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The Strategies of Advancing the Cooperation Satisfaction among Enterprises Based on Low Carbon Supply Chain Management

Yang Hongjuan^{*}, Zhang Jing*Faculty of Management and Economics, Kunming University of Science and Technology, Kunming, 650093, China*

Abstract

With the end of United Nations Convention on Climate Change Meeting which was hold in Bonn and Copenhagen, the world has entered into a low carbon economy which bring the concept of low carbon supply chain management. In order to comply with the changes of the domestic and international situation, enterprises are supposed to adopt low carbon supply chain management to raise the competitiveness. However, it is a systems engineering to carry out the low carbon supply chain management in which the good cooperation of each enterprises in the supply chain is required. The paper proposes some strategies on how to advance cooperation satisfaction among enterprises based on low carbon supply chain management in order to enhance the competence of the whole supply chain.

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1. Introduction

^{*} Yang Hongjuan, Ph.D, Professor in Kunming University of Science and Technology, Faculty of Management and Economics, Yunnan, China, postcode, 650093; Tel. +86-0871-5170901; fax: +86-0871-5198887
E-mail address: zhbg317317@sina.com.

[†] Zhang Jing, Postgraduate in Kunming University of Science and Technology, Faculty of Management and Economics, Yunnan, China, postcode, 650093; Tel. +86-027-82352396
E-mail: zhangjing87@163.com

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Since "low carbon" was deeply engraved into people's minds in the World Climate Change Conference which was held in Copenhagen, the green wave in which the topic were new energy revolution and low carbon economy has been sweeping the world. The concept of low carbon supply chain was born and it has received wide attention. It has been the key for the enterprises that want to become outstanding to adopt low carbon management in which the cooperation of the member enterprises play a very important role in the process of the low carbon management. Therefore, it is necessary for the whole supply chain member enterprises to find the the strategies of advancing the cooperation satisfaction among enterprises based on low carbon supply chain management.

2. The study on low carbon supply chain management satisfaction with cooperation in enterprises

In 1970s, people began to think of the influence of the environmental factors and Webber proposed the concept of green procurement. Then Michigan State University Manufacturing Research Institute (MRC) first proposed the concept of green supply chain. By green designing, green material selection, green manufacturing, green manufacturing processes, green recycling, green packaging and green consumption and other ways, it was possible to achieve the aim in which there would be non-waste production and zero emissions in the whole process and maximized the elimination of the impact on the environment. Generally speaking, low carbon supply chain management is the specific performance of the green supply chain management in the trend of low carbon economy environment nowadays. According to the related information, the main study on low carbon supply chain management satisfaction with cooperation in enterprises are the following:

i) The higher the degree of the consultation in the supply chain, the higher the degree of the cooperation satisfaction. Close cooperation in the supply chain member enterprise is needed to reach the running goal of the low carbon supply chain. However, in the whole supply chain, each enterprise owns the independence and different interest demands, so a certain degree of controversy and conflict is existing. The controversy and conflict would seriously affect the cooperation of the member enterprises and the whole supply chain. It is the negotiation that is the most effective way to solve the non-adversarial dispute and conflict. Fully negotiation and high degree of consultation would help the enterprise reach the clear consensus and reasonable expectation, and then high degree of the cooperation satisfaction among low carbon supply chain member enterprises will be reached.

ii) The higher degree of the information sharing among the enterprises in cooperation, the higher the satisfaction of cooperative in enterprises. As is known, the existence of bullwhip effect makes that upper manufactures can not accurately grasp the needs of the market information. The effective method for member enterprises to reduce the "bullwhip effect" is get information shared among companies. The higher the degree of information sharing will allow members of low carbon supply chain enterprises to better organize production operations and inventory and distribution planning and make rational use of resources, to reduce operating costs and increase end user satisfaction, to access to the best interests of the supply chain, so that the satisfaction of all parties would have been increasing.

