



Construction of Agricultural Product Financial Service Platform Based on Blockchain Technology

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Abstract. The financial service platform studied in this project mainly applies blockchain technology. The main function of this platform is to open up the communication barriers between farmers, banks and commercial supermarkets, assist farmers to reach cooperation with commercial supermarkets, endorse the contracts and orders of commercial supermarkets, and assist farmers to pass the bank qualification examination and complete the loan procedures. A well-built financial platform can realize the effective link between bank supply and farmers' demand, unblock farmers' loan and financing channels, and contribute to farmers' personal finance services and the city's economic development services.

Keywords: Blockchain technology; agricultural products; financial services platform

1 Introduction

The demand market for agricultural-related funds in Weifang is huge every year. For banks, due to the lack of reliable collateral and strong guarantors for agricultural loans, and affected by natural factors and higher risk factors, the channels for issuing agricultural loans are not smooth enough. Although farmers have a strong demand for the use of funds, it is difficult to obtain the corresponding funds due to difficulties in obtaining relevant information, cumbersome financing procedures, and insufficient credit ratings. Therefore, through the construction of financial service platforms, the supply of banks can be effectively linked to the demand of farmers, making it easier for farmers to obtain loans and financing, thus contributing to improving the economic level of individual rural households and the overall economic development of the city.

2 Project Description

It is well known that Weifang is a big agricultural city. Statistics in 2022 show that the total agricultural output value of Weifang is 118.35 billion yuan, accounting for 9% of the total GDP, and the population directly or indirectly engaged in agricultural related industries is as high as 6.3 million, accounting for 67% of the total population of

Weifang. The annual demand for agriculture-related funds in Weifang is about 150 billion yuan, and the market capacity is huge. For banks, because there is no reliable collateral and a strong guarantor for agriculture-related loans, and it is affected by natural factors and higher risk factors, the channels for issuing agriculture-related loans are not smooth enough. Although farmers have a strong demand for the use of funds, it is difficult to obtain the corresponding funds because of the difficulty in obtaining relevant information, cumbersome financing procedures, and substandard qualifications. Therefore, there is an urgent need for a platform between banks and farmers, which on the one hand can solve the problem of farmers' loan difficulties, and on the other hand can reduce the lending risk of banks.¹

Therefore, through the construction of financial service platforms, the supply of banks can be effectively linked to the demand of farmers, and the loan financing channels of farmers can be smooth, so as to make contributions to the improvement of the economic level of farmers' individual families and the economic development of the city.

3 Second, The General Idea of Building a Financial Service Platform for Agricultural Products Based on Blockchain Technology

By using blockchain technology to break down the barriers of communication between farmers, banks and commercial supermarkets, to assist farmers in entering into cooperation with commercial supermarkets, to sign contracts and orders for commercial supermarkets and to assist farmers in passing the bank qualification examination, complete the loan procedures and get the loan smoothly. The business process is referenced in Fig. 1. Platform construction ideas. In this way, we can not only solve the problem of difficult loans to farmers, but also reduce the risk of bank loans. The ultimate goal is to help farmers, households and Agricultural Cooperative Finance.²

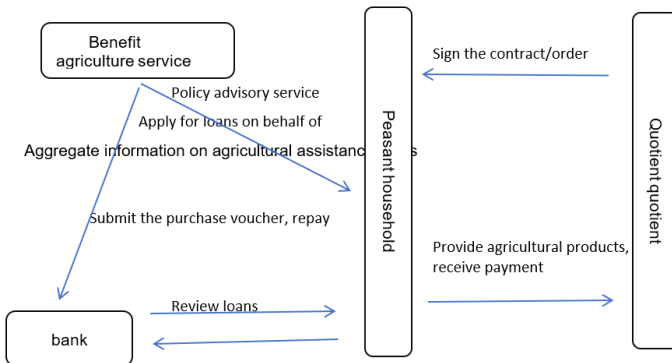


Fig. 1. Platform construction ideas

Image source: drawn according to business process

4 Third, the Main Content of Platform Construction

4.1 Online "Weifang Huimin Service" Public Number.

"Weifang Huinong Service" is the first information platform specifically for farmers' financial information summary. The public number design is simple and easy to understand, easy to operate, and has strong practicability. Farmers can enter the public number and click the dialog box to communicate with the background staff, the background staff can answer the questions of farmers, and can also agree on a time to carry out offline business consulting activities.

4.2 Collect The Agriculture-Related Loan Policies of Weifang Banks.

Collect the latest policies of Weifang banks on agriculture-related loans through the bank's official website and other channels. On the one hand, screen them and publish them on the public account; on the other hand, help customers choose the most suitable loans.³

4.3 Help Farmers Prepare Loan Materials and Assist Farmers in all Aspects Before Smooth Lending.

After selecting the right bank for the farmer, help the farmer to prepare all the information needed for the loan, assist the farmer to smooth the various processes and links before the loan, help the farmer to complete the loan as soon as possible and solve the capital needs.

