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Does Supply Chain Technology Moderate the Relationship between Supply Chain Strategies and Firm Performance? Evidence from Large-Scale Manufacturing Firms in Kenya



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ABSTRACT

This paper is cognizant of the fact that literature on supply chain strategies is limited and still evolving; and literature on supply chain technology mainly focused on the adoptions, but not on the moderating effect on the relationship between supply chain strategies and firm performance. The purpose of this study is to determine the extent to which supply chain technology moderates the relationship between supply chain strategies and performance of large-scale manufacturing firms in Kenya. Proportionate sampling was used to obtain a sample of one hundred and thirty-eight (138) from a population of six hundred and twenty-seven (627) large scale manufacturing firms. The descriptive statistics, reliability and validity tests of the constructs, correlation analysis, regression analysis and factor analysis models were used to test the hypotheses. The findings indicate that there is a strong significant relationship between supply chain technologies, supply chain strategies and firm performance, implying that both supply chain technology and supply chain strategies explain 88.2 % of the changes in the firm's performance. The net effect of both supply chain strategies and technologies is explained by the coefficient of product moderating variable (SC Strategy*Technology beta = 0.532) which shows that supply chain technology is a significant moderator of the relationship between supply chain strategies and firm performance. This study cleared some contradictions to support the position that firms should invest in supply chain configurations and technologies that lead to improved service delivery accompanied by enhanced operational and overall firm performance

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1. Introduction

Every organization or firm is part of a supply chain whether in the service or manufacturing industry. The complexity in design and managing the supply chains vary a lot depending on the firm and the industry. The structure of the supply chain design is determined by the nature of the firm's products or services, customer preferences, the operations and process design of the firm. Any supply chain should be strategically planned beforehand to give the firm leverage over competitors. In the current complex business environment, the strategy should be a set of flexible and integrated decisions crafted to achieve the firm's goals and business objectives [1]. Many of the large firms in the supply chains have a long way to go before realizing their full potential for a truly linked supply chain management system. The link ensures that the value creation process and the supply chain management system is a continuous transformation that must be facilitated by Information Technology (IT) at every stage. Firms are currently crafting adaptive supply chain strategies at the business and operations levels for them to be competitive in the globalization arena. Supply chain management, operations management, and technology management are therefore inseparable in any efficient transformation [2], [3].

The discipline of supply chain management is led by practice and not theories as depicted in the development of very few theories in recent times. Owing to lack of consensus on the definition and differing views on the concept of SCM, this study was guided by Mentzer et al. [4] definition that is broad enough and captures the issues of strategy and firm performance. They define supply chain management as: "...the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole [4], p. 18". Hines [5] defines what the supply chain strategies are, how they work and why firms invest in them as follows: "Supply chain strategies require a total systems view of the linkages in the chain that work together efficiently to create customer satisfaction at the end point of delivery to the consumer. As a consequence, costs must be lowered throughout the chain by driving out unnecessary costs and focusing attention on adding value. Throughput efficiency must be increased, bottlenecks removed and performance measurement must focus on total systems efficiency and equitable reward distribution to those in the supply chain adding value. The supply chain system must be responsive to customer requirements" (p76). The SCM theories have been categorized into three: the economic theories, which includes transaction cost theory and agency theory; secondly, the strategic management theories of resource-based view of the firm and the theory of competitive advantage; and lastly, the psychological and sociological theories of organizational learning theory and the inter-organizational networks theory [6]. The resource-based view theory guided this study.

Under the economic pillar of Kenya Vision 2030, large scale manufacturing is expected to support economic evidently as a powerful and aggressive sector to support the national growth, create employment, earn the country foreign exchange and facilitate foreign investment [7]. Currently, the large-scale manufacturing subsector's most critical needs are employment creation, revenue generation, local raw materials transformation and value creation including the participation in global trade. Key to this is the implementation of the required manufacturing and communication technology to enhance the quality, speed and flexibility [8]. Remarkably, according to a report by PWC [9], the Kenya large-scale manufacturing subsector has a challenging history, unstructured strategy and industry structure. Many large-scale manufacturing subsector companies in Kenya particularly multinational manufacturing firms have migrated their operations to other countries. These firms have relocated, shut down or downsized their operations because they consider Kenya as one of the least yielding country worldwide. This is due to poor infrastructure, high tariffs and taxes. Despite these challenges, the subsector is expected to play an important role towards the achievement of Kenya's Vision 2030 of becoming industrialized and its ability to compete internationally. According to KAM [10], a large scale manufacturing is one with more than 100 employees. Currently, there are 627 large scale manufacturing firms in Kenya operating in twelve subsectors ranging from construction, food processing, chemicals, energy, plastic, textiles, wood, pharmaceuticals, metal, leather, automobiles and paper processing firms. This study is a build up on Vision 2030's manufacturing sector five year rolling plan starting from 2012. The plan is aimed at increasing the GDP by ten percent by enhancing local productivity and a fifteen percent saturation of Kenyan market with locally manufactured products.

According to PwCIL [9] Kenya's large-scale manufacturing subsector has a challenging history in terms of performance, unstructured strategy and use of outdated technology. This study sought to contextually test the relationship between SC strategies and performance of large-scale manufacturing firms in Kenya, with technology as a moderating variable.

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