Research and Design of Ceramics' Collaborative Distribution System Based on Electronic Commerce

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Abstract

Based on the analysis of the collaborative e-business theory and collaborative e-business platform, and with the adoption of the Internet, UML and data exchange technology, Distribution Management System (DMS) on the collaborative e-business platform could be realized. The system can resolve effectively the data exchanging and information share between enterprise and distributors and is of great significance to the enhancement of enterprises' distribution management level and the actualization of collaboration among enterprises on a supply-marketing chain. On the basis of the existing ceramic electronic commerce platform, this paper attempts to provide a real sense of the dual channel cooperative distribution system for ceramic production enterprises. Through the system, the traditional distributors can join in the network distribution channel and sell products with dual-channel distribution: one is the physical store sales channel that the manufacturer delivers the products after online procurement and payment; the other is the non-inventory network sales channel that the customer orders and pays first, then the distributor make the virtually online procurement and last the manufacturer delivers the products to the customer. Through the system, the ceramic manufacturer can maintain the traditional distribution channel, make full use of it so as to broaden the network distribution channel, realizing the collaborative distribution management in the traditional and network distribution channel and meanwhile developing the distributors using only the non-inventory network sales model.

Keywords

Conventional distribution, Electronic commerce, Collaborative distribution.

1. Introduction

In the early stages of information technology application, the independent system is regarded as one of the internal factors due to the barriers among enterprises, helping enterprise to realize the integration of cash flow，logistics and information flow. However, with the advent and popularity of the internet, the information technology based on web greatly broadens what enterprises face, linking the enterprise closely with suppliers, vendors and customers. The extension of new technology has prompted companies to build its external relations. Different enterprises can contact and cooperate with each other through the computer network system in a variety of ways, which leads to the emergence of virtual enterprise. Companies can develop a complete and efficient economic entity under the premise that various departments are relatively independent, and establish a new relationship with external enterprises to become "an extensive enterprise". Accordingly, after going through the first stage with IT vendors and media as its main body and the second stage whose main body is e-commerce service, the electronic commerce is entering into the third stage taking the traditional enterprise as its main body, which we call "the collaborative e-commerce stage".

Collaborative e-commerce consists of enterprise's internal coordination and external coordination. With the rapid development of Chinese economy, to increase the efficiency and reduce its cost internally is not enough for an enterprise. Compared to the external, internal promotion space is very limited. Therefore, in the "information economy" era, collaborative e-commerce (Collaboration Commerce) is a better operation mode. Collaboration Commerce can ensure the accuracy of business decisions and the overall operational efficiency, especially suitable for cooperative manufacturing environment. How to use the collaborative e-commerce to realize the information sharing, thus enhancing the working efficiency of the partners, reducing the overall cost of the enterprise groups who have common business interests and take the enterprise as the core, then eventually saving social resources, achieving the goal of improving the overall competitiveness of the enterprise benefit community? Many enterprises are keen on this means.

Based on the existing ceramic e-commerce platform, we try to develop the real dual-channel collaborative distribution system for the ceramic manufacturers. The dual-channel in this system is consisting of the traditional and network distribution channels, and the network distribution channel is made up of the ceramic manufacturers (suppliers) and the network distributors. Through the system, the traditional distributors can join in the network distribution channel, the ceramic manufacturers can full use the existing resources in the traditional distribution channel and open up the network distribution channel quickly, realizing the collaborative distribution management in the traditional and the network distribution channel and what's more developing the distributors only using the non-inventory network sales model.