4.4 Contact Weifang Local and Surrounding Supermarkets to Help Farmers Reach Cooperation With Supermarkets.

One of the reasons why it is difficult for farmers to borrow is that the agricultural products they manage are greatly affected by natural factors and their income is not stable enough. Based on the business background of commercial supermarkets, this platform can assist farmers to reach a long-term supply relationship with local well-known commercial supermarkets, and the repayment ability of farmers can be effectively guaranteed.⁴

5 Fourth, Platform Construction Technology

Based on the transparency, traceability and hard to tamper characteristics of blockchain technology, the use of blockchain technology on this platform can effectively ensure data security. Farmers can upload relevant information to the platform, and both banks and farmers can query data on the platform.

6 Theoretical Basis for Platform Construction

The Chinese term "blockchain" first appeared as a literal translation of "chain of blocks" and has now become a general term for a class of distributed ledger implementations that integrate multiple technologies. According to the definition in the "Blockchain White Paper (2019)" of the China Academy of Information and Communications Technology, blockchain is a bookkeeping technology that is jointly maintained by multiple parties, uses cryptography to ensure transmission and access security, can achieve consistent data storage, is difficult to tamper with, and prevents repudiation; As defined in the Financial Distributed Ledger Technology Security Specification of the People's Bank of China, distributed ledger technology is a distributed infrastructure and computing paradigm formed by the high integration of cryptographic algorithms, consensus mechanisms, peer-to-peer communication protocols, distributed storage and other core technology systems.⁵

Supply chain finance refers to the core enterprises in the supply chain and their related upstream and downstream enterprises as a whole, based on the core enterprises, on the premise of real trade, the use of self-compensatory trade financing to provide comprehensive financial products and services to upstream and downstream enterprises in the supply chain. The pain points of traditional supply chain finance are mainly reflected in:

6.1 Financing Difficulties for Smes.

The credit of the core enterprise can only be passed to the first-level supplier, and the upstream multi-level supplier is difficult to directly obtain the credit letter of the core enterprise. Because small, medium and micro enterprises in the upstream of the supply chain are often unable to meet the bank credit and financing standards by relying on their own conditions, financial services cannot penetrate deeper into the supply chain, limiting the development of the scale of supply chain finance business.

6.2 High Transaction Authenticity Verification Costs.

In order to clarify the indirect supply relationship without direct contractual relationship, financial institutions need to invest a lot of extra costs to verify the authenticity of relevant information, resulting in high risk control costs and limited business expansion.

6.3 Information is Fragmented and Cannot be Shared.

The lack of technical means to open up the information flow, business flow, logistics and capital flow in the supply chain ecology leads to the difficulty of trust transmission, complicated procedures, and high cost of increasing credit.

The use of blockchain technology can, to a certain extent, realize the mechanism for the accurate transmission of business information of the real industry to financial

institutions, promote the solution of the financing dilemma of small and micro enterprises, promote the financial industry to better serve the real economy, effectively prevent the counterfeiting of bills and contracts, and expand the business sources, customer acquisition channels and business scale of financial institutions. It can achieve win-win results for small and micro enterprises, core enterprises and financial institutions.

7 Innovation of Platform Construction

7.1 Main Innovations of the Project

The innovation of this project is that it solves the pain points of traditional supply chain finance (see the figure below). Huinong Service is a financial service platform for farmers, including information collection, policy consultation, and loan application agent. This platform is semi-public, information collection and policy consultation will not charge any fees to farmers, agents apply for loans before unsuccessful also do not charge fees.⁶

7.2 Key Technologies

Based on the transparency, traceability and hard to tamper characteristics of blockchain technology, the use of blockchain technology on this platform can effectively ensure data security. Farmers can upload relevant information to the platform, and both banks and farmers can query data on the platform.⁷

8 Conclusion

Through comprehensive comparative research, it is found that there are many practice cases studying the application of blockchain technology in the field of supply chain finance, such as Industrial and Commercial Bank of China E-letter, Agricultural Bank of China e-chain loan, etc. These big banks have a wide range of businesses, including agriculture-related lending modules, but there is no dedicated service module for farmers and farm households. In Weifang, there is no special platform for the local market and farmers' financial service information summary, so farmers need to consult the bank if they want to consult the loan information. But farmers have neither the energy nor the relevant financial knowledge, so it is difficult to make a scientific comparison. This platform of research and construction can effectively solve this problem and truly serve farmers and rural revitalization.

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