

Construction of Virtual Supply Chain Management Information Platform under the Background of "One Way and One Road"

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Abstract

There is a huge gap between the economic development of provinces and cities along the road and the economic circle at both ends. Small and medium-sized enterprises are becoming more and more important in the economic development, and the development of SMEs is facing the problem of financing, which is attributed to the lack of financial security. With the development of contemporary large data and block chain, in order to solve the problem of financing and financial security, we constructs a virtual supply chain management information platform in the visual angle of virtual industry cluster, so that the supply chain financial model can operate across the region online, providing a new online Capital mode for the small and medium-sized enterprises in the area along the road to achieve better and faster development of small and medium-sized enterprises, and to boost the economic development of all provinces along the line.

Keywords

"Along the way"; small and medium enterprises; supply chain financial model; virtual supply chain management information platform.

1. Introduction

The economic development cannot be separated from the enterprise. The development of the enterprise can drive the economic development of a country. It can also provide more jobs for a country. Innovative enterprises will also increase the innovation level of a country. The current population of China is large and employment is tight. SMEs follow the trend. According to data from the National Bureau of Statistics, as of the end of 2016, the number of small and medium-sized enterprises accounts for all enterprises. It can be clearly seen that SMEs are the largest and most innovative enterprise groups in contemporary China and have an irreplaceable role in promoting economic growth, promoting innovation, increasing taxation, absorbing employment, and improving people's livelihood. From a regional perspective, the number of SMEs in the eastern, central and western regions was 214,000, 85,000, and 50,000 respectively, an increase of 0.8%, 5.8%, and 6.6% year-on-year, respectively, accounting for 58.0% and 23.1%, of the SMEs respectively. 13.6%. According to the China Association for Small and Medium Enterprises (SME), the SME Development Index for the Eastern, Central, and Western Regions from 2014 to 2017 was obtained (figure 1). It can be seen that the development of SMEs in the west is relatively slow and the cities included in the "Belt and Road" economic belt are included. (In Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang provinces, and in Chongqing, Sichuan, Yunnan, and Guangxi, four southwestern provinces) are all in the western region, and there is a huge gap between their economic development and the economic circles at both ends. Therefore, if we want to develop the economy of the provinces and cities along the "One Belt and One Road," we must promote the rapid and sound development of SMEs.

However, SMEs have always faced a huge problem. Questionnaire surveys showed that among SMEs with financing needs in 2016, 38.8% of enterprises reported that their financing needs could not be met, which was 0.3 percentage points lower than the previous year, and there was

no significant improvement. Since it is difficult for banks to really overcome the actual growth of SMEs, the interest rates on bank lending to SMEs have generally risen by more than 30%. As a result, SMEs' financing difficulties are still outstanding and hinder the development and prosperity of SMEs.

