software services for various applications. Cloud computing provides data services for the business development of financial enterprises, accelerates the integration of cloud

computing technology and data center construction, and provides an ideal strategic solution for the long-term and rapid development of financial enterprises [3-4].

With the development of Bitcoin, blockchain technology is the technical foundation for building a Bitcoin system. It can record all data sources and encrypted information and conduct electronic cash transactions through complete point-to-point technology. Thus, both parties to the digital currency transaction can trade directly without going through a third-party financial institution [5]. Blockchain technology simplifies the operation process of financial banks, solves the problem of financial risk control, and unblocks information transfer in the financial industry [6-7].

## **2. THE IMPACT OF THE APPLICATION OF INFORMATION TECHNOLOGY ON THE FINANCIAL INDUSTRY**

### **2.1 Positive influence**

The application of information technology has promoted the transformation of the financial industry. With the establishment of an open, equal, and shared Internet platform for resource data, it not only improves the effectiveness and ability of information technology to process massive amounts of data, but also becomes a third party for financing, credit rating review, online payment, online investment, etc., which will promote the diversification of financial market service models and the quality of service technology.

The application of information technology makes financial products optimized and innovative. Information technology in the optimization and innovation of financial products is mainly reflected in the innovation of product content and structural optimization. Under the strict supervision of financial institutions' licenses by state agencies, the promotion and development of information technology provides a competitive arena for the development of third parties. Each payment field has its own magical powers. In addition to the rapid development of online financial business platforms, some telecom operators' payment systems are also vying to develop with their own financial and technological advantages.

### **2.2 Negative influence**

The application of information technology brings shocks and challenges to the payment business of the financial industry. In the development of the financial industry, the most basic business of financial institutions is payment services. Under the influence of the development of information analysis technology and the rapid development of social development, the financial business model has been innovated and enriched, and the society's convenient and fast demand for financial payment has promoted the continuous development of third-party payment models. At the same time, the Internet third-party payment service is also establishing and improving individual independent payment systems, separating from traditional financial enterprises, and gradually shifting the reliance on traditional financial enterprises to rely on big data information analysis technology. At present, the Internet third-party payment platform can provide related funds services such as storage, transfer and settlement that match the physical financial banking business for users who have already stored accounts in the physical financial bank, improving the efficiency of the user's convenient and quick handling of the business effectively. Internet finance companies can realize the possibility of a large

number of users simultaneously handling business, in line with the requirements of social development and easy business for residents, and bring impacts and challenges to the existence and development of physical financial enterprises.

Information concealment can easily lead to illegal trading behavior. Internet financial transactions have the characteristics of trader information concealment, enabling users to conduct transactions anytime and anywhere. Although the user register in real-name system, but the real identity of the transaction is difficult to visually prove. In addition, the Internet makes the transaction convenient, the transaction speed is fast, the anonymous transfer can be performed multiple times in a short time, the capital chain is cut off, etc. Criminals can use advanced information technology to steal other people's registered accounts for money laundering transactions. The number of transactions and the frequent transactions are difficult to be discovered by banks, making it difficult to conduct one-by-one review. In addition, due to the development of the Internet financial industry, online transactions of residents have become a popular trading method. There are many traders, such as merchants, cardholders, and mobile operators involved in Internet transactions. The criminals use these characteristics of Internet finance to implement illegal money laundering transactions on the Internet. It is also difficult for banks and relevant regulatory authorities to realize the complete transaction information and flow trajectory search source for illegal funds, therefore, making it easy to escape from the laws, providing an opportunity for lawless elements to successfully launder money.

### **3. THE CHALLENGES FACED BY INFORMATION TECHNOLOGY IN THE APPLICATION OF THE FINANCIAL INDUSTRY**

The application of information technology in the financial industry, challenges and opportunities are coexisting. As a cloud platform representative of information technology, although it can provide greater protection for data, there is still much room for exploration in the construction of cloud platforms, both in terms of technology and management. On the one hand, the cloud platform is mainly undertaken by the service provider in the form of outsourcing, which will bring management difficulties to the financial data, and the financial data is stored in the cloud of the outsourcing service provider rather than the local. Correspondingly, financial companies lack security for data protection. On the other hand, although cloud platforms have stronger computing and storage capabilities, they require higher communication lines. Especially in the peak period of application service concentration, they may cause high-density traffic, and put forward higher requirements for real-time response and throughput functions of broadband networks and devices.

Financial enterprises should not only keep communication lines open, but also ensure more technical network equipment to ensure that cloud platforms can still accept a large amount of traffic during peak business hours.

### **4. SOLUTIONS AND RECOMMENDATIONS**

For traditional financial enterprises, in the information age environment, we should change our thinking in a timely manner, introduce and innovate big data information analysis and processing technology, and establish a big data information platform. The storage and processing of data

information is not limited to structured data; for non-institutional data such as images, audio and video, and cross-platform data, for example, collecting and analyzing data such as customer buying habits, consumer hobbies and tendencies also needs to be accurately analyzed and treated with emphasis.

Financial enterprises should continually improve the service structure of third-party payment products, and realize the cross-platform joint operation of customer information resources accumulated by traditional enterprises in operation with more similar types of enterprises, so that various resource management functions. For example, the integration of natural gas fees, utilities, and credit cards, the functions are effectively coordinated to achieve cross-platform joint management.

Financial enterprises should increase the improvement and upgrade of the network data information security protection system, build a big data storage processing library, avoid theft and peek of the entire Internet financial resources, and ensure the stable and effective operation of the financial system. At the same time, it is necessary to increase technical supervision to prevent money laundering risks.

Financial enterprises can appropriately transform and innovate data centers characterized by large concentration according to the scale and characteristics of development, in response to the increasing competitive pressure of the financial industry, improve core competitiveness, address internal and external data security pressures, and embark on the road of innovation in green development, energy conservation and emission reduction.

## **5. CONCLUSION AND OUTLOOKS**

Under the background of the information age, Internet finance has developed rapidly, and the development of traditional financial enterprises has been impacted and challenged, but to some extent, it has provided a direction for the financial industry to change and make it vibrant. Although the combination of Internet technology and mobile communication has the characteristics of convenience, wide service scope and service de-intermediation, it also provides conditions for illegal activities such as money laundering and terrorist financing. The emergence of information technology can effectively alleviate the situation, solve security risks, protect user privacy and reduce operating costs and expenses. In addition, relevant personnel should face up to the advantages and disadvantages of Internet finance in the information age, strengthen innovation and supervision, and prohibit criminals from using Internet finance to conduct money laundering activities, so that Internet finance can play a role in promoting residents' lives and social development.

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