Analysis of the Factors Affecting Sustainable Electronic Supply Chains in Healthcare Centers: An Interpretive-Structural Modeling Approach

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ABSTRACT
To improve their long-term performance, organizations must maintain their business operations and practices over time. They can do so by engaging in sustainable practices aimed at meeting the interests of the enterprise, and of its suppliers, employees, and customers in the long run. Not surprisingly, the implementation of sustainability practices has expanded in the healthcare industry. Information technology (IT) is a way to promote quality, security, and efficiency in healthcare. IT brings vital information, and so important support to the care point for decision-making. It also allows the assessment of everyday quality turn into as a measured reality. In the present study, the factors affecting the sustainability of electronic supply chains in healthcare centers were identified using library methods and a keyword review of the literature. Then, the relationships between these factors were analyzed using an interpretive-structural modeling approach. The results reveal that infrastructure management and technology management should be considered the most important factors affecting the sustainability of electronic supply chains in healthcare centers.

KEYWORDS
Electronic Supply Chain, Healthcare Centers, Interpretive-Structural Modeling Approach, Sustainable Supply Chain

INTRODUCTION
The healthcare industry is often viewed as a different operation from other industries. The reason given is that healthcare service providers believe they cannot control their production plans, unlike the managers of other production industries (Kritchanchai, 2012). There is no doubt the healthcare industry has significantly contributed to economic development and social welfare of modern economy. Also notable is that the industry is exceptionally competitive and heavily dependent on a broad and complex network of enterprises involved in the design, construction, presentation, and administration of health, and in products and services related to medicine (Lenin, 2014).

Many health outcome failures are due to lack of access to important medical information about patients. A widely known source of weakness in healthcare is a poor division of the processes of providing care and sharing information. The adoption of information and communication technology
can alter the paradigm of health, meaning the way healthcare is received, better care ensured, and resources more effectively utilized (Turcu & Turcu, 2013). Healthcare centers are one of the most important service units of the world (Hamed et al, 2016), and there is a large demand for proper hospital services by clients (Charmel and Frampton, 2008). Studies have shown that the expectation of healthcare customers continues to increase since patients have many information resources obtained during the process of selecting a suitable healthcare center (Malhotra et al., 1994). This has created competition among healthcare centers (Hutton and Richardson, 1995). Patients compare their expectations and services provided by healthcare centers (O’Neill and Palmer, 2001). In addition, patients consider the tangible aspects of hospitals, including the staff, reception, tools and equipment, to evaluate the services of a hospital (Lovelock and Wright, 2002). The importance of supply chain in healthcare section is more highlighted when considering the mentioned issues.

In this respect, Linen (2014) also states that the healthcare chain supply is complex, diverse, and dynamic. The main reason for the complexity level is the participation of a great diversity of organizations in the healthcare supply chain (Lenin, 2014). Besides, like in any other industry, healthcare supply chain partners need to share information to respond quickly and accurately to inventory demands.

For the reasons above, supply chain management has been widely recognized as a significant point for information technology investment in supporting supply chain processes (Wu & Chuang, 2010). And lots of commercial enterprises have sought to develop strategic commitments to technology, partly in order to gain and retain competitive advantage in their own industries, and partly to achieve many other benefits: improve flow of information, reduce costs, facilitate business processes, provide more diverse product offerings, establish stronger relationships with suppliers, compress response times, and better meet needs and expectations (Beheshti, Hultman, Jung, Opoku, & Salehi-Sangari, 2007).

New channels of communication must be able to respond to variable and complex procedures, lower prices, and faster delivery. As a result, organizations are today facing pressures for the development that extend beyond their traditional supply chain system boundaries. For example, today’s customers expect to benefit from web-based order status checking capabilities, electronic delivery, web-based customer service systems, and so on. There is a potential to collect, distribute, and deliver information much faster and with greater detail and accuracy. These facts form the basis for the formation of an electronic supply chain revolution. Accordingly, organizations are making attempts to offer integrated supply services that not only provide the basic operation but also accommodate all the information needs. In other words, the chain supply management approach has been transformed from engineering and improvement of a single supply chain into coordination of the activities of a dynamically meshed supply chain network. The rapid change in the contributions of information technology to the supply chain has also caused the formation of a new concept: the electronic supply chain (Folinas, Manthou, Sigala, & Vlachopoulos, 2004). Therefore, the new concept of electronic supply chain management is indicative of opportunities obtained from the integration of activities, operations and applicable programs between partners, so that the advantages of this concept are completely exploited. Integration of the Internet with supply chain management is regarded as an essential asset for successful organizations (Pulevska-Lvanovska & Kaleshovska, 2013). There is now a greater need for the management of a sustainable supply chain (Erol, Sencer, & Sari, 2011). On the other hand, management of sustainable supply chain has emerged as a growing issue in sustainability and level of supply chain management. In fact, sustainability is today a source of competitive advantages and issues for survival of large companies as an alternative to costly incompatibility. Many executive managers and marketers consider sustainability as an excellent backing. Traditionally, supply managers aim to provide crucial inputs at the lowest price of the market. Meanwhile, managers and consumers attempt to identify the market prices of social costs—meaning the market value in addition to social emotions and outcomes—in order to redefine and expand their roles by managing both internal and external expenses. Supply managers can grow sustainability by ensuring that supplies combine sustainable innovation in operations and processes. They can assess new processes and technologies,
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