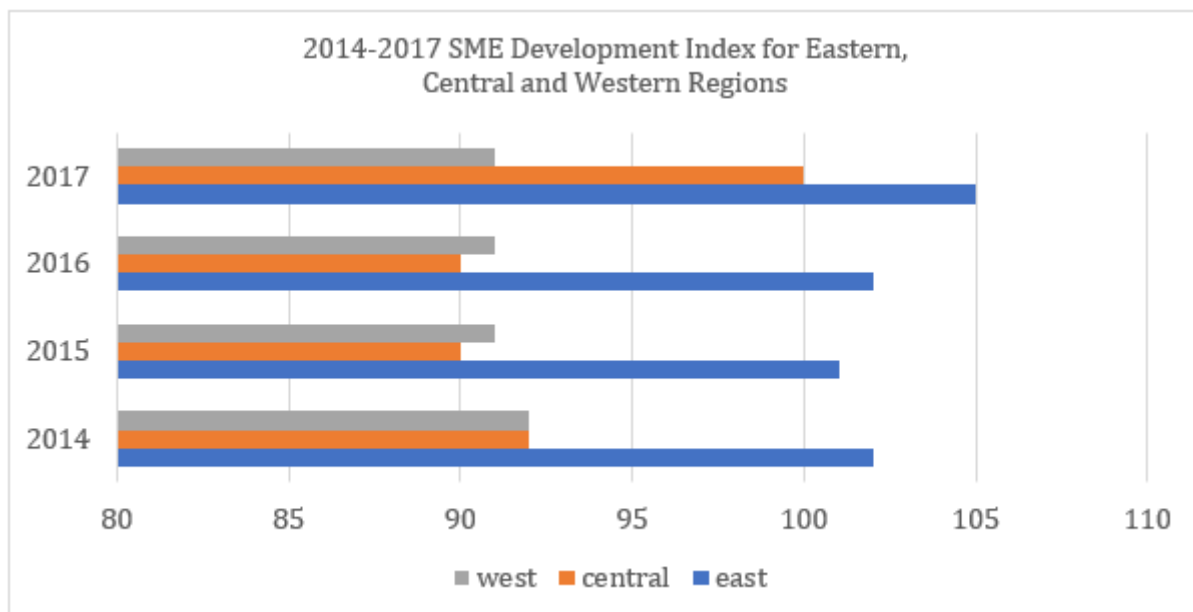


Figure 1: 2014-2017 SME Development Index for Eastern, Central and Western Regions

The previous literature shows that the traditional supply chain finance model can well alleviate the financing constraints of SMEs. However, few scholars have studied and analyzed the supply chain finance model based on virtual industrial clusters. There are industrial linkages between SMEs based on geographical clustering, which promotes interdependence, mutual trust and communication coordination among enterprises. In the past, industrial clusters were all located in a certain area, and the scope of choice was narrow and they often could not find any real help. Your own supply chain company. In order to achieve cross-regional cooperation in production and operation of SMEs in provinces and cities along the "One Belt and One Road" and form various cross-regional supply chains to expand financing capacity, this paper will use the supply chain finance model to build a virtual supply chain management information platform to solve the problem. "Individuals" along the provinces and cities along the SME financing development issues in-depth exploration.

2. Construction of Virtual Supply Chain Management Information Platform

2.1. Information Platform Construction

Through blockchain, Internet of Things and other technologies, this paper effectively integrates all companies in the industrial cluster supply chain along provinces and cities along the Silk Road to form a virtual supply chain. The supply chain management information platform needs to effectively manage the flow of information such as business flows, logistics, and capital flows of all participating companies in the virtual supply chain. Manthouetal [8] believes that the virtual supply chain consists of four modules: virtual supply chain integration, virtual supply chain process model, virtual supply chain partnership management, and virtual supply chain intelligence. The integration of the virtual supply chain in the supply chain management information platform is to establish the standards and structure of the Internet supply chain so

as to ensure that the flow of information such as logistics, business flow, and capital flow generated by the transaction behavior between supply chain participants in the platform can be synchronized. To supply chain management information platform.

Based on the division of labor in the traditional industrial clusters, this article reintegrates all aspects of the supply chain on the management information platform. The specific integration approach is: (1) Build a platform for receiving orders, both overseas and domestic customers, from the receiving platform Orders, certificates related to orders are recorded on the Internet, and no tampering occurs; (2) Providers providing raw materials perform integration management by establishing a virtual platform for raw material suppliers. Most suppliers are small and medium-sized enterprises with the intention to enter SMEs of suppliers' virtual platforms are low-cost entry and reduce the constraints on the entry of SMEs into the market; if the supplier is the core enterprise of its cluster, then the supplier's access to the supplier's virtual platform needs to pass through financial institutions, audits, etc. Authenticators can enter; (3) In the supply chain, manufacturers are generally core enterprises. Through the establishment of a production virtual platform for integrated management of manufacturers, core companies willing to enter the management information platform must pass financial institutions, audits, and other certifications; if they are SMEs only need to enter at a low cost; (4) For downstream companies in the supply chain As well as logistics, through the establishment of integrated service platform integration management, the total service desk connects companies on the supply chain with logistics and financial institutions, provides financial institutions or information users with information on financial flows, business transactions, etc., and keeps track of financial institutions. The whereabouts of the loan items. The management and control mechanism of the entire management information platform is also running on the general service platform. If abnormal capital flows or transaction abnormalities that affect corporate repayment occur, the management and control mechanism will identify, alert, and handle the situation. The companies in the industrial cluster, whether suppliers, manufacturers, or sellers, can finance the financial institutions. By integrating all aspects, it promotes the transparency of traditional businesses (as shown in Figure 2).

