

## Analysis of applications of the Internet of Things during the financial transaction process

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### Abstract

Internet of Things is developed based on the development of the Internet. During the financial transaction process, the Internet of Things has led to the formation of the Internet of Things finance. Against the backdrop, this paper proceeds from the overview of the Internet of Things to explore and analyze the role of the Internet of Things during the financial transaction process.

### Keywords

Internet of Things; financial trade; application.

### 1. Introduction

The Internet of Things is a new round of information industrial revolution. Countries all over the world have put development of the Internet of Things on a strategic height. Against the backdrop of the rapid-developing Internet of Things, the connection between the Internet of Things and various industries and trades, notably the financial industry, has been enhanced. During the financial transaction process, applications of the Internet of Things play an important role in alleviating transaction risks, increasing transaction efficiency and lowering transaction cost. Thus, this paper briefly analyzes the role of the Internet of Things during the financial transaction process.

### 2. Overview of the Internet of Things

Development of the Internet has brought huge convenience to people's life and work. In 2015, the Internet users reached 6.5 billion and the smartphone users exceeded 8 billion. These facts suggested an increasing connection among countries all over the world. [1]

The Internet of Things integrates infrared photography, radio frequency identification, laser scanning, global positioning, wireless communications, sensing and other techniques. Based on corresponding protocols, the connection between devices, facilities, commodities, persons and animals, and the Internet can be realized, thus achieving information exchange and real-time communication between objects and people, and helping help people position, trace, manage and intelligently recognize objects. As a carrier for the dialogue between people and objects, the Internet of Things is an important technique for people to create a "wisdom earth."

Currently speaking, the Internet of Things is still in the preliminary development period as a technique, whose industrial system construction is still improving. However, it cannot be denied that the Internet of Things has bright prospects. According to data research of qianzhan.com, the author comes up with Table 1, showing development trend of the market scale of the Internet of Things: (See below)

Table 1 Development trend of the market scale of the Internet of Things (Unit: 100 million USD)

Year	2016	2017	2018	2019	2020
Market scale of the Internet of Things	4375	5450	6750	8300	10000

### 3. Role and applications of the Internet of Things in the financial transaction process

In some sense, the Internet of Things finance can be understood as an ultimate form of the Internet of Things finance. The Internet of Things finance can integrate logistics, data flows and capital flows. As is shown in Table 2, the Internet of Things finance is not only open and sharing-available, but also transparent and highly-participated. Being able to efficiently cut transaction costs, it is an improvement and sublimation of the Internet of Things finance. Below is a brief analysis of role and applications of the Internet of Things in the financial transaction process.

Table 2 Characteristics of the Internet of Things finance

Capital transaction services	Data flow	Rely on advantages of the big data to realize data productization
	Capital flow	Innovate the financial transaction system and rebuild the financial ecosphere
Commodity transaction services	Commodity flow	Make use of the Internet of Things to provide financial solution plans for clients

#### 3.1 Role of the Internet of Things in the financial transaction process

##### Solution of transaction information asymmetry

The asymmetric transaction information is a serious problem in the traditional financial transaction, which might cause hidden moral risks and even that bad money drives out good money. All these will result in a vicious circle of the financial transaction market. The Internet of Things can realize the linkage between things, thus forming a material information system. In this way, information demanders can get rid of limits of time and space to acquire relevant information of object position, quality, price and shape. Through object information sharing on the Internet, problems of information isolated islands can be avoided, and this is of vital significance to the mortgage loan transaction and the financial credit granting transaction. [2] Besides, the Internet can be relied on to achieve long-term data collection, thus resolving problems of blocked information flows and efficiently combating against insurance frauds. The development of the Internet of Things finance can achieve the “complete information” status of the financial transaction. It is a revolution of traditional financial transactions.

##### Lowering of transaction cost

For a long time, the high transaction cost has inhibited sound development of the financial industry. Ronald Harry Coase, a famous economist, pointed out that the transaction cost between enterprises has a huge impact on the final earnings, and that if the transaction cost is zero the financial transaction wealth can be finally realized whatever the property right system is. However, it should be noted that zero transaction cost is an ideal state, which is almost impossible. Cost will be generated during various transaction links, including negotiation, conclusion, signing and performance of contracts. Cost of time and money during the financial transaction process is unavoidable. Only when financial transaction services become increasingly professional can financial transaction cost be cut. During the traditional financial transaction process, there is the so-called “Coase Bottleneck.” [3] A high cost is often a prerequisite for the fulfilment of financial transactions. In this way, the potential financial process becomes hardly achievable due to confinement of high cost. Applications of the Internet of Things can efficiently solve the problem during the financial transaction process. As a technique, the Internet of Things adopts the distributed operating system, which can realize the connection and communication between people and things, between people and people and between people and the Internet. Cloud computing can largely reduce the computing cost during the financial transaction

process. Resources of the financial institutions can be efficiently matched with consumers' specific demands. Through information sharing and transaction evaluation, professionalism and standardization of financial transaction services can be further enhanced, and the financial transaction cost can be reduced based on the distributed collaboration. With the rapid development of the Internet of Things Internet, every person can have access to professional financial transaction services. The professionalization and expandability of financial transaction services can greatly cut marginal cost, thus getting financial transaction cost near to zero.

