Research on Replenishment and Pricing Model of Supply Chain Inventory based on Time

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Abstract: Inventory management is an important link in the whole supply chain. Raw materials, semi-finished products and finished products in the supply chain may form inventory. Generally speaking, the inventory cost will reach about 20% - 40% of the value of these goods. Therefore, it is very important to control the inventory quantity of goods in the supply chain to reduce the inventory cost and capital occupation. With the development of supply chain management, people begin to seek the minimization of total cost of supply chain and the maximization of customer service level. In this context, the connotation of inventory management has also changed dramatically, which requires enterprises to shift from the traditional focus on their own inventory management to the inventory control of the whole supply chain. There are many inventory management schemes in the supply chain environment. In recent years, the more advanced one is vendor managed inventor (VMI). However, due to the limited level of cooperation between suppliers and retailers in VMI, it has its own limitations. The joint inventory management model can achieve this win-win partnership, which provides a breakthrough in traditional management methods for supply chain inventory management.

Based on the characteristics of supply chain inventory management and the problems existing in supply chain inventory management, the supply chain inventory management should be improved from the following aspects:

First of all, we must establish the overall concept of supply chain.

In order to ensure the overall performance of the supply chain and realize the inventory management cooperation among the members of the supply chain, it is necessary to analyze various direct or indirect factors, such as the common goals, common interests and value pursuit of the supply chain enterprises. On the basis of full information sharing, by coordinating the benefit indicators and evaluation methods of each enterprise, all members of the supply chain should reach a consensus on inventory management, set up a win-win business philosophy from the overall situation, consciously coordinate the mutual needs, and then establish a set of supply chain inventory management system, so that all participants in the supply chain inventory management can evaluate the contents and methods of performance. The law is consistent and the inventory management information is fully shared.

Secondly, we need to streamline the supply chain structure.

Supply chain structure has an important influence on supply chain inventory management. The supply chain is too long and the relationship between the nodes in the supply chain is too complex, which is one of the main reasons for the information transmission in the supply chain is not smooth and the inventory cost in the supply chain is too high. Optimizing the structure of supply chain is the key to ensure the smooth information transmission and coordination of all nodes in the supply chain, and is the basis to do well in the inventory management of the supply chain. Therefore, we should try our best to make the supply chain structure flat, simplify the number of nodes in the supply chain, and simplify the relationship between nodes in the supply chain.

Finally, the supply chain links are effectively integrated.

The integration of all links in the supply chain is to form a "virtual organization" based on the common goal, and optimize the organization's goal and overall performance through information sharing, fund and material coordination among members of the organization. By integrating all
links in the supply chain, we can overcome the influence of too complex supply chain inventory management system on the efficiency of supply chain inventory management to a certain extent, so that supply chain inventory management data can be transmitted to all nodes in real time and quickly, thus greatly reducing supply chain inventory cost, making rapid response to customer demand, and improving the overall performance of supply chain inventory management.

At present, the problems of inventory management under supply chain management mainly focus on information, supply chain operation, supply chain strategy and planning. These problems are shown as follows:

(1) the overall concept of supply chain management requirements has not been formed. Many supply chain management systems do not have performance evaluation indicators for the whole supply chain, and each node enterprise has its own way, which leads to low efficiency of the whole supply chain.

(2) the information transmission system is inefficient. Supply chain inventory management emphasizes collaboration and information sharing. The demand forecast, inventory status and production plan of each member enterprise in supply chain are all important contents of supply chain inventory management. In order to respond to customers' needs quickly and effectively, an enterprise must master the information distributed in each member enterprise of the supply chain in real time and accurately. At present, many enterprises' information transfer systems have not been established, and the information of customers' needs that suppliers know is often delayed or inaccurate, which makes the implementation of short-term production plan difficult. Therefore, an efficient information transfer system should be established to effectively transfer supply chain inventory management information and improve supply chain inventory management performance.

(3) there is uncertainty in the supply chain. The reasons for the formation of supply chain inventory can be divided into two categories: one is the general inventory established for the needs of production and operation; the other is the insurance inventory established to prevent the uncertain factors in the supply chain. When enterprises make inventory plans, they can't take into account the influence of uncertain factors, such as demand fluctuation caused by market changes, shortage caused by unexpected changes of suppliers, production interruption caused by emergencies in enterprises, etc., which will have an impact on inventory. The uncertain factors are the main reasons for the establishment of insurance inventory. It is a challenge for supply chain inventory management to study and track the impact of uncertainty on inventory.

4. Lack of cooperation and coordination. Each member enterprise in the supply chain is a whole, which needs the coordination and cooperation of each member enterprise to achieve the best operation effect. However, the lack of mutual trust between enterprises will increase the difficulty of coordination and cooperation between enterprises. The lack of mutual trust between enterprises is the root cause of the unstable cooperation between supply chain enterprises. Therefore, it is necessary to establish effective supervision mechanism and incentive mechanism among member enterprises to promote communication and cooperation among enterprises. Compared with the internal supervision mechanism and incentive mechanism, it is much more difficult to establish the inter enterprise supervision mechanism and incentive mechanism.

(5) the impact of supply chain inventory cost is not considered in product design. Modern manufacturing technology has greatly improved the production efficiency of enterprises' products, with a high gross profit margin. However, the complexity of supply chain inventory is often ignored, so that the cost saved in the production process is offset by the distribution and inventory costs in the supply chain. At the same time, the influence of inventory cost should be considered in the design of supply chain structure.
Conclusion

With the development of economy, supply chain has been playing more and more advantages in the development of enterprises. But we don't think that the supply chain will achieve the ideal effect for us. It requires all enterprises to form a strong supply chain as a whole according to their own characteristics and market requirements, and build a lean and safe supply chain.

Reference

[1] Translated by David Xinqi levy, Philip keminsky, Edith Xinqi levy, Ji Jianhua, Shao Xiaofeng, Wang Feng, etc


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