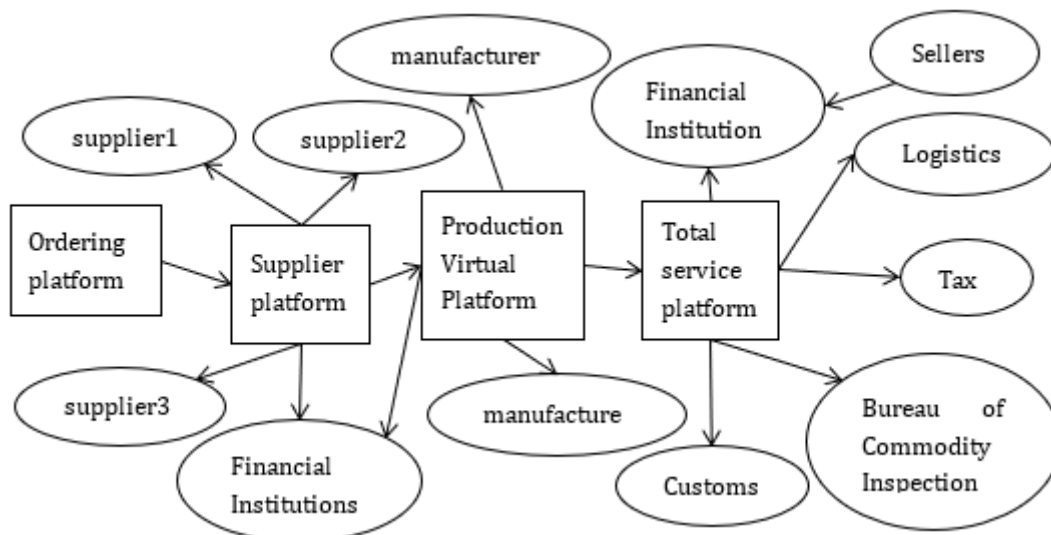


Figure 2: Virtual Supply Chain Management Information Platform

2.2. Platform Operation Embedded in Supply Chain Finance Model

The above-mentioned virtual supply chain operation is the disclosure of the information flow in the supply chain to the more transparent Internet environment. All companies in the supply chain do their best to effectively organize production in the virtual supply chain platform. In this paper, the supply chain finance model is embedded in the supply chain management

information platform. Through the supply chain management information platform, financial institutions can track the development of the financing companies and the whereabouts of the loans through the fund flow information in the platform, which reduces the risk that the financial institutions cannot recover funds. All companies in the supply chain can still operate normally in the absence of cash. The supply chain management information platform embedded in the supply chain finance model has several different modes of operation to choose from. The main methods are divided into four major categories: rights-based financing operations, accounts payable financing operations.

2.2.1. Right Financing Operations

(1) Pledge financing operations

Pledge financing operation mode is through the supplier platform, producer platform, total service platform, financial institution and logistics operation. When suppliers supply raw materials to manufacturers, the supplier platform and the manufacturer platform simultaneously update the corresponding financial information to the general help desk. If the supplier wants to finance, he will apply for a chattel mortgage loan to the financial institution in the supply chain management information platform and be supervised by the warehousing and logistics party designated by the financial institution. At the same time, the financial institution will know the destination and operating status of the funds in real time through the management information platform. Signing of core company guarantee agreements with credit granting companies The pledge financing operation process is shown in Figure 3:

