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Study on Value Chain Promotion of Manufacturing Enterprises from the Perspective of Business and Financial Integration

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Abstract: ***Since currently manufacturing enterprises are faced with the increasing fierce external market competition, the internal cost reduction and efficiency enhancement, it is imperative to enhance the efficiency of their value chain. First of all, this paper applies the theory of value chain. the value chain theory is applied to select purchasing, production, sales and financial activities. Secondly, taking the construction of information platform as the starting point, choose the key links in the primary activities and support activities of the manufacturing enterprise value chain. Connect the sales and the production through the SMS system to achieve accurate sales forecast, and to realize the control of production plan and finished goods inventory; connect the production and the procurement through the SRM system and implement VIM management mode to save the procurement cost. In this paper, the key links of the value chain promotion of manufacturing enterprises are the production, sales of primary activities and the procurement, procurement and finance of support activities, and since the financial activities follow the business, information platform should be established to link up these activities so as to realize the sharing of information among them and the enhancement of the value chain of manufacturing enterprises.***

Keywords: Manufacturing enterprises, Business and financial integration, Information platform construction, Value chain.

1. Introduction

Since the reform and opening up, China's manufacturing industry has achieved remarkable achievements, and its level and scale have been continuously expanded. At present, the total output value of our manufacturing industry reaches as high as 7,412.77 billion yuan, almost equal to the sum of the output values of the United States, Japan and Germany, accounting for 30.348% of the total GDP of our country. It has become one of the most important pillars of our economic growth in China. However, the manufacturing enterprises are faced with the dual pressures of increasing competition in external product markets and the need for internal cost reduction and efficiency enhancement. The value chain theory divides the business activities of enterprises into two categories: primary activities and support activities, and provides new methods and new ideas for the operation and management of enterprises. In order to improve the value chain of manufacturing enterprises, on the one hand, the enterprises need to connect the key business links, realize the improvement of the overall operation and management level of the enterprise from the perspective of the system; and on the other hand, the enterprises need to share the business and financial information of the enterprise in a timely and accurate way, and realize the effective utilization of business and financial data to the greatest extent. Through the connection of key business links and the sharing of business and financial information, the efficiency of various business links of enterprises could be improved, and the cost could be reduced, the support of data and information to various business and financial activities is promoted, so as to enhance the manufacturing enterprise value chain.

The business is always accompanied by the financial activities. The ministry of finance issued "Basic Guide for Management Accounting" to further defined the application of management accounting in June 2016, which clarified that The principles of integration should be adhered to and the methods of management accounting should be used to integrate finance with business. The guideline suggests that business and financial integration refers to business departments and financial departments should share data sources timely, such as business flow, capital flow and information flow by information technology and means, make joint management activities based on value targets, such as planning, decision-making, control and evaluation, and ensure the realization of the enterprise value creation process together. It requires enterprises to realize the promotion of enterprise value chain by means of industry financial integration with the support of information technology. Where should manufacturing enterprises start to promote the integration and promote value chain? And how to promote the connection and integration between business and finance of manufacturing enterprises? In view of the above problems, this paper discusses how to promote manufacturing enterprises value chain by building enterprise information platform, promoting the integration of manufacturing enterprises' wealth, and promoting the connection between business links.

2. Literature Review

2.1 Theoretical research of value chain.

The value chain theory was first proposed by Mike Porter and first applied to manufacturing enterprises. He proposed in 1985 in Competitive Advantage, an enterprise creates value through a series of business activities, such as design, manufacture, sales, delivery. Therefore, these interconnected production and operation activities constituted the dynamic process of enterprise value creation, namely the value chain. With the rapid development of information technology, scholars began to attach importance to the role of information.

Peter Hines emphasized the role of information technology in R&D, production and marketing, and classified information technology as a supporting activity for enterprises [1]. Jeffery f. Rayport et al. (1995) argued that enterprises created value through the collection, organization, selection, synthesis and distribution of information, which constituted the virtual value chain of enterprises [2].

In the late 1990s, the theory of value chain was introduced into China, which was originally applied in manufacturing industry and was regarded as a series of continuous activities in the process of converting raw materials into a series of final products. Yin Meiqun, Hu Yangliu (2005) argued that the business processes of an enterprise formed a chain structure to create and increase value. The chain structure was the value chain. They believed that to achieve the goal of maximizing the value of the enterprise, the R & D, procurement, production, sales and service, human resources management and other aspects of enterprises should be integrated, and the ability to deal with cash flow, logistics and information flow should be enhanced [3].