iii) The more mutual trust in all low carbon member enterprises, the higher the satisfaction of business cooperation in the low carbon supply chain. Construction of confidence is a prerequisite for effective cooperation. Effective low carbon supply chain must make sure that the chain members have established full trust with each other. Supply chain management is intended to strengthen the junction enterprises' core competitiveness that would help response rapidly to the market demands and ultimately improve the entire supply chain competitiveness in the market. Therefore, in order to achieve the aim, it is the core of supply chain management to strengthen the cooperation and develop the trust among enterprises. What trusting contributes to low carbon supply chain is: First, trust helps to reduce the transaction costs in the low carbon supply chain; Second, trusting promotes and deepens the cooperation in low carbon supply

chain enterprises;Third, trusting throughout the supply chain can improve the rapid reaction capability;Last,it is the trusting that makes the enterprises insist on cooperating with each other and avoid the risk of choosing other ones.In summary, the trusting plays a key role of cooperation in the low carbon supply chain member enterprises.

iv)The business cooperation strategies of the members to increase profits help to improve cooperation satisfaction.Supply chain member enterprise will seek to maximize their own profits as independent economic entities.The operational approaches try to improve the competence of the whole supply chain by the good cooperation of the member enterprises in low carbon supply chain management,and this would be carried out only with the situation that each enterprise would get profit from it.Therefore,in the process of the cooperation the influence which profit distribution mechanism gives on the follow actions of each enterprise must be considered to ensure the members in the low carbon supply chain get reasonable incentive of profit.In summary,the cooperation which can help improving the profit is conducive to enhance the depth and breadth of cooperative behaviour in the whole low carbon supply chain while increasing the satisfaction of all member enterprises.

The low carbon management in supply chain is the specific implementation on low carbon strategy and the basis of establishing low carbon competitive advantage.This has been proved by a great amount of enterprises that are the leaders in the practice of low carbon supply chain management and that the low carbon performance and economic performance can complement each other and achieve win-win situation.Based on the above point of view,there are five dimensions variable that would influence the cooperation satisfaction among the low carbon supply chain member enterprises.And they are:Degree of consultation, information sharing trust, profit improvement and low carbon management.The five dimensions variables and low carbon supply chain cooperation relationship between the five dimensions variables and low carbon supply chain cooperation satisfaction can be analyzed by multiple regression to create a multiple regression model:

$$S=Pa*A+Pb*B+Pc*C+Pd*D+Pe*E$$

In this model,S means the cooperation satisfaction among the enterprises,and A means the negotiation degree among the enterprises,and B means information sharing degree among the enterprises,and C means the trust degree among the enterprises,and D means the degree that corporate profits increase,and E represents the enterprise's low carbon management degree.In addition,Pi expresses the weight among each dimension and cooperation satisfaction.

3. The strategies of advancing the cooperation satisfaction among enterprises based on low carbon supply chain management

3.1. Constructing the platform for information exchanging among enterprises in low carbon supply chain

In the 21st century business competition is no longer the competition among the companies, but among the supply chains.Therefore,improving the entire value-added low carbon supply chain and the competitiveness of low carbon supply chain becomes a common business goal.The improvement of the operational efficiency and competence depends on the information sharing and exchanging so that so that when the market situation changes, the whole supply chain companies can work together to response to customers' needs.This would help the supply chain win market opportunities, and increase the competence of the supply chain.In other words, the establishment of information-sharing mechanisms enterprises in the supply chain is to promote capacity development.