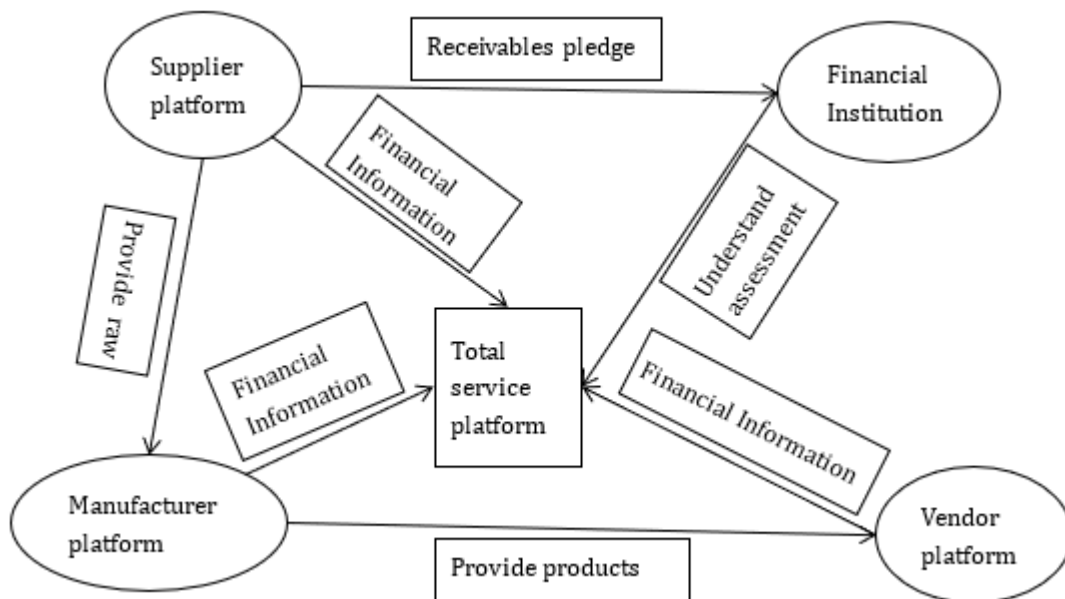


Figure 3: Process of Pledge Financing Platform

(2) Receivables financing operations

The accounts receivable financing operation mode is the operation between the supplier platform, the producer platform, the seller platform, the total service platform, and the financial institution. If the SMEs in the suppliers want to finance, they will apply for the pledge of accounts receivable from the financial institutions in the supply chain management information platform. The financial institutions will evaluate the repayment ability of the supply chain through the real-time information flow provided in the supply chain management information platform. Accounts receivable financing operation process is shown in Figure 4:

