Research on the Application of Big Data Technology in the Financial Field in the Era of Internet of Things

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Abstract: The development of science and technology provides an opportunity for the application of network information technology, and the application of network information technology has laid a solid foundation for the transformation and upgrading of various industries. For the financial industry, internet finance has become an inevitable development trend, in which the emergence and in-depth application of big data technology has built a perfect information technology network for the development of internet finance. For the development of the financial industry in the future, deepening the application of big data technology is a necessary prerequisite to realize the innovative development of the financial field. Based on this, under the background of the development of the internet of things, this paper makes a comprehensive analysis of the financial big data model, and further discusses in detail the practical application of big data technology in the financial field, as well as the effective development strategy of the financial industry under the big data technology of the internet of things.

1. Introduction

Because of extremely rich information resources of financial industry, we must attach great importance to the application of big data technology in the process of industry development to form a more scientific and efficient big data financial model. Big data's financial model in the era of the internet of things not only shows the core of the traditional financial service model, but also combines the advantages of modern big data technology, and can realize cloud computing, cloud storage and cloud sharing. With the support of the technology of big data in the internet of things, the service system in the financial field has been constantly updated, and more internet financial products and services that meet the needs of contemporary users have begun to appear, including mobile banking, P2P network loans, crowdfunding and so on. However, when we realize the positive role of big data technology in the financial industry, we should also be aware of the financial risks in the internet era. As a financial enterprise, we should seize the opportunity, deal with it rationally, and construct the multiple patterns of the development of the financial industry in the new period.

2. Analysis of financial big data model based on big data technology of the internet of things.

Based on the big data technology in the era of the internet of things, in its application, we should

understand its characteristics. It can participate in data generation, transmission, storage and processing, and can deal with large-scale financial data. For the current financial enterprises, one of the main data sources is the internet, including e-commerce platform, consumer review website, social platform information and so on. Big data technology can also provide support for financial information decision-making. In obtaining all kinds of financial data, the internet technology mainly depends on big data storage technology, database technology, search engine technology and so on. In addition, there is also a key technology in big data technology, that is, data mining technology. Through the application of data mining technology, we can deeply analyze the massive data and find the hidden value of its existence. In the application of data mining technology, it is necessary to combine visualization technology, artificial intelligence technology and database and other high-end technology. After in-depth data mining, inductive reasoning should be carried out to form valuable data information to help decision-makers make correct and risk-averse decisions. The financial big data analysis framework based on big data technology in the era of the internet of things is shown in figure 1 below.
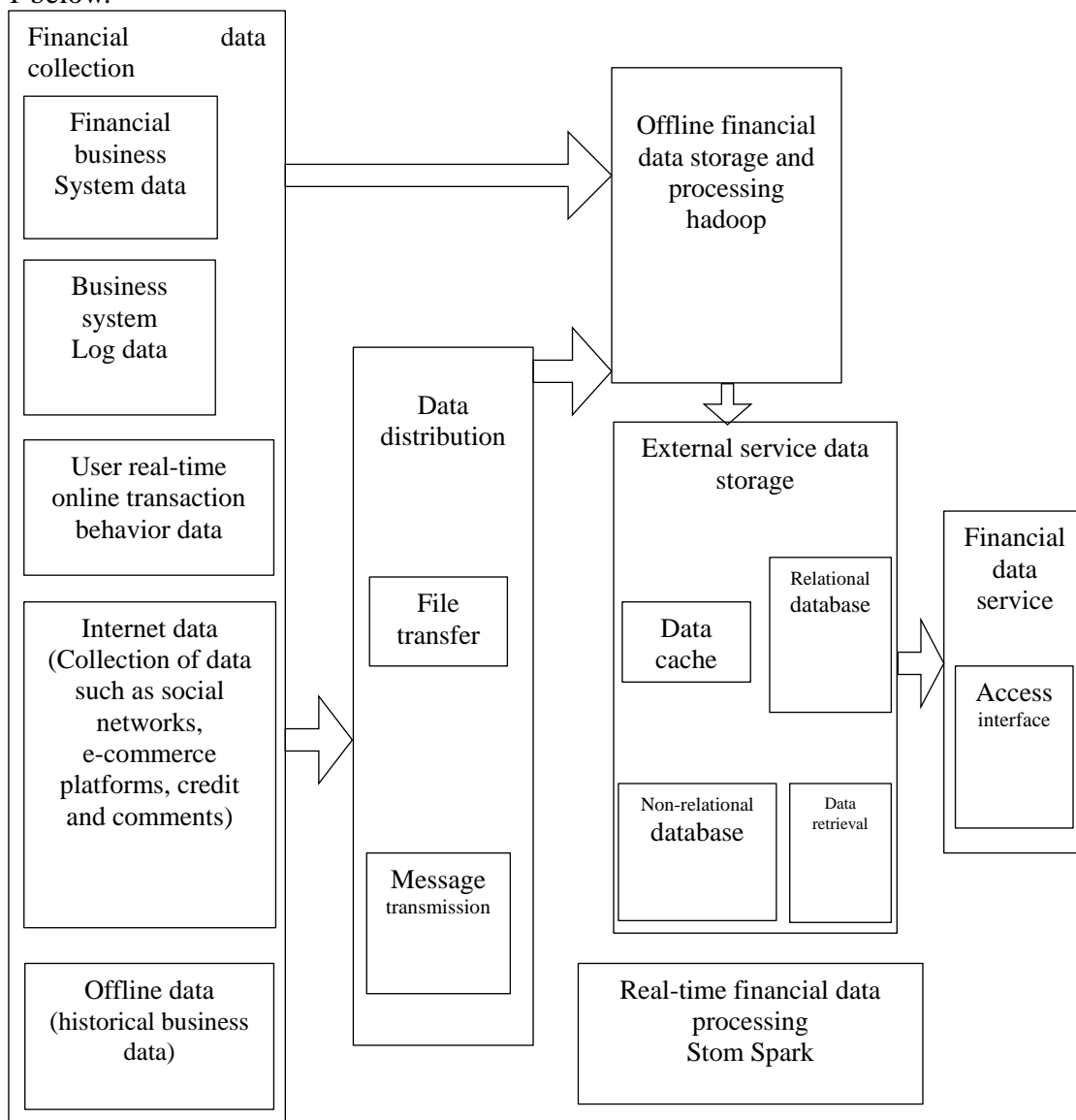

