Chapter 45

A Conceptual Model for Measuring Reverse Logistics Performance in Automobile Industry

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ABSTRACT

Nowadays, organizations are facing two major challenges. First, huge amount of consumed products is considerably destructing the environment and on the other hand, because of increasing competition in business environment, creating long-lasting competitive advantage and long-term relation with customers has become a necessity for organizations to survive and thrive. In this competitive condition, increasing emphasis on protecting environment has made manufacturers to look at reverse logistics as an important competitive factor. So in recent years, many researchers' and practitioners' attention has been focused on reverse logistics and related topics. Regarding the lack of knowledge in the literature of reverse logistics in Iran industry, this research aims to contribute to the body of knowledge in this field of supply chain and specifically talks about reverse logistics performance measurement in auto industry. This paper introduces a conceptual model which measures reverse logistics performance in auto industry and identifies the most important reverse logistics factors and classifies them. The offered model has been verified by structural equation modeling method and fit statistics have been assessed in auto-industry of Iran. The results of this research will exhibit a proper classification of factors which influence reverse logistics performance and their significance in auto-industry.

INTRODUCTION

Reverse Logistics and Return flow Management are two topics among various supply chain related topics which has been widely regarded and discussed in recent years but in Iranian industries it has not been seriously analyzed. Generally speaking, supply chain includes all activities related to the flow of materials and products from providing the material to delivering the final product to the end user. But reverse logistics deals with the return of products from consumer. So a reverse supply chain is a set of activities which is needed to retrieve a used or unused product from customer and dump it or prepare it for reuse or resell (Saibai, 2010).

During the recent two decades, industrial, governmental, commercial and service enterprises has focused on reverse logistics and consider it as an important process in their supply chain which has an effective role in creating economic value in products and services and considering environmental issues. Therefore, in recent years, both researchers and practitioners have been more focused on reverse logistics and its related topics. As the term "closed-loop supply chain" was introduced and publicized, recycling process has been included in supply chain management and it was emphasized that supply chain process must physically and operationally be a cycle. So that it could be inferred that the term "closed-loop supply chain" has included reverse logistics in supply chain framework and emphasizes that not only reverse flows must be considered but also integrated with direct flows (De Brito & Dekker, 2004). Reverse logistics literature and performance measurement models show that despite the importance of having a performance measurement system which helps attaining an effective reverse supply chain, researchers have not been successful yet in developing a systematic and comprehensive approach in designing performance measurement systems for reverse supply chain. Also, the offered performance measurement systems are not comprehensive enough. In addition, although performance measurement of reverse logistics has been claimed to be done in some green supply chain approaches, misunderstandings still exist in fundamental concepts and therefore issues of this field has not been clearly defined yet. So suggested performance measurement metrics is not sufficient to attain meaningful information. Finally, although the starting point and process of developing a performance measurement system is highly dependent on strategic goals of company, there is no clearly defined link between reverse logistics specifications and strategic goals of organizations. Due to gaps in previous researches, this study has attempted to, regarding the studied industry, identify the most important functional characteristics of reverse logistics and choose their related metrics. So that the model well includes all the general factors.

Although the purpose of this research is not developing a performance measurement model for an specific organization, but by looking at auto industry business strategies, researchers has made effort to develop proper indicators.

LITERATURE REVIEW

Despite the importance of reverse logistics, lack of theories in this field is noticeable. In addition to that, implemented researches in reverse logistics field have been usually concentrated on a specific product or industry (De Brito & Dekker, 2004). Dowlatshahi defines five categories of RL literature: (1) general summaries and basic RL concepts (2) research on quantitative approaches (3) studies of logistical topics (4) company profiles, and (5) RL applications (Farahani et al., 2011).

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