Research on the E-Business Innovation Model of China's Steel Industry

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Abstract

At present, China's steel industry is experiencing a serious dilemma. The steel companies are trying to achieve a breakthrough and upgrade in the face of adversity with E-business. So E-business has been a long-term development in the steel industry, from version 1.0 to version 2.0, and now it has come to version 3.0. In its version 3.0 resource integration platform, the information release platform, electronic trading platforms, financial service platform, logistics service platform for mutual nested form an organic whole. This paper studies the iron and steel e-business innovation model, including collaborative e-business based on the information value chain model and based on modern finance and logistics service mode of E-business resources integration, analyzes the inventory impawn financing under the benefits of all parties, show that the steel industry set up the E-commerce platform of resource integration, which can effectively integrate the information flow, business flow, cash flow, logistics, etc.. To reduce information search cost and transaction cost, strengthen the supervision of logistics and optimizing credit environment, injecting new growth for the steel industry chain fundamentally.

Keywords: Steel industry, E-business, Innovation model, Resources integration

INTRODUCTION

China is the world's largest producer and consumer of steel, the steel industry is one of pillar industries of national economy. But under the influence of high raw material prices, reduced market demand, monetary policy tightening, serious excess capacity and other factors, the entire industry in a small profit or even a loss. In 2013, the steel industry profit margin is only 2.16%, enterprises face a loss of up to 23.4%. Traditional industry market information that exist in the steel industry chain miscommunication, unable to optimizing the allocation of resources, extensive dealing between upstream and downstream enterprises, order is not standard, credit system is not sound, capital chain is fragile, risk is big, logistics cost higher problems are gradually exposed. Therefore, the domestic steel industry, steel industry chain upstream and downstream industry structural adjustment, transformation and upgrading of be imperative. On the other hand, China's e-business technology and time are ripe. In many industries, e-business platform through huge amounts of data management, data mining and analysis, system security, information maintenance support, demand management and service support ability of information technology, e-business ecosystem to build information fusion flow, business flow, capital flow, logistics as one of the comprehensive and reliable information services, to provide convenient, stable and all-round expansion funds chain logistics, and with rich products, diversified trading service.

Based on the above background, steel enterprises expect to use fast, convenient, safety, integration and other features of e-business to break disadvantages of the traditional steel industry. To change the sales
environment, the new steel industry chain to establish a "trade time, self-service banking services cooperation, transaction cost, maximization of trade opportunities, social reputation, optimization of logistics support", especially in recent years, the rapid development of steel electronic business. "Modern logistics" of the latest research results show that, as of 2014 June, involved in various types of electronic trading platform of steel has reached more than 100, the total number of the country's Commodity e-business enterprises accounted for about 25%. Among them, electronic business platform has a certain scale, the influence of more than 30, and within two years to build the platform number accounted for 40%. So, under the background of excess production capacity, China's steel industry why e-business booming? E-business how to help the steel industry out of trouble? What kind of future electronic business mode is more suitable for the development of China's steel industry? In this article, we try to analysis and study on these problems, and then explore the suitable for the development of China's steel e-business model.

RELATION TO THE LITERATURE

Theoretical study on the e-business of steel in China

Steel e-business sites in the beginning of establishing mostly as a communication platform, information sharing and use of the characteristics of rapid spread of the Internet information to share information, promotional company, product, brand, industry information, etc., such as the major iron and steel enterprise portal, steel by a third party web site information, etc. Zhang Jie (Zhang,2001) pointed out that informationization of steel enterprise is the application of advanced computer network technology to integrate the existing production, management, design, manufacture, management, and in a timely manner for the enterprise system of "three layers of decision making" (tactical layer, strategy, policy makers) and between large enterprises to establish external network. Through the network to make enterprises' internal and external together as a whole, only in this way, these enterprises' management activities (including business activities) to synchronous transmission of information, information in appear at the same time can be shared in these enterprises' whole activities. Information environment plays a leading role in enterprise activities and integration. For the steel industry, the information platform to realize the rapid and accurate transmission of information within the enterprise and industry information, in order to solve the internal market exchange of information existing in the traditional steel industry chain in the industry is not smooth, the problem of optimal allocation of resources can not to be. Jiao Keqiang, Chen Qinhua, Li Xin et al, the subsequent development of steel e-commerce website is interactive website to network marketing as the core. These sites will be the beginning of the iron and steel enterprises or industries in the information flow, logistics, capital flow gradually combined, so as to improve the operation efficiency of the whole industry.