Figure 1 Financial big data analysis architecture diagram

This paper analyzes the application mode of big data technology in the field of internet financial

financing, which can be divided into four categories: traditional financial institutions and e-commerce platform cooperation mode, traditional financial institution self-building e-commerce platform model, independent internet company and external internet financing model, and e-commerce platform using its own accumulated data to provide financing services for internet merchants. The first model is represented by the cooperation between China Construction Bank and Alibaba and the cooperation between the Bank of China and JD.com Mall. The third model is represented by the Kabbage of the United States. The representatives of the fourth model include e-commerce financial services provided by e-commerce platforms such as Alibaba, Taobao and Tmall. Among them, Ali Finance, as a representative, attaches more importance to the construction and application of database in the process of development, and should do in-depth mining for the database. Based on this, Ali Finance attaches importance to the information of businesses on various platforms, including Taobao, Tmall, Alipay and so on, so as to achieve accurate analysis of customer preferences and recommend more targeted products and services for customers, which was to significantly improve the level of internet financial services.

3. The concrete application of big data technology in the financial industry

3.1 Data storage and management technology

Big data is aimed at a large amount of data information, so when storing data, we should pay attention to the performance of storage devices, because it has higher throughput and larger capacity. In the specific data storage process, we should use distributed storage architecture, virtualization and cloud computing technology to achieve efficient data storage and management. In the stored procedure, we should pay attention to the security of data information, and actively apply the storage methods with high security benefits, such as DAS, NAS and SAN. For the financial industry, we should pay more attention to the effective management of data. In the specific management, we can use more efficient management technology, including data fusion integration technology, data extraction technology, data cleaning and conversion configuration technology and so on.

3.2 Data analysis and mining technology

After obtaining the financial data information, we should analyze and mine the financial data deeply. In the data observation, analysis and mining, we should adopt the more high-end analysis technology and analysis method, including neural network technology, cluster analysis technology and artificial intelligence technology and so on. Through the application of the above technology, more valuable user data, financial product data and marketing information can be obtained from the massive data information.