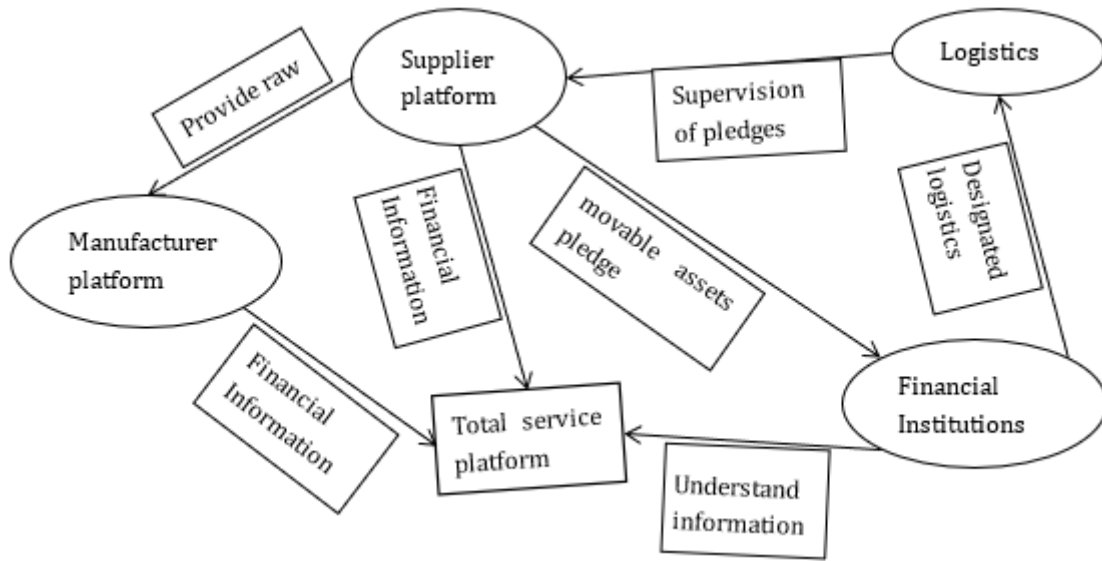


Figure 4: Receivables Financing Platform Process

(3)Prepayment financing operations

The prepayment financing operation mode is the operation between the supplier platform, the manufacturer platform, the seller platform, the general help desk, and the financial institution. If the SMEs in the sellers want to finance, they will apply for the pledge of future goods rights to the financial institutions in the supply chain management information platform under the guarantee of the entire supply chain business situation. The downstream SMEs will use the future cargo rights to provide pledge guarantees when purchasing goods. The financial institution then loans the SME so that the downstream SMEs can purchase the products and repay the loan through the sales. The prepayment financing operation process is shown in Figure 5.

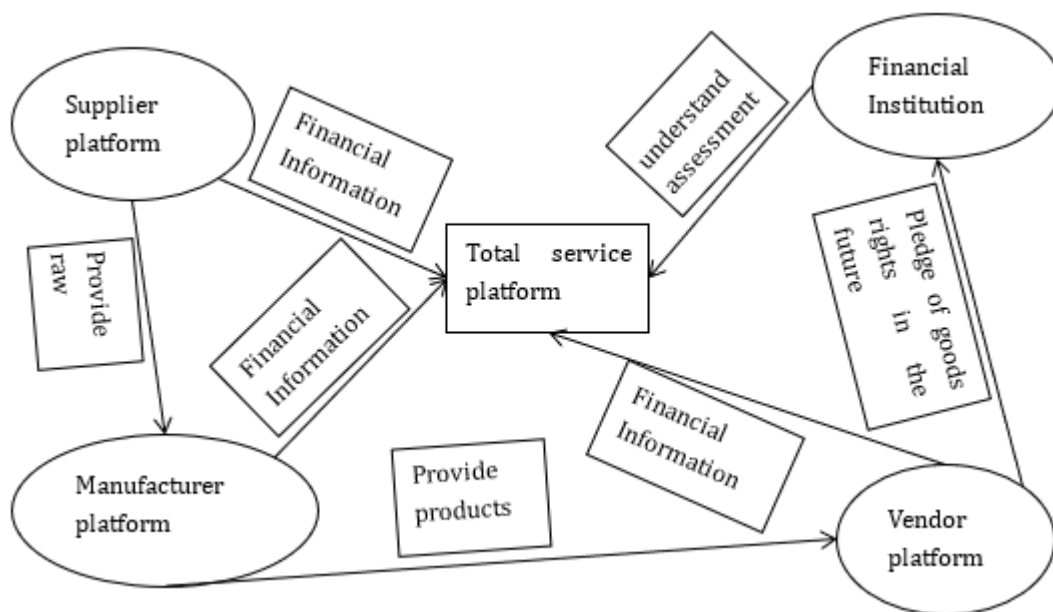


Figure 5: Prepayments financing platform process

2.2.2. Accounts Payable Financing Operation

The accounts payable financing operation mode is the operation between the supplier platform, the producer platform, the general help desk, and the financial institution. The transaction between the supplier and the producer forms the accounts payable of the manufacturer, and

the supplier passes the supply chain management information platform. Applying for pledged loans for accounts payable from financial institutions, financial institutions use the general service platform to understand the operating conditions of the supplier's supply chain to decide whether to lend to the SME. The accounts payable financing operation process is shown in Figure 6.