Zeng G(Zeng,2013) made of steel e-commerce can accelerate the speed of the iron and steel industry logistics, reduce logistics cost. In the iron and steel in the electronic commerce, the computer system can quickly complete user prepaid payment management, resource planning, contract management, contract delivery order management (by manual input of each factory products issued by the library delivery warranty) and railway transport plan management (by manual input of each plant proposed requirements, on the one hand the wagon), speeding up the
transportation the distribution, storage, packaging, handling, processing the whole process flow rate, on the other hand, real-time monitoring to strengthen the sell side and buy side, reduce logistics cost.

Sun Qunli, Wang Xuedong, Zhou Tao (Yang, 2007) and others believe that the steel e-commerce have consistency, completeness and accuracy of the flow of funds to the iron and steel industry. On the one hand, in the iron and steel in the electronic commerce, accurate and standardized sales, procurement management of data information more, through the construction of marketing system, the flow of funds is mainly composed of electronic money, in the form of electronic data using information tools to carry out the transfer of funds, thus expanding the scope of the market, improve the speed of transactions and the circulation of commodities and the velocity of currency circulation. On the other hand, in the iron and steel in the electronic commerce, the controllability of the financial data standardization and logistics, the enterprise financing is more convenient, thereby strengthening the stability of the flow of funds. Qi Narcissus (Xiao, 2013) think, electronic commerce can strengthen the integration of iron and steel enterprise and industry of information flow, logistics, capital flow, and then through the lower procurement costs, enterprises to strengthen inventory management, shorten the production cycle, reduce cost of sales, marketing and reduce regional barriers and so on six aspects of change, the new revolution of the iron and steel industry.

Empirical study on the e-business of steel in China

Liang Jutao, Zhou Bin (Chen, 2014) display, from the beginning of 2000, some domestic steel sites began to try a variety of new business model, e-commerce which emerge as the times require steel. Huang Zhenning pointed out that from the involving all kinds of steel electronic trading platform, engaged in domestic iron and steel resources information services, iron and steel, iron and steel online information search engine operation forward contract transaction, online trading, online warehouse steel steel spot trading of all kinds of electronic trading platform of steel has increased to more than 150, the total number of the country's Commodity E-commerce enterprises accounted for about 25%. Among them, electronic business platform has a certain scale, the influence of more than 30, nearly two years to build the platform number more than 40% (China e-commerce research center, 2014). From the iron and steel enterprises involved in e-commerce, China has more than 80% iron and steel enterprises to carry out e-commerce, more than 10 large iron and steel production enterprises online sales which significant results have been obtained, about 3 of the steel trade enterprises to earn more profits through electronic commerce.