In application of enterprise value chain, Yu Fengcheng et al. (2013), Liu Xiaojing et al. (2017) used the theory of Porter value chain to analyze the composition of the enterprise value chain and reengineer business processes from different dimensions so as to reduce enterprises cost, speed up the flow of funds, improve the quality of business operations and enhance the overall competitiveness of enterprises [4][5].

Zhang Huaping (2011) analyzed the impact of value chain accounting process reengineering on process control [6] Chen Yiyun (2016) put forward that accounting business process reengineering should be guided by the concept of value chain management accounting. He believed that accounting, evaluating the creative ability of different links to enterprise value, expanding the accounting elements and forming new view of space and time should be conducted by the rules of business processes [7].

2.2 Research on business and financial integration.

American scholar Robert Kaplan and David Norton proposed in "Strategic Map" that the method of cost estimation should be based on the activity in 1985. It is the basic source of the theoretical ideas of the business and financial integration, provides enterprises with a more reasonable and precise calculation of the price, and provide the data and decision-making basis for internal control budget. A. Bonfiglioli (2007) assessed the costs and benefits of economic performance in 70 countries, and concluded that the business and financial integration had a direct positive impact on productivity [8].

Since the 21st century, domestic scholars have successively studied the integration of management accounting and financial accounting, business activities and financial activities, and generally emphasized the necessity of enterprises for business and financial activities. Wu Deyong (2007) first proposed that the root cause of the problems in enterprise management and control was the disconnection between business and financial management, and put forward that business and financial integration are the inevitable trend of enterprise development [9]. Liu Yi et al.(2014) analyzed the differences and relations of management accounting and financial accounting, as well as the necessity and feasibility of management accounting and financial accounting, At the same time, the suggestions in the process of integration were also described [10]. Liu Yuehua and Wei Rong (2013) made a summary of the current situation and development trend of financial management function transformation through questionnaire survey [18].

However, there are few researches on how to achieve the integration of businiss and finance in enterprises. Hong Mei (2016) integrates value management into its business management based on the management system of J Company's business and financial integration, and integrates production data, business data and financial data with the management mode of integrated management platform and multiple-dimension platforms [12].

Above all, we can find: 1) The current research on enhancing the value chain of manufacturing enterprises focused on the optimization of a certain or some basic business process in the value chain, but ignore the relationship between the different business, the mutual synergies and other aspects. However, in the process of operation, the system should be the optimal target, and the enterprise should improve the overall management ability, in order to achieve the upgrading of the enterprise value chain. 2) In the aspect of enhancing the choice of the value chain, the research focuses more on the optimization and reconstruction of the business processes, and the study of the business and finance integration focuses more on its importance, feasibility and precautions. the research on how to promote the integration to improve enterprise's value chain is less.

At present, some scholars have paid attention to the basic business links and neglected the financial activities, procurement and other activities in the auxiliary business. This paper argues that the business activities and financial activities of manufacturing enterprise are accompanied. Therefore, it is of certain research value that selecting of procurement, production, sales, finance and other important links as the starting point to connect the key businesses in basic business and auxiliary of manufacturing enterprises through the construction of information platform, to improve the value chain of manufacturing enterprise.

3. The General Idea of Value Chain Promotion in Manufacturing Enterprises

3.1 The general idea to enhance the value chain of manufacturing enterprises based on the information platform construction

The value chain theory divides the business into two types: primary activities and support activities. The inbound logistics, operation, outbound logistics, marketing and sales, service are regarded as the primary activities, and the infrastructure (including administrative procedures, and financial activities of enterprises, etc.), human resource

management, technology development, procurement and other services as support activities.

Currently, the promotion of manufacturing enterprise's value chain is in a bottleneck. The problems in its production and operation are as follows: First, it only focuses on single primary activity in the value chain, lacks systematic perspective and does not link up the business in the value chain, resulting in the business each acts in its own way. Second, the data transmission between each business is not smooth, cannot be shared timely and effective, especially the communication between business and financial, and the financial data cannot reflect the current state of the business economy timely and accurately.

