Supply Chain Information Sharing: Modeling the Barriers

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ABSTRACT

The purpose of this paper is to present an approach for modeling the barriers of information sharing (IS) in supply chain (SC) by developing the relationship between various information sharing barriers (ISBs). Using interpretive structural modeling (ISM), the result shows a hierarchy-based model and the mutual relationships among the ISBs. The result shows that there is a group of ISBs having high driving power and low dependence which requires maximum attention and of strategic importance while another group consists of those ISBs which have high dependence and are the resultant actions. This categorization provides an important guideline to top management to differentiate between independent and dependent ISBs and their mutual relationships which are playing the role of roadblocks for effective IS in SC.

Keywords: Dependence Power, Driving Power, Information Sharing (IS), Information Sharing Barriers (ISBS), Interpretive Structural Modeling (ISM), Supply Chain (SC)

INTRODUCTION

Operational strategies of organizations have been shifted towards integrated SC strategies rather than independent operations with both suppliers and customers (Silveira & Arkader, 2007). Supply Chain Management (SCM) is a key strategic approach for increasing organizational effectiveness and the realization of organizational goals. SCM helps in achieving the co-ordination between organizations as well as with customers (Dath, Rajendran, & Narashiman, 2010). The information sharing (IS) enabled supply chain (SC) needs closer relationships among its partners. It requires a level of trust, commitment, co-operation, co-ordination and collaboration between SC members for its success (Richey, Che, Upreti, Fawcett, Adams, 2009). There are many factors which hinder in achieving SC benefits to the organizations. These factors are known as Information sharing Barriers (ISBs).

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Many researchers (see Table 1) have discussed the various ISBs which hinder organizations to implement IS. Pujara, Kant, & Singh (2011) discussed the mutual effect of eleven ISBs over each other. They developed relationships among eleven identified ISBs. In this paper, eighteen ISBs (see Table 1) have been chosen on the basis of literature review and the opinions of experts from both industry and academia for development of structural model.

ISM is a well-established methodology for identifying relationships using group learning process among specific items which define a problem or an issue (Warfield, 1974; Sage, 1977). Therefore, in this research, ISBs have been analyzed using the ISM approach.

The main objectives of this paper are to identify and rank the ISBs, to establish relationships among the identified ISBs using ISM, and to discuss the organizational implications of this research and suggest directions for future research.

LITERATURE REVIEW OF INFORMATION SHARING BARRIERS IN SUPPLY CHAIN

ISBs provide an important meaning to SC through the identification of the core variables. Many authors (see Table 1) have researched and written directly on these ISBs. These ISBs are described as follows.

**Lack of Top Management Support**

Top management of the organization is mainly responsible for molding the organization. The top management supports the culture, financial strategy, empowerments of employees, supplier relationship and information sharing (Tokar, Aloysius, Waller, & Williams, 2011). The role of top management in knowledge creation and culture sharing activities are vital. The lack top management support as an issue in successful implementation of IS enablement of SC (Lambert, Cooper, & Pagh, 1998). It affects the internal planning of the organization and hinders the SC integration (Childerhouse, Hermiz, Mason-Jones, Popp, & Towill, 2003a).

**Lack of Strategic Planning**

Strategic planning is the backbone for the growth of organization. Strategic planning is based on identification of IS goals, demarcation of information across SC working and the specification of long-term plans for managing SC information. It decides the path of the organization to sustain and acquire market in competitive situation. The strategic planning is a micro environmental challenge for SC integration (Awad & Nassar, 2010). The strategic barriers namely management strategy and financial strategy are barriers for IS in e-business (Archer, Wang, & Kang, 2008).

**Lack of Information Flow**

Childerhouse, Hermiz, Mason-Jones, Popp, & Towill (2003b) discussed the information flow in automotive SC. They divided factors effecting sharing of information in parts of internal as well as external. They emphasized on technology support as lack of information sharing due to need of management of data and analysis of data. The secrecy of information flow and lack of understand of benefits of sharing the information among SC were considered as external factors hindering the flow of information.

**Lack of Organizational Structure**

Organization structure is consists of activities such as task allocation, coordination and supervision, which are directed towards the achievement of organizational aims. Organization structure is considered as crucial part for the success of the business. Fawcett, Magnan, & McCarter (2008) considered organizational structure and culture as the prime factors for effective IS in SC. The lack of supportive organization structure as an issue for successful implementation of IS in SC along with top management commitment (Lambert et al., 1998).