Through years of development, has formed a few steel e-commerce operation mode. Zhao Xian, Li Jingyu (Song, 2010) what your permanent scholar has carried on the summary to the. From the point of view of the main steel business operation organization, can be divided into three categories. The first category is the electronic commerce platform is dominated by the production of iron and steel enterprises. By steel mills and traders led the construction of the platform, is to enhance the construction of sales as the main purpose, is the product of a certain stage of development of information to internal sales management. This platform is the role of boosting sales business conditions for enterprises, at the same time as the optimization of its
upstream and downstream industry chain has played a significant role. Such as Baosteel, Wuhan Iron and steel EB's iron and steel products spot supermarket etc.. The second category is the platform of electronic business affairs is dominated by the iron and steel production enterprises, is a leading steel buyers online transactions. Usually steel consumption enterprises through the establishment of electronic market on the Internet, invite the seller to auction sales of products, the main role of the enterprise through the network platform is the consumption more effectively coordinate and control the purchasing activities. This kind of mode at present in our country is not very common, consumption enterprise procurement bidding is still used to organize bidding meeting or commissioned a professional agency. The third category is the third party electronic commerce platform. This kind of electronic business platform is independent of the upstream manufacturers and downstream consumers, through the network service platform, to provide services for buyers and sellers and related services, including but not limited to the supply and demand information and search, the establishment of trading, payment, logistics services. This type of enterprises in order to better meet the needs of the market and the emergence of. Its role is to provide a variety of electronic commerce services to the industry body, through these platforms, the iron and steel enterprises can understand the development status and the laws of the market, and to achieve information exchange and sharing between the upstream and downstream industry chain.

Judging from the literature, in general, the electronic commerce of China's steel analysis behind the practice experience, the reason lies in the characteristic and technology of the electronic commerce rapid upgrading. This paper describes the business model of electronic commerce e-commerce innovation mode of steel from the point of view, and pointed out the new direction of the development.

Since the reform and opening up, China's iron and steel industry has experienced 80 years of planned economy, to the 90's half open plan track, in 2000 after the full liberalization of the market economy in three stages. But because of the long-term control, the full liberalization of the market information at the beginning of the iron and steel industry is occlusion, trading channels, prices in different regions, regional price differences and other issues outstanding. It is in this market background, the steel e-commerce platform -- Shanghai steel union operation "my steel net" emerge as the times require. Steel e-commerce early in the information service industry, mainly to solve the problem of asymmetric information. In 2000 -2007 years, accompanied by the downstream industries (such as real estate) the rapid development of industry, iron and steel industry ushered in the golden period of development, part of the iron and steel production enterprises initiated the establishment of e-commerce platform, and is committed to the transaction process line, the electricity supplier of steel from information service to the transaction service. Since 2008, affected by the global financial crisis, steel demand growth slowed, but the supply is rising rapidly, leading the entire industry overcapacity, low profits, funds, and gradually broke the repeated pledge financing problems in iron and steel industry, the rapid deterioration of the credit environment. In such adverse circumstances, the steel e-commerce not only did not shrink, but the rapid development, and to extend financial services, logistics services. Practice has
proved that, the electronic commerce plays a positive role in promoting the healthy development of the iron and steel industry.

**Based on modern finance and logistics services of steel e-business mode of resources integration**

With the exposure of excess capacity, the steel of the credit crisis, the whole industry in trouble, while the steel e-commerce has ushered in the great development. Electronic commerce platform stage has been the development of the information platform, electronic trading platform for resource integration platform, the integration of resources, in addition to the information exchange, also including logistics services, financial services etc.. In the traditional trade mode, the parties communicate the quantity, price, delivery time and other information, after confirmation of payment delivery, the entire business process needs a few days to complete, the information communication, warehousing and logistics consumes a lot of manpower, material resources and time. Through e-commerce platform, the seller and the buyer can quickly realize the exchange of information, in order to reach, and arrange payment, logistics and transport, accelerate the flow of information, business flow, capital flow and logistics of the connection and interaction, to achieve efficient operation of business.

In the logistics transportation, warehousing, the introduction of digital warehouse new e-commerce platform, strictly corresponding goods and warehouse, ensure goods, single. In the financing process, new e-commerce platform to introduce the third party payment institutions, commercial banks, insurance companies, Guarantee Corporation and other financial service providers, in order to ensure the real transaction background basis, logistics and warehousing order consistent, integrated payment and settlement, trade financing and other financial services, effective inventory of assets to achieve iron and steel.