In order to solve the above problems, this paper applies the value chain theory. On the one hand, according to the characteristics of manufacturing enterprises taking product manufacturing as the core and purchasing, production and sales as their main business operations, the paper chooses the procurement and financial activities of the support activities, production and sales of the primary activities of manufacturing enterprises as the important part of realizing the overall improvement of its value chain. On the other hand, with the information platform as the starting point, connect financial activities with purchasing, production, sales by building and connecting the information platforms, optimize and reconstruct the links between business in the enterprise value chain, to enhance the competitive advantage of enterprises. In addition, promote the mutual transmission and sharing of all kinds of information of enterprises, and make full use of business, financial information maximally by the establishment of information platform, to realize the promotion of its value chain. The overall framework of information platform construction to enhance the value chain of manufacturing enterprises from the perspective of the business and financial integration is shown as Figure 1.

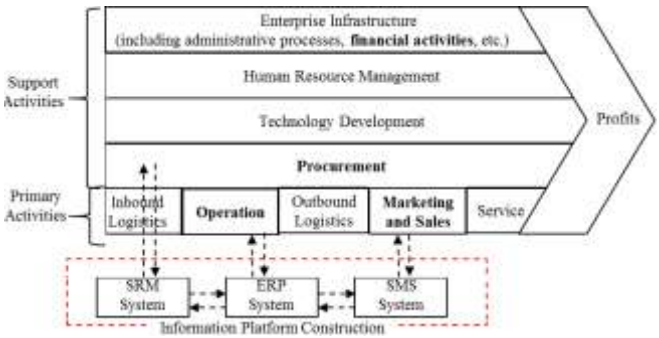

Figure 1: The overall frame of promoting the manufacturing enterprise value chain with information platform construction

2.2 The concrete idea of building the information platform

In the process of setting up the information platform and integrating business and financial, manufacturing enterprises need to make full use of the enterprise resource planning system and other kinds of information platforms. While expanding the scope of application of information technology tools, manufacturing enterprises should also construct enterprise information platform, which takes enterprise resource planning system(ERP) system as the core, and is composed of the supplier relationship management(SRM) system, sales management system(SMS) system. And the business, financial links of the manufacturing enterprises should be connected with constructing the information platform, to connect the business and financial links. The construction frame structure of the information platform for each business is shown in Figure 2.

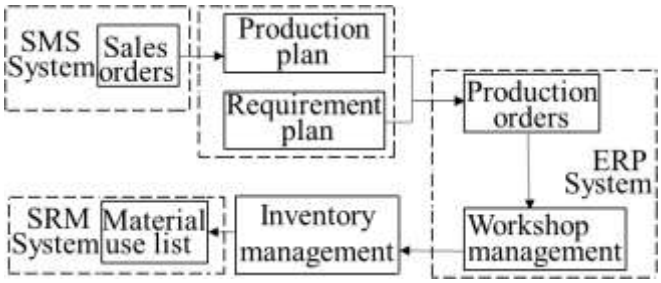

Figure 2: Framework diagram of information platform construction linking business

In the sales and production business connectivity, the information of sales and production should be shared and the financial management need to be enhanced. On the one hand, based on the company's strategic plan, marketing department should timely and accurately predict the sales of products in different regions and different types through the SMS system, in order to decompose the company's annual strategic plan and make the company's sales target more accurate and detailed. According to the detailed sales plan, production department should make a reference production plan through the ERP system, and place production orders. The connection between ERP system and SMS system can be used to link sales orders and inventory management. Therefore, with the precise sales plan and actual sales, the production department can make the production additional plans and adjust the actual production to achieve "manufacturing-according-to-sale", so that the sales and production can be managed collaboratively, and sales demand can be met timely. On the other hand, with the SMS system, the financial documents and funds can be delivered timely, and the financial management and dealer management of enterprises are promoted.

In the production and procurement connectivity, the information of production, procurement needs and inventory should be shared, and financial management should be improved. On the one hand, with the precise formulation and adjustment of the production plan in the ERP system, it sends the production plan, the material requirements and consumption in the actual production process to the SRM system. The SRM system generates the purchasing after analyzing of production information (procurement plan) and independent demand automatically, and timely replenishment of inventory, while the actual warehouse inventory reached the lowest warning line, in order to achieve the "zero inventory" management of production materials. On the other hand, with the SRM system, the timely delivery of corporate financial documents and funds will be realized and the financial management and supplier management of enterprises will be enhanced.