3.3 Data integration and processing technology

In the process of processing financial data, data integration is involved. At this time, we should grasp the business requirements and practical application standards, and transfer, transform, purify and integrate the data in the process of data integration. And in the process of further processing, we should be good at applying new data processing technology, including distributed computing technology, memory computing technology and stream processing technology. Ensure a high level of data processing.

3.4 Data sharing and presentation technology

In the era of the internet of things, the use of big data technology to analyze financial data, which can achieve the sharing of data and specific display. However, we should pay attention to building a unified financial data management platform, integrating the internal and external data resources of financial enterprises, realizing data sharing and improving the financial service ability of financial enterprises. When big data technology is used to display financial data, visualization can be realized, and historical flow and spatial information flow can be displayed at the same time. Big data display technology can be further applied to monitor the customer value of banks and the risk of financial products. Hence it has a broad application prospect.

4. The development strategy of the financial industry under the background of big data technology of the internet of things

4.1 Analyze customer preferences and strengthen customer management

In the financial field, we need to pay attention to customer management, under the modern management concept, customer management should do a good job of customer preference analysis, based on this, to collect and analyze customer information, at this time, it needs to be applied to big data technology. Enterprise financial data contains a large number of customer information, in the analysis of internal and external data, customer information should be collected, and customers should be divided and identified. In the analysis, we can use differentiation analysis and customer demand forecasting and other techniques. Modern customer management concept pays more attention to the personalized marketing of customers, so it is necessary to strengthen the analysis of customer preferences, including customer interests, consumption trends and living habits. When collecting customer information, financial institutions should be good at collecting and analyzing customer information from multiple angles and channels with the help of big data technology, and can use sensor technology and mobile communication technology to realize the effective integration of customer information. On the basis of comprehensive collection of customer information, we can build a multi-dimensional self-portrait of customers, based on only innovative management and targeted management of customers, so as to further provide customers with personalized financial product service solutions.

4.2 Keep abreast of market trends and achieve accurate marketing

Precision marketing is one of the key concepts in the concept of modern marketing. The premise of realizing accurate marketing is to subdivide the needs of customers and to segment and accurately position the market at the same time. In marketing, we should rely on precise marketing means, which is good at applying modern information technology and marketing control methods, and attach importance to the construction of personalized customer communication service system. Based on this, we can grasp the key opportunity of product marketing and realize the effective docking between the product and the user. In accurate marketing, financial institutions need to build a perfect holographic map of customer management, and be good at combining big data analysis with marketing activities. With the support of big data technology, we can analyze the customer bank card consumption history and the trend of large consumption. And also can be combined with marketing channels, for customers to carry out targeted financial products and service information push to ensure that the marketing program is more targeted. Under the premise of accurate marketing, financial institutions should innovate marketing methods as much as possible and optimize customer experience, including cross-border joint marketing, big data automatic marketing

and social platform are to promote marketing.

4.3 Track financial trends and strengthen risk management

In the process of operation of financial institutions, we need to pay close attention to institutional risk. There are many uncertain factors in the financial transaction behavior itself, so for the steady development of enterprises, strengthening risk management is the first element. In the era of the internet of things to manage financial risks, we can make full use of big data technology to achieve real-time monitoring of financial data. With the support of information technology, mobile payment began to popularize. In risk management, we need to strictly prevent malicious fraud and other risk issues. In the management of financial risks, managers need to conduct a comprehensive collection and in-depth analysis of market economy data, customer behavior data, product prices and transaction data. In order to carry out financial risk management under big data technology, managers need to innovate management thinking. In the process of risk management, we can apply machine learning and clustering analysis algorithm to innovate the construction of customer self-portrait. In the whole transaction process of the customer, the monitoring and early warning of the abnormal behavior of the customer can be realized. Based on this, we can control and intercept the user transaction risk more widely, so as to have a higher risk transaction recognition rate and control rate, then can control the financial education risk more intelligently and efficiently. In order to control the financial risk in the era of the internet of things, we should pay attention to the construction of a more perfect risk prevention system, and comprehensively monitor the risks existing in the financial institutions themselves, customer transaction behavior, financing process and so on.

