Key Success Factors of Vendor-Managed Inventory Implementation in Taiwan’s Manufacturing Industry

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ABSTRACT

Under increasing pressure from competitors and consumers, vendor-managed inventory (VMI), which is believed to be conducive to reducing inventory costs and improving distribution and sales, has been a popular system particularly in the retail industry. This present study, by adopting the modified Delphi method, attempts to identify key success factors of VMI implementation in Taiwan manufacturing industry and examine impact of the identified factors. Through three rounds of expert questionnaires, it is found that excellent project management, organizational fit, information sharing, trialability, and top management commitment are the five most important factors in terms of VMI implementation in Taiwan manufacturing industry. Employee training, a good project team, exercise of power, and relative advantages are of secondary importance to Taiwan manufacturing industry. Finally, it is hoped that these identified factors may serve as a guide for manufacturing companies in implementing VMI more effectively and efficiently.

KEYWORDS
Delphi Method, Information Systems Implementation, Key Success Factor, Vendor-Managed Inventory (VMI)

1. INTRODUCTION

With the advancements in information technology (IT), improving organizational management and global communication has become easier. The increasingly competitive global business environment requires companies to adopt new management models to enhance competitiveness. For instance, many enterprises have implemented Management Information Systems (MIS), which provide managers with...
valuable information to deal with daily strategic management. To further assist internal organizational management, a growing number of information systems, such as Decision Support Systems (DSS), Executive Information Systems (EIS), and Enterprise Resource Planning (ERP), have been adopted in a wide range of industries.

As the manufacturing industry in Taiwan now faces rapid changes of supply chain distribution in the domestic market, local enterprises sticking to traditional ways of manufacturing and distribution may fail to satisfy the market demand. Therefore, enterprises in Taiwan have been looking for novel and adequate ways in order to shorten time for launching new products, meet the market demand rapidly, and respond to consumer requirements efficiently. In the meantime, a difficulty these enterprises constantly encounter is how to obtain rapidly-changing market demand and arrange demanded items into production accordingly.

Nowadays, manufacturers tend to use modules to flexibly make products to respond to the rapidly-changing and heterogeneous demand (Sanchez and Mahoney, 1996; Yao et al., 2007); and in specific, the modules are provided by specialized vendors. Comparing with the focal manufacturer, vendors know well about the market demand of modules by tracking the focal and other manufacturers’ orders. Vendors’ module market information thus can be used to facilitate both vendors and the focal manufacturers to prepare the corresponding module inventory to avoid building excessive final product inventory. In other words, vendor-managed inventory (VMI) represents the methodology through which the upstream end of a supply chain (vendor) takes the full responsibility for managing the inventories at the downstream end (customer) based on previously agreed limits. Therefore, VMI can be deemed as another method by which supply chains can be managed, and, due to the centralized decision making and constant information sharing, the benefits may turn out to be much more significant than in traditional supply chain case (Govindan, 2013; Govindan et al., 2013). From the above discussion, VMI, which is believed to be able to help users manage their inventory efficiently and effectively, is chosen by a large number of Taiwanese manufacturers to achieve their goals with limited budgets. VMI, a method of inventory management, can lower costs, maintain inventory at a low level, and improve the distribution between vendors and retailers (Saxena, 2009; Niranjan et al., 2012). It can also transfer and integrate required business information efficiently across enterprises through databases and the Internet. According to De Toni and Zamolo (2005), VMI reduces the storage space of an entire supply chain by 30% and at the same time cuts costs of a supply chain considerably. That is, when inventory costs are reduced, products can be sold at a lower price, which increases the number of sales in return. De Toni and Zamolo (2005) further point out that VMI enables enterprises to enhance customer satisfaction even when the quantity of products available and the time of delivery remain uncertain. Apparently, VMI has become a popular system in manufacturing enterprises because it improves the quality of customer service and accelerates inventory turnover (Dale et al., 2000; Lee and Chu, 2005; Yao et al., 2010). In other words, VMI provides accurate prediction of sales, according to which manufacturers are able to effectively and efficiently manage distribution and inventory of the entire supply chain.

The concept of Vendor-Managed Inventory (VMI) has since received much attention in this subject field, and its implementation has led to some successful, collaborative efforts in terms of the supply chain integration (Bernstein et al., 2006; Wang et al., 2010; Kannan et al., 2013.). However, most literature of VMI tends to focus on how information sharing affects costs and the inventory level of a supply chain. Although much research has been conducted on VMI implementation within the area of retail businesses, little has been done on how VMI affects the manufacturing industry in Taiwan. This current study, therefore, strives to look for key factors that are likely to affect the implementation of VMI so as to provide domestic industries with guidelines on VMI implementation. Two research questions are proposed as follows: (1) What factor influences the implementation of VMI in Taiwan manufacturing industry? (2) To what extent do these identified factors influence the implementation of VMI in the Taiwanese manufacturing industry? In the following sections, a brief
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