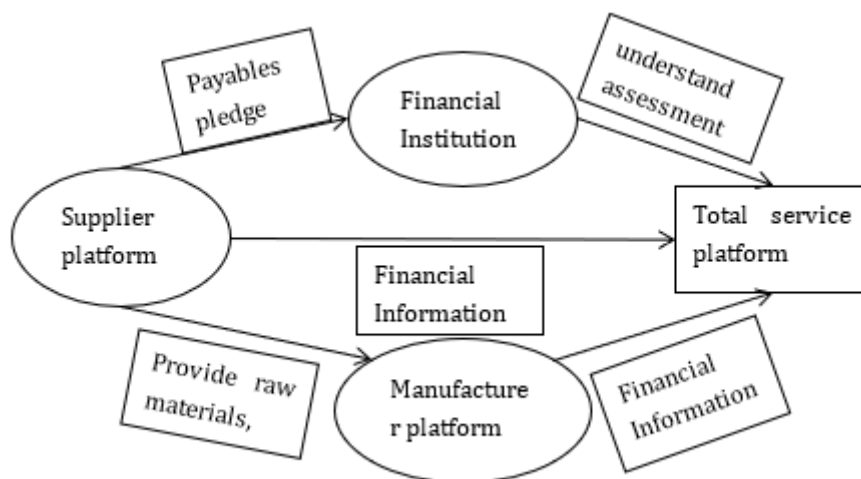


Figure 6: Accounts Payable Financing Platform Process

2.3. Operation of the Total Service Platform

The total service platform integrates financial information, transaction information, etc. provided by suppliers, manufacturers, and sellers, etc., and continuously tracks the whereabouts of loans from financial institutions. Financial institutions audit the loan companies through integrated financial information, transaction information, etc. The operating conditions of the supply chain in which it is located, and thus whether to finance the financing of SMEs.

The management and control mechanism is the management and control of the operation of the overall supply chain financial model, which exists on the total service platform. If cash flow anomalies or transaction abnormalities affect the phenomenon of corporate repayment, the management and control mechanisms will identify, alert and deal with them. First, the management and control mechanism identifies abnormal supply of funds and abnormal business operations of supply chain companies through specific financial indicators. Second, the control mechanism issues early warnings to financial institutions. The financial institution is a specific financial institution for corporate loans on a certain supply chain, and the financial institution decides Continue to lend to it. Finally, in terms of the management and control mechanism, if the financial institution determines through the information provided by the general help desk that the supply chain where the financing enterprise is located cannot repay the loan, the management and control mechanism will return the loan items intercepted in the supply chain that are continuously tracked. Financial institutions; if financial institutions decide to continue lending, then the control mechanism will continue to track the whereabouts of the loan items.

In practice, situations in which companies in the supply chain have colluded with fraudulent business operations to collude with loans have occurred from time to time. In order to prevent this from happening, this paper sets up a control mechanism in the total service platform of the supply chain management information platform. If a certain supply chain is found to have acquired a loan, all companies in the supply chain will be evicted from the platform and notify the financial institutions that remit money for the enterprise in the supply chain to withhold funds.

3. Research Summary

Under the “One Belt and One Road” background, in order to enable SMEs in the provinces and cities along the “Belt and Road” initiative to achieve low-threshold financing and achieve good and rapid development, and contribute to the economies of the provinces along the route, this article is based on the virtual virtual industrial clusters. The supply chain finance model, in the era of big data, uses information technology such as blockchain and internet of things to build a supply chain management information platform. The supply chain management information platform can reduce the risk of loans from financial institutions, and clear information flow makes financial institutions clearly understand the whereabouts of loans and avoid the disadvantages caused by information asymmetry. Financial institutions are no longer focusing on the financial status of SMEs that are financed like traditional finances in the supply chain management information platform, nor are they similar to traditional supply chains. The financial model focuses only on the operating conditions of the core companies. Instead, it provides a clear and timely understanding of the transactions and processes between enterprises through information flow such as capital flow and business flow provided by the supply chain management information platform, thereby reducing the risk of the financial institutions themselves. After the risk reduction of financial institutions themselves, loans to SMEs are guaranteed. SMEs rely on the supply chain management information platform under the online supply chain finance model to ease the financing constraints. The supply chain management information platform not only solves the problem of financing difficulties for SMEs, but also allows SMEs to become active, provide more jobs for more people, and promote economic development.

Although there are many advantages in the supply chain management information platform, there are also deficiencies in the virtual supply chain management information platform. The platform built in this paper involves suppliers, manufacturers, sellers, financial institutions, logistics, etc. There is no platform involved in international business. Moreover, the control mechanism is still not perfect. These are places where further research is needed. In addition, this article only probed into the theoretical mechanism and did not verify the universality of the theoretical supply chain management information platform. This is also the place where further research is needed.

References

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