**Sustainable Supply Chain Information Security Model in Developing Countries (UAE): A Review**

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**Abstract**

The proposed research is being carried out to study and investigate the impact of information security on the sustainable supply chain in organizations while focusing on the impact of the variables on the overall performance of the organization. The study considers the Sustainability of the Supply Chain Information Security Model and the impact it has on the running of the business. Further, the study will also examine the impact of Information Security on the operations of the Supply Chain Management performance given the importance of information security in modern business. The exploratory research would be carried out where the primary data from 300 employees working in the oil and gas industry in the supply chain department of the firms in UAE. The study will help contribute towards an in-depth knowledge related to Information security and its impact on sustainable supply chain management. The results of the study will help groups including leaders, managers, IT technicians, and even research scholars who will be benefited from the findings of this research thesis. The research findings will also help the companies solve the problem of Information security.

**Keywords**: Sustainable, Supply Chain Information Security, Sustainable Performance, UAE

**1.0 Introduction**

Reliance on Information technology increases the risk of cybersecurity incidents and cyber-attacks, which makes the company vulnerable. These security breaches can cause a huge amount of financial loss to the company and interrupt communication with the supply chain partners. As a precaution, Information Security Management (ISM) has become an important part of all businesses or organizations. The information exchanged between the supply chain and the organization is very crucial from the supply chain point of view. Thus, every business has started

the practice of Information security. The information security practices are not only confined to addressing simple violations or security breaches but also developed to manage situations and face upcoming security threats.

Information is one of the most valuable assets of the company. The integrity of the individuals prevents authorized uses from accessing the documents in the organization. Moreover, the transfer of information among partners can get interrupted due to loss of information and thus restrict the decision-making of the partners. Some of the practices by the management are also influenced by cultural factors, therefore it becomes necessary to consider the developing country factor in account. In high power distance culture, the leader tends to dominate the employees and thus all the orders come from the top-level management. The workers performed the tasks assigned to them and thus the Information access is limited only to the leaders of the organization where the chances of information theft are considerably less. According to Boiko (2019), the Supply Chain Security risk should be managed in both the internal environment and external environment by the organization. On the other hand (de Camargo Fiorini, 2019) pursues the idea that partnership management and information security management are both the essential elements of the Supply Chain Management process. Thus, information security has become a very important issue for the organization.

This study would consider the impact of information security on the sustainable supply chain in organizations while focusing on the impact of the variables on the overall performance of the organization. The study considers the Sustainability of the Supply Chain Information Security Model and the impact it has on the running of the business. Further, the study will also examine the impact of Information Security on the operations of the Supply Chain Management performance given the importance of information security in modern business.

 **2.0 Literature Review**

The problem of information exchange among supply chain partners has been an area of major concern in the business environment in earlier studies. A systematic and proper supply chain model along with an integrated supply chain relation is important for the success of the business structure in the modern competitive environment. Supply Chain Management can be explained as the process of incorporating demand and supply management among various channels and members of the Supply Chain Management and within the organization so that they can work together and in the most efficient way (Michigan State University, 2021). It also focuses on the exchange of information between the customers and the partners and gathers feedback from customers to solve the problem. In recent years IT technologies have become more advanced and innovative in developing countries, which allows the companies to produce the right amount of goods and transfer them most efficiently by incorporating proper supply chain parts.

Due to the rise in expectations of the customers and to compete in the global market companies have started investing heavily in supply chain management which has become a key

component for the success of a firm in developing countries. The rise in the standard of living of people and rapid globalization is bringing threats to Supply Chain Management. Developing countries are facing a barrage of information security problems that can cause major threats to the economy of the country if left unnoticed. The effectiveness of the Supply Chain can be attained by improving the responsiveness of the business towards customers. In developing countries, small and medium scale industries play a huge part in the economy of the nations. These small- scale industries are now introducing new technology and are adapting to the new changes to facilitate e-commerce and worldwide service. These businesses can gain from developing supply chain capabilities that help to enhance the overall performance of the organization and gain a competitive advantage over its competitors in the market by reducing the costs, improving customer satisfaction, increasing the quality or standard of goods, better demand forecasting and building good relationships with supply chain partners. This makes the supply chain long-term and user oriented. Modern IT firms in developing countries have developed enough to eliminate the problem of security barriers which allow the supply chain to achieve more profitability and provide better customer satisfaction by reducing over-consumption and inventory wastes inside the firm (Brandenburg, 2018). If the organization loses private details and records this can negatively affect the business and the decisions of the partners.

The literature review also highlighted that the security of the information is one of the fundamental needs and requirements for any organization’s supply chain. The researchers proposed a framework for the development of security of information for the organizational supply chain. The researchers, based on the review of the literature, proposed a framework that implements information protection which supports supply chain management at intra- organizational and inter-organizational levels in the developing country context. The factors included in the framework include Technical Management, Formal Management, Information Security Management, Technical Collaboration, and Information Sharing.

**3.0 Proposed Framework**

The research would focus on the variables that impact the sustainable supply chain information security in the organizations while focusing on the impact of the variables on the overall performance of the organization. The below framework as shown in Figure 1 defines the variables which are the independent variables which impact the sustainable performance of the organization pertaining to their supply chain information security. These variables include Technical Management, Formal Management, Information Security Management, Technical Collaboration, and Information Sharing. The framework also defines the mediating variables that play a significant role in impacting the performance of the organization as the organizational innovation and leadership plays a critical role in forming such strategies and decisions based on the independent factors that impact the sustainable supply chain information security in ensuring positive and efficient organizational performance. The dependent variable in the framework is sustainability where it has three factors, which include the sustainable performance of the organization in terms of environmental performance, the social performance, and financial and economic performance. As the performance in all the mentioned domains depends on and is impacted by the external factors highlighted in the independent variables and the mediating variable columns in the framework.

Figure 1 Conceptual Research Framework

**4.0 Conclusion**

The sustainable performance of the organization also contributes towards the development of the industry and the market. Hence social performance is an important factor. Sustainable performance allows the organizations to improve their productivity and their competitiveness in the industry. The research findings highlighted the importance of sustainable performance related to all three different pillars of sustainability. The focus of the research would be on business megatrends, which force fundamental and persistent shifts in how companies compete. Such transformations arise from technological innovation or from new ways of doing business, and many factors can launch or magnify the process of change. Business megatrends may emerge from or be accelerated by financial crises, shifts in the social realities that define the marketplace, or the threat of conflict over resources.

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