4.4 Collect media information to assist investment decisions

The focus of big data technology itself is on the processing of data. For the development of financial institutions, the application of big data technology can widely collect a variety of media information, which plays a key role in the investment decision-making of financial institutions. In some developed countries, such as the UK and the United States, one of the important components of their internet business model is social media data. When obtaining information from hedge funds, some countries begin to extract data information from a variety of social media such as Twitter, Facebook, etc., and further develop trading algorithms. On this basis, professional analysts will judge customers' emotions about a financial instrument, and make scientific customer behavior predictions to provide decision makers with key auxiliary information. Take the investment decision of the stock market as an example, investors will pay more attention to information before placing orders and when holding shares fall, and will be affected by all kinds of information in decision-making. Based on this, internet companies and investment fund companies jointly launched the big data index, for the stock market investment decision makers, it can have a corresponding understanding of the attention of individual stocks, so as to achieve more scientific decision-making.

4.5 Pay attention to user privacy and construct credit information system

In order to ensure the safety of financial data, we should actively construct big data credit information system. In the construction of the system, it should be carried out from the following three aspects. First of all, it is necessary to control the legislative work related to credit information and speed up the pace of legislation. Chinese legislation for the credit industry is still not perfect, for the development of the credit information system of financial institutions, scientific legislation

can guide the direction, so the relevant departments must be based on the current situation of the development of big data credit, carry out the legislative work of credit information in an all-round way; secondly, the source of credit data should be further expanded. The analysis of the data sources of the current big data credit information system in China shows that the internet platform and banks are the main sources of objective data. Compared with developed countries, the source of credit data in China is still relatively backward. Therefore, the relevant departments must pay attention to the information integration of various platforms to provide users with higher quality and high level of financial services; finally, it should be emphasized to strengthen the privacy protection of big data credit. The data collection mode, scope and use principles of internet financial credit should be clear, and the authorization management should be strengthened at the same time.

4.6 Attach importance to innovation-driven and enhance the vitality of development

Promoting the innovation of high-frequency financial trading business。For financial enterprises, they can make full use of the advantages of equipment and data in the process of financial transaction, developing a special trading algorithm according to the development needs of the industry, and establish a special trading model so as to obtain trading orders quickly, which was to achieve high-frequency buying and selling in a short period of time to provide support. The financial trading market produces data all the time, and the scale of the data is huge. Therefore, as a dealer, we should deeply mine and analyze the massive financial data, innovate the investment trading model, and create higher profits for the specific investment activities.

Promoting the innovation of financial products。With the support of big data technology, financial enterprises can analyze and share high-end data and integrated data to achieve effective docking between a variety of financial products and subjects, which was including insurance, trust and funds. On this basis, as a financial enterprise, we can actively learn from experience and innovate financial products. Make innovative decisions with the support of big data. At present, the representative innovative financial products include small and micro financial services and the corresponding product innovation system.

Promoting the innovation of microcredit business such as microcredit and online loan.As a financial technology company and financial institution, it should actively apply big data technology when innovating business model and product experience. Financial technology companies and financial institutions have the corresponding microlenders or online lenders, enterprises need to judge the amount of loans to online shops or online merchants. At this time, they need to rely on big data technology. Take Ant Financial Services Group as an example, it specially established big data analysis platform, that is, ant nests including ant microloan, ant flower and sesame credit.

5. Conclusion

The financial market is always in a changing situation, and in the context of the internet of things era, the changes in the financial field will have a greater impact. Therefore, we should pay attention to the management of the financial field in the era of the internet of things to achieve the steady development of the financial industry. From the perspective of modern development in the financial field, it is necessary to actively apply big data technology, achieving efficient processing and integration of financial data and providing support for industry information exchange and management decision-making. Through the use of big data technology can also achieve more accurate customer management and marketing, at the same time can further assist in strengthening risk management and investment decision-making. In addition, it can also improve the quality of service, strengthen privacy protection, and achieve innovation-driven. Therefore, in the era of the

internet of things, we must pay attention to the deep integration of big data technology and the financial field, and promote the sustainable development of the financial industry.

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