**Based on the order of financing patterns for e-business**

The steel e-commerce order financing flow through e-commerce trading platform, to generate orders, the order information is the real transaction documents. In the electronic commerce platform, to an enterprise, financing such as steel mills, steel products for steel products demand of enterprises. Steel mills and trading between banks formed in the form of the contract, and the banking and financing between enterprises through the steel e-commerce platform to guarantee the contract signed with the steel products demand of enterprises and storage enterprises, financing parties can apply for unsecured loan financing business. Bank financing for iron and steel enterprises held by the contract, verification, in order to ensure the authenticity and effectiveness of, by the comprehensive evaluation of all aspects of the requirements of the strength of enterprises and financing enterprises, the economic comprehensive strength to determine the financing business line of credit, bank financing and for different enterprises to open a dedicated settlement account; bank the two sides signed a financing and financing enterprises through business related contract clearly loans subsequent use and repayment matters, bank loans to the financing; financing of enterprises to obtain loans, the purchase of steel products and production, within the prescribed time limit will be delivered to the demand of steel enterprise; when the demand of the enterprise after receipt of payment for goods to be of steel, the financing of
enterprises in the special bank accounts, in order to repay the loan; finally, the bank received loans, cancel the loan contract signed with the financing of enterprises.

The steel e-commerce mode of financing this order, records the entire supply chain information, and through the tracking function of e-commerce system to control the supply chain and market changes, the updated information, analysis of financial risk. Banks as credit financing, fund financing in facing the credit risk, with the steel e-commerce platform for cooperation, can understand the platform transactions, financing and guarantee in order to grasp the credit status, credit policy adjustment.

**Steel e-commerce based on inventory impawn financing mode**

Iron and steel enterprises in inventory financing is their own business or production inventory pledge to obtain financing support. To provide loans to banks designated qualified third party enterprises as intermediaries, according to the production of iron and steel enterprises need to monitor management of inventory, inventory coordination of liquidity, financing flow etc.. Inventory financing is suitable for maintaining the normal operation of the large amount of inventory, prices relatively stable, strong liquidity and strong liquidity of the enterprise.

Steel inventory pledge financing process of electronic commerce is the iron and steel enterprises to hold its steel inventory through e-commerce platform, to the third party (usually the pledge for logistics enterprises); logistics enterprises are responsible for the acceptance of collateral value, evaluation and supervision, and accordingly by the electronic business platform to the bank according to the document issued by the bank; the payment for goods and logistics enterprise value appraisal report, identify the pledge rate. The pledge of chattel mortgage goods characteristics, pledge period can flow of sales, sales information and feedback to the bank and third party logistics enterprises. The third party logistics enterprise as an intermediary, to ensure proper monitoring accounts, only at the time of delivery. Iron and steel enterprises in the sale of goods, the income owing on the loan, the logistics enterprises bear the guaranty liability. If the financing enterprise does not perform or not perform the debt has the goods, the third party logistics enterprises bear the risks. In the whole process of iron and steel enterprise inventory, the inventory pledge to obtain financing, improve the liquidity of the assets, reduce the occupation of funds of enterprises; logistics enterprises are derived from the value-added services and access to the service profit; gain rate on bank financing.

In the steel inventory process, because of the information asymmetry problem in inventory pledge loan. For example, there is a serious phenomenon of outflow of funds in the financing of steel. Steel is a very small industry profit margins, many iron and steel enterprises steel using pledge loans to real estate and other high profit space industry to invest fund, not special, the bank the money because of the lack of information symmetry, the lack of supervision. Through the integrated iron and steel electronic business platform, will be the steel industry chain business flow, capital flow, logistics, information resource integration platform, members can share information, can also share the platform of financial services, logistics services, reduce the operational risk capital stock pledge financing business, logistics companies and loans to avoid enterprise collusion fraud, but also conducive to trade financing bank to collect information
for risk assessment, risk assessment of cost reduction.

One of the risk control methods of steel inventory of electronic commerce mode is combined with banks and logistics enterprises, the establishment of electronic banking, logistics, capital flow and bank inventory logistics combined, forming a strategic alliance. Banks and logistics enterprises to achieve full responsibility and interests tied, achieve the win-win purpose, to avoid the logistics enterprises supervision, poor sense of responsibility, and business loans Piandai collusion brought credit risk.