In the connection of each system, Through the construction of

an information platform and the establishment of data collection and exchange channels between various information platforms, the finance department is closely linked with other business, and the management activities of business and finance is linked, units to conduct in tandem. Financial management is integrated into business management to achieve business and finance integration

4. Empirical Analysis

X company was founded in 1999, mainly engaged in the research and development, production and sales of green vehicles. At present, it has five production bases in Wuxi, Tianjin, Xiangyang, Dongguan, with a number of independent research and development of patented technology and a systematic and comprehensive marketing network. Its products are exported to Europe, the United States and Southeast Asia more than 70 countries and regions, the annual output value 1.5 million. In 2016, the sales volume reached more than 2 billion, leading the industry.

As a manufacturing enterprise, X company only attaches importance to a single primary activity, which result in the fragmentation of each business and financial activities, and the difficulty in business and financial information sharing. In order to realize the interconnection and mutual cooperation among the important links in the value chain, the value chain upgrade program should appling the idea of business and financial integration, taking the construction of information platform as the starting point, share all business information and financial information, and link the procurement, production, sales, finance organically. This paper will discuss the connection between sales business, production business and purchasing business from the perspective of information platform construction, supplier/distributor management, business and finance integration.

3.1 Build the SMS system to connect sales and manufacturing operations.

Data analysis and sales forecasting. First of all, the forecasting module of SMS system extracts the historical sales volume and product model data of ERP system, and based on the exponential smoothing, predicts sales model and sales data of each month to decomposes the annual plan. At the same time, the dealer submits the forecast orders, and the regional manager approves them and completes the summary to the marketing apartment and the factories in the OA system. And these data should be passed into the ERP system to form a monthly sales plan data, and be used to make the reference production plan by the production department to ensure the smooth production of products, and to reduce the inventory of finished products on the premise of ensuring sales activities smoothly. Secondly, the dealers place orders in the ordering module of SMS system. If the orders are forecasted, the products will be delivered soon, but if they are not the predicted orders, they'll be sent to the production department timely to form the production orders via the ERP system, and the products will be produced and delivered timely. In addition, with the SMS system and ERP system, X company can automate the whole process of advance payment, customer's order, credit approval, sales and delivery, account checking, invoicing, receivable cancellation and information backfilling and so on.

The business and financial integration. On the one hand, in terms of financial document transfer, the cost control system based on OA system is developed and applied which is connected with the ERP system. After distinguishes the type of business and nature of the cash flow, the approved payment can pass into ERP system to generate accounting certificate intelligently. Before the business, the handling person shall apply for approval in the office automation system of OA, and the cost control system will automatically record the estimated cost amount to complete the budget occupation. Finally, the expense control system will automatically complete the budget verification when the handling person actually reimburses. With the system, budget accounting, appending, adjustment, write-off, rolling, liquidation and other dynamic information are synchronously passed into the budget management report and the corporate statement subject map, and the monitoring, warning and analysis of the standard are completed in real time. On the other hand, with regard to the transfer of funds, after obtaining the sale order, the sales department evaluate the credit of the dealer via the SMS system. If the dealer's credit limit is less than the order, the system automatically reminds the dealer to pay the advance payment, and the delivery will be released after receiving payment. For dealers with higher credit lines, the system automatically reminds the production department and the warehouse department to produce and deliver the goods, and reminds the finance department to manage accounts receivables, thus greatly reducing the receivables risk of the company. which could reduce the accounts receivable risk of X company. After each sales order is completed, the system automatically update the dealer's credit level, for those who do not deliver the payment, automatically mark bad credit, and reduce their credit limit.

3.2 Build the SRM system to link manufacturing operations with purchasing operations.

The analysis and processing of data. Through the connection of the ERP system and the SRM system, the production plan of the production department and the material requirements and consumption in the production process are passed to the purchasing department. The VMI management mode is introduced. According to the material demand planning and the inventory of supplier, a VMI purchase order is automatically formed. At the same time, a list of VMI consumption is generated in the SRM system, so as to inventory could be replenished timely to support the continued business operations, when the actual inventory in warehouse reaches the minimum warning line. In this way, all kinds of information can be reported to both parties in a timely manner, so as to reduce the process of purchasing business, reduce the processing time of purchasing business and save the purchasing cost. In addition, through the timely sharing of production plans and actual production situations, the Company carried out raw material inventory business "with production demand" to realize accurate control of procurement requirements and reduce raw material inventory costs.