3.2. Establishing the enterprises credit evaluation system of low carbon supply chain management

In order to enhance the trust among the enterprises in the low carbon supply chain, the following steps can be adopted: First, enhance the enterprise itself core competitiveness. As the competence increasing, the ability to meet customer demand will naturally improve; Second, improve the ability of information sharing and communication. The information sharing and communication can help promote the growth and the formation of the learning advantage and the dependence of each other, thereby strengthening the trust among low carbon supply chain members. Last, make regular communication and exchange. The members in the low carbon supply chain are supposed to communicate with each other and it is a good way to eliminate defensive habitual behavior and establish the honesty among the enterprises in the low carbon supply chain. This system is used to make the evaluation of the enterprises in low carbon supply chain credit rating, which would help each member enterprise know the level of credit and the weak links of the whole supply chain, thus it is good for each enterprise to take steps to make targeted improvement to improve the mutual trust among the enterprises in the low carbon supply chain.

3.3. Constructing the low carbon supply chain management competence evaluation system

Any low carbon supply chain is composed of specific enterprises. As is known to all, the establishment of the enterprise is for the profit, and this would help understand the view that the degree of profit increasing has very great influence on the cooperation satisfaction. However, as an individual enterprise in the whole low carbon supply chain, the individual profit increasing would not be fundamental starting point, and it is the profit increasing of the whole low carbon that is the goal based on the system point of view. Some related studies have shown that through cooperation among enterprises in low carbon supply chain, the capacity gained from the perspective of overall operating is much more than that from the perspective of individual operating. Therefore, the low carbon supply chain enterprises should strengthen mutual cooperation and enhance the entire supply chain's competitiveness so as to maintain the competitive advantage of the supply chain with sustained profitability. In order to effectively improve the whole supply chain competitiveness, supply chain member enterprises should reference information and other business practices due to the difference of the fields, and choose the suitable indicators of supply chain competitiveness evaluation to make the evaluation of the competence of the low carbon supply chain based on mutual exchange and discussion. The evaluation system should take account financial and non-financial indicators into consideration. According to the actual situation, each enterprise in the low carbon supply chain should understand own advantage and disadvantage and then take effective steps to make improvement. Only the enterprise run like this can they maintain the stable operation of the supply chain and sustainable development so as to make the competitive advantage and enhance profitability.

3.4. Improving low carbon management evaluation system in low carbon supply chain management enterprises

The indicator system should not only include the low carbon partner management and internal environmental management but also include ecological design, low carbon image, and other aspects of the management content. The indicator system should be chosen due to relevant data and the actual situation of the low carbon supply chain. The purpose is to evaluate the performance of low carbon management to find the weakness of the low carbon supply chain management for improving the competence of the whole low carbon supply chain.

3.5. Cultivating low carbon enterprise culture to promote "low carbon" coherence.

Since the competition among enterprises was increasingly reflected in cultural competition, the enterprise culture has become the cornerstone of the competitiveness of enterprises and a key factor in deciding the rise and fall, and low carbon culture in today's enterprise culture has become the more advanced stage of development. Therefore, the construction of low carbon culture which includes the research and the practice of the low carbon culture during the new situation become very important in the access of the low carbon supply chain management. The aim to construct low carbon enterprise culture is to help the member enterprises in the low carbon supply chain and whole of the staffs form the values of making good use of natural resources and protecting the environment by low carbon emissions, and take it into the practice of management and production process to achieve the supply chain sustainable development. Low carbon enterprise culture can be carried out from the following aspects: Firstly, the enterprise should construct the cultural level of low carbon enterprise; Secondly, the enterprise should construct rules level of low carbon culture in enterprise; Lastly, the enterprise should construct the physical level of low carbon enterprise culture.

4. Conclusions

As the famous British economist named Christopher said that in the 21st century business competition is no longer the competition among companies, but among the supply chains. In the trend of economic globalization and the low carbon economics nowadays, low carbon supply chain management has been the effective way to enhance competence. For the supply chain member enterprises, only with good cooperation satisfaction among enterprises based on low carbon supply chain management can the whole supply chain runs quickly and effectively. This paper started from low carbon supply chain system and promoted some measures on how to advance the cooperation satisfaction among enterprises based on low carbon supply chain management, and more advanced and effective measures are supposed to be hopefully found in the future practice.

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