2. The Present Situation of Dual-channel Collaborative Distribution

With the development of e-commerce and network technology, E-commerce application in supply chain also has undergone a great change. Two kinds of distribution modes—electronic distribution and traditional distribution channels (physical distribution) are also gradually formed under the e-commerce environment. Traditional distribution channel is to improve market coverage, but gradually exposes its defects. Even though the logistics is more and more widespread between the main bodies, the large number of members and the complex relationship between its agencies make the traditional distribution difficult to form an effectively unified management, even making the distribution network becoming isolated and independent groups. The information flow goes between the main bodies of distribution channels. The information transmission lag and distortion problems are very serious. Cash flow runs frequently between the main bodies of distribution. The turnover and flow velocity of funds are yet to be improved. The traditional distribution mode is based on the price of increasing distribution costs greatly, which leads to a result that manufacturers lose its control of distribution channels partially. These shortcomings make most distributors become the passive resellers. On the other hand, the success of some companies' electronic distribution channels make the enterprises become more confident and determined in the application of electronic channels. Some companies begin to reshape its distribution channels, using electronic means such as Internet to contact customers directly and process their orders in order to reduce distribution costs.

Currently, the ceramic manufacturers are promoting sales target through the traditional distribution channels, the architectural ceramics manufactures mainly uses the traditional distribution channels of franchised dealer and monopolization, and the domestic ceramics manufacturers mainly use the way of wholesale and retail to sell. However, with the enlargement of manufactures in scale and the diversification of business activities, the supervision and management of distribution channels have become more complex. With the great changes in network economy and market environment, the traditional manufacturers must carry out innovation of distribution channels and change the supervision and management of the distribution channels to adapt to the changes. It will bring channel conflicts if the ceramic manufacturers open up the direct distribution channel online. In order to avoid the channel conflicts, this paper tries to develop the real dual-channel collaboration distribution system for the ceramic manufacturers. Through the system, the traditional distributors can join in the

network distribution channel—the non-inventory network sales channel that the customer orders and pays first, then the distributor make the virtually online procurement and last the manufacturer delivers the products to the customer. And meanwhile they can run through the physical store sales channel that the manufacturer delivers the products after online procurement and payment. The ceramic manufacturers can full use the existing resources in the traditional distribution channel and open up the network distribution channel quickly, so as to realize the integration and coordination of the traditional distribution channel and the network distribution channel and develop the distributors only using the non-inventory network sales model.

3. Functional design of the dual channel cooperative distribution system

The dual-channel collaborative distribution system is based on the ceramic e-commerce platform's functions like online transaction, management of cybershops, products and orders. This paper focuses on the design of the added functions of the system. The main function of the system is to provide a dual-channel distribution model for the ceramic manufacturer's distributors after establishing the relationship between the ceramic manufacturer and the distributor as supplying and distributing. One model is the traditional sales model while the other is the no-inventory network sales model. Both models require that the system provide different functional design to the distributors and manufacturers in the two sales models.

3.1. Traditional sales model

The traditional sales model means the distributor sells in the physical store after purchasing from the manufacturer through network. The process flow diagram of the traditional sales model is shown in Figure 1.

Ceramic manufacturer's functions: Processing the online procurement orders of the distributors; delivering products according to the order after receiving the payment from the distributor; checking the sales records and inventory of the distributors.

Distributor's functions: Purchasing the ceramic manufacturer's products according to the authorized products classification directly; paying money to the right ceramic manufacturer according to the order; recording the sales information in physical store.

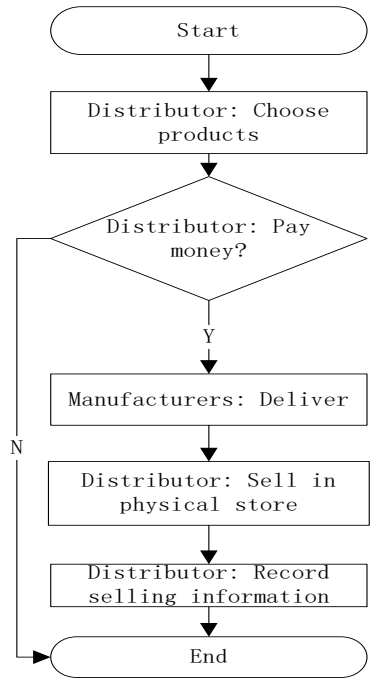

Figure 1: The process flow diagram of the traditional sales model

3.2 No-inventory network sales model

The no-inventory network sales model means the sales model initiated by the customers of the ceramic e-commerce platform: the distributor purchases virtually the corresponding products according to the order of the customer after receiving the payment from the customer; then the ceramic manufacturer delivers the products to the customer directly after receiving the payment from the distributor. The process flow diagram of the no-inventory network sales model is shown in Figure 2.