#### Improvement of financial transaction efficiency

First, the emergence of the Internet of Things gives rise to new financial transaction payment methods, such as mobile payment. In the era of the Internet of Things, transmission of financial transaction information is accurate and fast. Mobile banks can cut the delivery cost of financial products and increase the financial product transaction efficiency. Second, the application of the Internet of Things can rebuild the financial transaction procedures. The financial industry belongs to the digital-intensive industry. The Internet of Things can realize security and reliability of the financial transaction information transmission. Based on that, the financial transaction procedures can be rebuilt. Take the credit business of commercial banks oriented towards small-and medium-sized enterprises for example. In the traditional financial transaction mode, the transaction business involves a complex set of operation links, which might easily lead to transaction information disconnection and low information transmission efficiency. The application of the Internet of Things can efficiently increase the business efficiency. The information transmission internet built by the network layer has powerful functions, and can realize the one-stop integrated processing. This can greatly increase the credit business efficiency and meet borrowing demands of small-and medium-sized enterprises. [4]

### 3.2 Applications of the Internet of Things in the financial transaction process

#### Establishment of the operation system

The key to applications of the Internet of Things to the financial transaction lies in establishment of the operation system. A C-end operation system should be built to guarantee real-time financial transaction services for users and intelligent nature of terminal transaction services.

Take cloud computing and big data services for example. Users can operate the system on terminals such as smartphones, apple watches and sports wristbands. Users just need to search for corresponding financial transaction services on terminals so as to acquire information of nearby information institutions or financial transaction services. Users can conduct online booking. Later, they can verify their ID through the RFID or NFC, and conduct relevant financial transactions.

#### Integrated framework of transaction payment

Things of Internet can realize connection and communication between virtuality and reality. The establishment of the connection and communication relies on the financial transaction payment. Payment is not the starting point of financial transactions, but also the purpose and finishing point of financial transactions. The Internet of Things financial system, based on payment, can conduct a comprehensive and accurate collection of users' data use habits, preferential data and so on. Through the safe payment, the customer credit characteristics can be verified and a user information bank can be built. [5]

As is shown in Fig. 1, the Internet of Things financial transaction platform centered on payment is built. In the frontend, e-commerce and physical store financial transaction and consumption system is built. In the backend, the credit risk prevention and control system for the financial transaction and payment preferential data analysis is built.

#### Scenarized services

According to the big data and the cloud computing, the fitting between the real life and the Internet can be realized, thus allowing consumers to enjoy scenarized services. The Internet of Things financial transaction system can recommend financial transaction information and services according

to consumers' expenditure, transaction records and demands. An AGPS-based positioning system can be built up to comprehensively analyze the consumption site and activity scope of consumers and provide targeted financial transaction services.

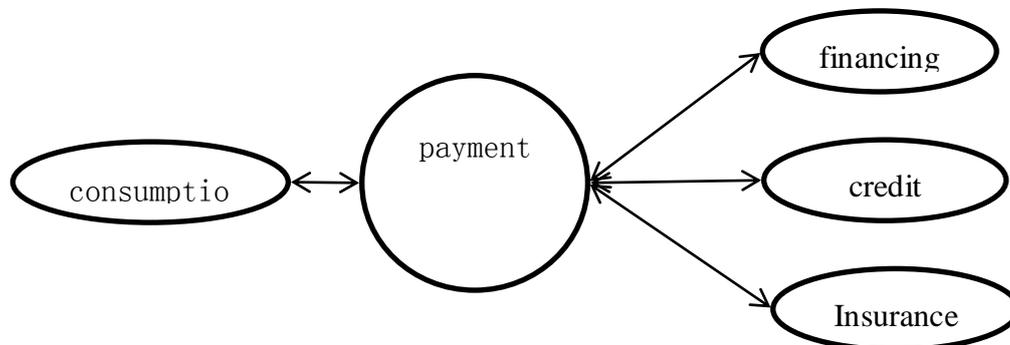


Fig. 1 Internet of Things financial transaction platform schematic diagram

#### 4. Conclusions

To sum up, applications of the Internet of Things can get rid of information asymmetry, cut transaction cost, improve transaction efficiency and guarantee transaction security. Through establishment of the operation system, integrated framework of transaction payment and scenarized services, the Internet of Things system can provide better financial transaction services. The author believes, in the near future, the Internet of Things finance will become a lifestyle, and that applications of the Internet of Things during the financial transaction process can promote further innovation and development of the financial industry.

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