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Performance Measurement: A Conceptual Framework for Supply Chain Practices

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Abstract

Measurement of Supply Chain (SC) performance with regards to key practices of SC paradigms is the area which is under research. Presently there are no guidance or set rules under which we can measure SC performance. The lack of clarity and comparability concerns in this area creates misunderstanding and makes it more difficult to formulate a clear strategy. The aim of this research is to identify antecedents of existing SC paradigm's practices, as well as antecedents for SC performance measurement to formulate a conceptual framework. Based on this research, new sustainable SC performance measurement conceptual framework is proposed for existing SC paradigms. The detailed analysis presented in this research paper offers a set of characteristics and structure that industry as well as academia could use it as a guidance framework to measure SC performance.

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1. Introduction

To enhance the competitiveness SCs are implementing new innovative paradigms of management. Among the existing SC paradigms particularly few are required to be mentioned here, since its better performance of SC and importance: agile, lean, green and resilient (LARG). Green drive has been converted from a simple cause to protect our environment into a well-developed, scrutinized economy. Environmental obligation has progressed from a fashion to a business imperative; it does help corporations

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to accomplish their business goals. The objective of SC is to provide the exact product, in the exact amount, in the exact state, at exact time to exact place and that too at the exact cost. Since the consumer necessities are incessantly changing, so SCs must also be adjustable to advanced modifications, so that requirements of changing markets could be accommodated. Business economic security is influenced by global SC as well as on a mutual acceptance of global risk. These common threats and susceptibilities in SC stress building sufficient resilience. Equally agility and lead time reduction are preferably required by each SC manger, to contest with the varying demands and necessities of the businesses. Currently four SC paradigms are normally practiced by the business managers, namely Lean, Agile, Resilient and Green. But in current scenario disruptive innovative technologies change market tendencies very rapidly. That allows very less time for business for responding as per the varying demands and desires of the customers. Besides next disruptive innovation in technology is about to be launched, which poses extra pressure on the business managers and making it difficult to select any one SC paradigm permanently. It is extremely needed to formulate a framework; which could incorporate all best practices of existing SC paradigms as well as measure SC performance.

2. Literature Review of Literature regarding SCM Paradigms

A SC could be labeled as that chain which connects several components, starting from end consumer to far most contractors, over the process of manufacturing and various amenities so that the course of information, resources and cash could effectively be accomplished for meeting the commercial necessities (Stevens, 1989; Azevdo, et al., 2011). The SCM could be considered as a tactical aspect, so that managerial efficacy and profitability could be achieved as well as for the greater fulfillment of organizational objectives e.g., better customer service, enhanced competitiveness, (Gunasekaran and Tirtiroglu, 2001). (Gunasekaran, Patel and McGaughey, 2004) explained that in the perspective of SC, the measurement of performance is strategic and also essential because most firms realize that SC prerequisite that its performance should be measured as well as techniques of SC should have been precise and measured. In contemporary business, it is assumed that SCs compete each-other instead of corporations (Christopher & Towill, 2000), whereas the failure or success of SC is mostly determined by the open market. However, to guarantee the improved SC, development of a system for measuring the performance which suitably reveals the factual presentation is essentially vital. The literature review indicates that mostly researches remained concentrated on the study of singular paradigm of SC (Anand and Kodali, 2010; Hong, Kwon and Roh, 2009); or maximum in the combination of only two of these, e.g., green verses lean (Kainuma and Tawara, 2006), agile verses resilience (Christopher and Rutherford, 2004), green verses resilient (Rosič, Bauer, and Jammerneegg, 2009), or agile verses lean (Naylor, Naim, and Berry, 1999). Nevertheless the simultaneous incorporation of agile, lean, green and resilient paradigms of SC; might support SCs to be extra sustainable, rationalized and efficient.

There are four existing SC paradigms, namely agile, lean, green and resilient, given the nomenclature as LARG, which are reasonably interesting SC paradigms, but lately it got fair intention to integrate of these LARG paradigms (Azfar, 2012). This paper is focused on formulation of a conceptual framework, after finding antecedents of LARG practices as well as deducting antecedents for SC economic, operational, and environmental performance. This research paper adds value to the literature by presenting a new conceptual framework, to improve the agility, leanness, greenness and resilience of manufacturing SCs. This paper is structured as the following: After introducing the research, review of published work is presented for the LARG paradigms in the SC viewpoint and some practices of these paradigms are also explained. Following to these practices of SC Paradigms; insight on performance

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