Benefit analysis can be obtained from the parties, between the bank and the logistics enterprise's profit sharing and risk control is the key of inventory financing, bank supervision and the three party logistics enterprises and financing enterprises through e-commerce platform and offline inventory, timely on the platform of network security management of inventory financing loans, while the steel e-commerce platform as a loan consortium, a joint loan guarantee contract, and with the combination of identity to apply for a loan contract, the rational distribution of profits, risk sharing, benefit sharing, so as to realize the coordination of their income and the entire system.

Based on the above both the steel e-commerce model of information value chain based on electronic commerce mode or steel inventory, the common point is through the electronic business platform, make full use of the information of connected parties, to achieve cooperation. Banks can not only get the steel e-commerce data of the financial statements and other information, and can be shared through the operation in the process of information, control the credit risk, screening of high-quality customers, effective control of loan business risk. In addition, through e-commerce platform, to achieve more logistics financial products, revitalize the enterprise logistics and cash flow, and in the loan management, optimizing operation of loan funds to implement e-commerce platform, settlement, payment in the bank, the financing of iron and steel enterprise information fully transparent to the bank. Iron and steel enterprises involving a large number of logistics and cash flow, inventory and accounts receivable can be pledged as banks, through e-commerce platform, and iron and steel plant and logistics enterprises UNPROFOR loan agreement for the inventory and accounts receivable pledge or transfer of creditor's right to rule, risk aversion.

The steel e-commerce innovation model implementation platform

With the development of Internet technology and the iron and steel industry, iron and steel e-commerce through the information platform, information platform and the 1 version of the 2 version of the electronic trading platform, and information release platform + electronic trading platform, financial services platform + logistics service platform 3 is the platform of e-commerce innovation mode of iron and steel. 3 steel e-commerce is not just information display and publicity platform, or just a trading platform, but the iron and steel supply chain line, is the electronic service platform through the Internet to achieve supply chain transaction process, is to completely change the mode of traditional industry chain downstream business cooperation. Specifically, the steel e-commerce version 3 is a resource integration platform, integrated information service platform, trading platform, financial services platform and logistics service platform.
**Version 3.0 steel e-commerce information service platform**

The 3 edition of the iron and steel industry e-commerce platform contains information, transaction information, service information, service information of logistics financial services and data services. Industry information includes comprehensive information, produced by the vertical and horizontal, statistics, steel wire, downstream dynamic and other basic information, including industry research, research reports and other information, through the analysis and processing. Transaction information service covers the product information (including the product type, specification, quantity, price, transaction mode (pre-sale) capacity, listing, auction, bidding, the replacement of goods inventory information, etc.) is closely associated with the transaction process, the two sides in the transaction before the first to know. The financial services information including steel e-commerce platform for the introduction of cooperative banks, the third party payment institutions, insurance agencies, Guarantee Corporation to provide payment and settlement, financing, insurance, guarantees and other services, access conditions, prices and other information. Logistics information service platform is introduced, including the basic introduction of the third party warehouse warehouse, transportation services, regulatory services, logistics services. Data service information integration of transaction data, the relevant parties involved in product data, material data, financial data, customer data, service data and other types of business data, build a big data platform, which can support the management and decision-making, model innovation, efficient operation, but also can be in circulation industry, the financial industry to provide real supply and demand, price index index, transaction data, using data mining technology to improve logistics service, the quality of financial services, and promote the healthy development of the industry as a whole.