The business and financial integration. On the one hand, in terms of financial credentials passed, the SRM system can dynamically synthesize the supplier's information, purchase orders and materials storage etc., at the same time, complete the accounting bookkeeping in the ERP system. Moreover, combining with the state administration of taxation of VAT tax system, the information of invoice and the actual tickets can be imported, and the accounts payable, write-off and other billing functions can be done by the ERP system, which has realized the automatic information transfer and transformation, which avoids the error prone manual input, make the informastin easy to use again. On the other hand, in terms of capital flow, after formulating the purchase plan, forming the purchase order, X company placing an order with a supplier. In the process, the finance department should manage the accounts payable.

in the library tube department pay the payment after the Treasury. For orders that require partial payment in advance, the financial department advances the payment in advance and pays the rest bill after the warehouse department checks the receipt and storage.

3.3 Link the SMS system to the CRM system with ERP system, to achieve the interaction between business information and financial information.

X company realizes the connection between SMS and SRM system through ERP system. Firstly, link the inventory management to sales orders, and generate production orders via the ERP system according to the production planning. For the orders which needn't have production adjustments, according to the sales plan, this month's production plan is generated automatically in the ERP system. For the demand beyond the production plan, obtain the sales orders through the SMS system, and the ERP system accepting credentials from SMS system, automatically generate additional production plan to adjust the production. At this moment, the ERP system integrates them with the normal production plan of the current month to meet the sales demand timely. Secondly, production plans, production orders and other information is sent to the SRM system, and make a procurement plan in SRM.

With the effective connection between the ERP system and the production information system of the workshop, the actual production and material conditions, etc. can be queried, in order to match the resources, to achieve the timely material delivery, to prevent the production material backlog, and to reduce the waste and the risk of material damage.

The business and financial integration. In the process of production, the integration is mainly reflected in the accounting of product cost. The schedules of all kinds of management cost and manufacturing cost are sent into the ERP system, such as recipients table of material, production schedule of completion, the detail of equipment maintenance/scrap, which lays the foundation for the cost accounting of the final unit product.

The linkage of SMS system and SMS system SRM system improves the level of zero inventory management of finished goods and raw materials, thereby reducing the company's inventory management costs, improving the efficiency of inventory management, promoting the collaboration and value of the production, sales and inventory management business.

5. Revelation

Application value chain thought, this paper selects the production, sale of primary activities and the purchasing, financial activities of support activities, of manufacturing enterprises as the key links. it realizes the communication of purchasing, production, sales and financial activities, as well as the enterprise business and financial data sharing. The conclusions and management implications are as follows:

(1) In the process of upgrading the value chain of manufacturing enterprises, the key links of purchasing, production, sales and other business and financial activities should be selected to promote the connection between these links. According to the value chain theory, it is considered that primary activity is an important part of creating value in business management. Therefore, many enterprises only emphasize primary activities and enhance the enterprise value chain from one or several business optimization perspectives, while not only neglecting the support activities like finance, but also ignoring the various business links between the primary activities and support activities. In the operation and management of enterprises, it is necessary to strengthen the connection between primary activities and support activities from the perspective of system, in order to realize the optimal system.

(2) Build the information platform to realize the connection between primary activities and support activities, as well as the data sharing between business and finance. On the one hand, it can pay more attention to the important links in primary activities and support activities, and connect them to realize the improvement of enterprise value chain from a systematic perspective. On the other hand, the information platform links the information of each business and financial link to realize the timely, accurate and effective sharing and exchange, so as to maximize the effective utilization of all kinds of information in the enterprise. Through the SRM system, the forecast management of sales process and the delivery of sales vouchers are realized; through the SMS system, the information sharing in the procurement process and the delivery of purchasing vouchers are realized; through the ERP system connected with the SRM and the SMS systems the raw material inventory management and product inventory management of enterprise are optimized and promoted.

(3) Setting up an information platform to enhance the value chain of manufacturing enterprises requires the supervision of enterprise executives and carrying out certain organizational changes. Information platform construction as a systematic change, involves multiple departments, multiple businesses. It demands that departments need to be timely communication and coordination. Therefore, executives should be responsible for the coordination of the various business and select various business elites to set up a specialized information platform

development department, which is responsible for building the information platform and integrating the business and finance.

(4) The effective operation of information platform requires multi-departmental collaboration. Information platform involves many departments, many interests. To ensure that all the necessary resources are obtained, it is necessary to ensure that relevant personnel from all affected departments are involved in the operation of the information platform and the system effectively, supports and collaborates with each other.

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