Ceramic manufacturer's function: Processing the virtual online procurement orders of the distributors; delivering products to the corresponding customer according to the order after receiving the payment from the distributors; checking the sales records of the distributors.

Distributor's function: Purchasing virtually the corresponding products according to the order of the customer after receiving the payment from the customer; paying money to the ceramic manufacturer according to the order.

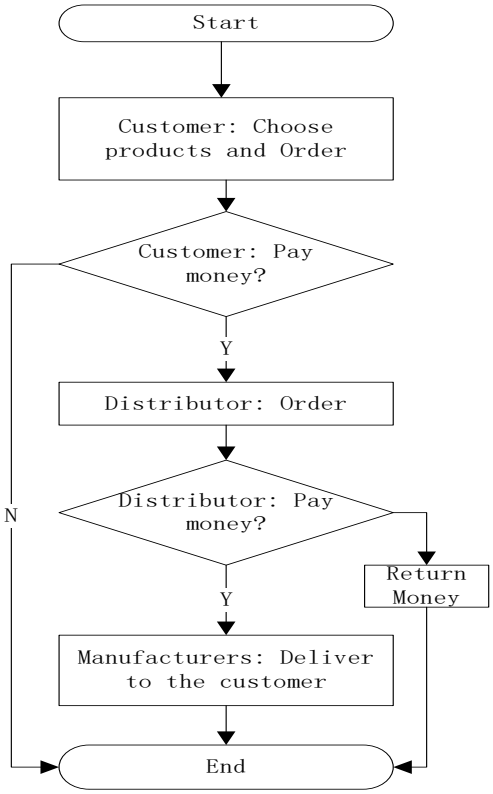

Figure 2: The process flow diagram of the no-inventory network sales model

3.3 The design of collaborative function

Price controlling: The ceramic manufacturer can realize the price controlling of its distributors through setting the highest and the lowest selling price permitted, meanwhile, the ceramic manufacturer can set different procurement prices of the same product according to the different ranks of the distributor.

Inventory and sales record controlling: Through the no-inventory network sales model, the links of product circulation can be reduced and therefore, the checking of inventory statistics of ceramic manufacturer can be more convenient. Since the distributors of the traditional sales model make purchases through online procurement which has the function of sales recording, the manufacturer can have a better control of its inventory.

Products classification authorizing: After establishing the relationship between ceramic manufacturer and distributor as the relationship of supplying and distributing, the ceramic manufacturer can

authorize the sales right of certain products to certain distributors based on the function of products classification.

4. Summary and prospect

Based on the present ceramic e-commerce platform, the design and implementation of the dual-channel collaborative distribution system have been completed. The original cyber shops in the ceramic e-commerce platform become the cyber shops of the direct distributors. In order to avoid channel conflicts, the platform rules that the direct distributor can't develop network distributors, but it can convert into supplier through applying to the platform. The supplier's cyber shop can't sell products directly. If one customer clicks the direct purchasing button of the product, the platform will display a list of distributors of the product for the customer to select from. The various functions of the dual-channel collaborative distribution system can work properly after testing. Through the system, traditional distributors can adopt the traditional sales model which consists of online purchasing, manufacturer's delivering and selling in the physical store. Also, they can adopt the no-inventory network sales model which consists of the order-placing of the customer, the virtual procuring of the distributor and the delivering of the manufacturer. The manufacturer, however, can maintain the traditional distribution channel and broaden the network distribution channel with the joining of traditional distributors. It can also develop distributors only maintaining the no-inventory network sales.

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