**Version 3.0 steel e-commerce transaction services platform**

Manufacturers, distributors, end users trade through 3 steel e-commerce platform provides the real inventory, by listing sales, auction sales business model to promote trade, expand and deepen the sales network, improve circulation efficiency. In general, the supplier and the purchaser shall be registered in the electronic business platform, the platform audit access to become a trading member, and then on the platform of pending sales or purchase orders. Under normal circumstances, in order to reduce the cost of information communication, facilitate the successful conclusion of the transaction, the steel platform of electronic business affairs will be in the sales of steel standard, the formation of standard warehouse receipt (including commodity name, number, material, specifications, production, warehouse, storage time, mode of payment, delivery, unit of measure, from the sale of the quantity, unit price, whether the bargaining, payment and other information), and to ensure the authenticity and the corresponding warehouse goods. The purchaser can purchase goods according to the warehouse information and complete the following operations.

**Version 3.0 steel financial services e-commerce platform**

The 3 edition of steel e-commerce platform integration of bank, the third party payment institutions, insurance companies, Guarantee Corporation and other financial services partner joined the financial services platform, providing
payment account management, transaction and trading funds demand, financing, insurance, settlement guarantee based on service, and combined with the digital warehouse logistics infrastructure, improve the risk management and the ability to control. Electronic business platform and traditional financial services financial services based on different, but the electronic financial services, whether the payment and settlement of account management, transaction members of the transaction process, to make up for lack of funds or trade financing service, are all online without landing, intelligent, ultra convenient service. From the current innovative products to provide various financial institutions, which covers the trading member ledger management, the order of the electronic payment and settlement services, online financial services, online security, based on the real deal online insurance, online printing service based on the transaction documents. These financial services accurately and properly embedded into all aspects of the transaction process, the formation of organic tissue segmentation can not be part of the electronic commerce platform.

**Version 3.0 steel e-commerce platform and logistics service platform**

The 3 edition of the steel e-commerce platform integrated logistics warehousing, processing, members of alliance to join the logistics service platform, forming a service network covering the whole country, to meet the needs of the transaction service logistics warehousing needs, and to achieve the whole process of the whole network, information sharing and business collaboration. Practice has proved, the traditional steel trade logistics services is very fragile, repeat the pledge of warehouse receipts or empty single pledge of frequent phenomenon, one of which is also an important reason for the steel trade events focus on the outbreak. Service and traditional logistics is different, the 3 edition of the logistics platform for the introduction of digital technology and the Internet of things technology, warehouse, inventory, real-time display of transit transport in queries for information, improve the regulatory capacity of the logistics, to strengthen the control of the property, to ensure the accuracy of information, logistics and time.

To sum up, the 3 edition of the steel trade and e-commerce platform located in the efficient integration of information services online trading system, electronic financial services, digital logistics system in the trading market, to construct digital library alliance, warehousing logistics system of intelligent, network support, string together the whole industry chain, to achieve the information, communication and transactions of the whole supply chain upstream and downstream enterprises. Specifically, the 3 edition of the steel trade and e-commerce is not only four more than the physical platform of integration, but the information flow, business flow, capital flow and logistics of the depth of integration to form an organic whole, and the introduction of relevant training service to build a support system of nested, including the IT system operation, electronic authentication, data services, credit standard specification for service, such as electronic commerce, the formation of a complete ecosystem.

**CONCLUSIONS**

The electronic commerce development has been made in the iron and steel industry, is now in its 3 edition mode of resource integration, in fact, organic whole "e-commerce platform 3 3" by the information platform, electronic trading platform, financial services
platform, logistics service platform of nested form, need to rely on the financial, logistics, IT, data mining and other manufacturers related services, electronic level and the industry level will affect the development of iron and steel of electronic commerce. Therefore, the innovation mode of steel e-commerce not only have the technical support, but also must have the related support services, pay close attention to the development and change of the Internet technology, digital storage technology, networking technology, finance and other Internet related technology, actively introduce new technology and constantly improve the steel e-commerce business model, the Internet financial cooperation; data service, logistics, and other industries to develop appropriate technical standards and industry norms, and in the course of trade accumulated transaction data, credit record, perfect trading platform, in order to extend the space for e-commerce platform services, to guide the orderly development of the iron and steel industry, to better serve the iron and steel industry.

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