



Exfoliating Green Supply Chain & Logistics by Propelling Organizational Theories

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ABSTRACT

The concept of Green Supply Chain Management (GSCM) encompasses the principles of operations and logistics in a way that carbon footprints may be minimized and a greener ecological environment be maintained. A paradigm shift is observed in the way interpretation of green logistics in the light of existing organization theories has been carried out. Although various theories exist in this pretext but only selected ones have been catapulted in this paper in the direction of attaining GSCM at holistic level. This conceptual paper aims at drawing vital prescripts from myriad of organizational theories and extrapolates its relevance in getting a broader insight into the nuances of GSCM for a better implementation of environment friendly logistics. The data mining technique used in the paper is systematic search. Conceptual framework

analysis has been employed as the qualitative research tool in this literature intensive reference based study. The paper entails promise for nature conservationists, social advocates of corporate citizenship, logistic managers, line managers of operations oriented business firms and researchers.

Keywords: *Green logistics, Green supply chain management, Organizational theories.*

1.0 RESEARCH OBJECTIVE

To extrapolate few identified organizational theories in the direction of green supply chain management for gaining a broader perspective of environment oriented logistics.

2.0 INTRODUCTION

The field of Green Supply Chain Management (GSCM) is inter- disciplinary

in nature and has potential to draw attention of both industry and academia. Ever since the advent of industrial revolution, there was an urge to manage the industry effluents & waste and exhibit an element of corporate environmental stewardship. An outcome of this urge was an equivocal attention on the growth of distribution channels and supplier systems (Lun et al., 2011). The interjection of organizational theory into management policies and its nexus with operations management & supply chain (Ketchen and Hult, 2007) observed a peak in recent times. Over a period of time, the application arenas of organizational theories have broadened themselves to include the ecological environment and the supply chain aspect of organizations (Etzion, 2007; Hoffman and Ventresca, 2002). This review paper aims at integrating the organizational theories with GSCM and to steer it in a direction that future generations could appreciate it. The idea of this conceptual paper is to open frontiers for aligning selective organizational theories with the principles and intentions of GSCM. The existing void in the literature on GSCM and extrapolation of organizational theories to catapult the myriad aspects of GSCM is the main objective of this paper.

3.0 LITERATURE REVIEW

3.1 THEORETICAL EVIDENCES OF GREEN SUPPLY CHAIN MANAGEMENT

The evolution of theories related to Green Supply Chain Management (GSCM) can be dated back to emergence of anecdotal case studies centered on green logistics. These theories then got transformed into theoretical developmental investigations. Having got subjected to empirical evaluations, these theoretical frameworks got transcended to structured models of GSCM (Seuring and Muller, 2008). Evidences of such transformations have been observed around 1990s (Seuring & Muller 2008; Srivastava, 2007), when supply chain was beginning to be considered as a strategic competitive tool (Bhote, 1989) and the philosophy of industrial eco-system (Jelinski et al., 1992) grabbing the individual attention. Sarkis, Zhu and Lai (2011) have been suggestive of various theories. Three vital ones have been discussed as:

3.1(A) THEORY 1: RESOURCE DEPENDENCE THEORY (RDT)

This theory assumes that organization cannot become self-sufficient in the given

confined resources (termed as strategically critical resources) and have continued survival. It, therefore, suggests that in supply chain management (SCM) the organizations should opt for collaborative and concerted approach & get rid of myopic profits at the cost of others. Instead, this theory appreciates long term strategic profits slated towards enhanced performance based gains.

Impact of Theory 1 on GSCM:

- a) Within the ambit of GSCM, in order to accelerate organizational performance, it is imperative to emphasize on supply chain partnerships and focus on
 - (i) Material recovery
 - (ii) Environmental design of products (Shang et al, 2010; Zhu and Sarkis, 2004; Zhu et al., 2005)
- b) Uncertainty in the operating environment can be minimized by developing a strong nexus between supplier associations and the end customers (consumers) (Carter & Rogers, 2008)

Future directions for Theory 1:

- a) Study of inter-relationship between GSCM performance & material resource dependency is pivotal.
- b) Up-flow and down-flow streams of GSCM are not coherent with resource acquisition domains thereby retarding the growth and development of GSCM in totality. Both these streams need to be aligned for holistic GSCM to get into action.

3.1 (B) THEORY 2: ECOLOGICAL MODERNIZATION THEORY (EMT)

It aims at attaining the right mix of ecological protection and industrial development by a sense of modernity driven by technology and innovation (Janicke, 2008; Murphy and Gouldson, 2000). It is a systematic eco-innovation theory that buttresses two dimensions namely:

- a) Technological innovation
- b) Novel upsurges of pollution

Both the above dimensions have the power to drive GSCM in the direction of practice & research.

Impact of Theory 2 on GSCM:

- a) Emphasis on a stringent government legal framework centered on green practices and GSCM (Kassolis, 2007).
- b) Upper chain of SCM found to be more receptive of eco- innovation.
- c) As per EMT, environmental innovation serves as a backbone for GSCM to operationalize (Zhu, Sarkis et al., 2010).

Future directions of Theory 2:

- a) Integration between big and small elements of SCM in orchestration with innovation diffusion mechanism.
- b) Theoretical buttressing between ecological modernization theory (EMT) & GSCM is essential at grass root level.

3.1 (C) THEORY 3: COMPLEXITY THEORY

Complexity is defined as intermingling of heterogeneous factors like government regulations, customers, suppliers and technological up-gradations (Chakravarthy, 1997). As the level of this complexity takes a toll, the task of implementing GSCM gets tougher. In order to adapt to the changing

backdrop and evolve with it, it is vital for organizations to become responsive to the environment and emphasize on co-evolution. The complexities in GSCM are pertaining to:

- i) Environmental regulations
- ii) Environmental audits for both manufacturers and suppliers
- iii) Taking eco-design specifications
- iv) Size and relationships between the above (Vachon & Klassen, 2008)
- v) Recycling and Remanufacturing etc.

The complexities related to implementation of GSCM are magnified when various parties coming from diverse and heterogeneous social, political, economic, legal and environmental backgrounds aggregate for interaction (Bai and Sarkis, 2010).

Impact of Theory 3 on GSCM:

- a) Supply base activity identified as a major player of managerial consideration (Choi and Krause, 2006)
- b) Size and relationship among interacting parties identified as a prime reason for complexity crisis.

Future directions for Theory 3:

- a) Conducting empirical researches slated towards minimizing complexities in the way of GSCM
- b) Relating adaptive environmental systems into organizational learning theory for attaining holistic GSCM.

4.0 RESEARCH METHODOLOGY

The research methodology of this 'Conceptual' paper is qualitative in nature and anchored amongst the organizational theories centered on the concept of Green Supply Chain Management (GSCM). The selection of organizational theories considered within the ambit of this paper was based on two aspects:

- i) Availability of literature
- ii) Relevance of theory to the concept of GSCM

The relevant literature so drawn by 'Systematic' search method of data mining has been extrapolated to yield results based on 'inductive' mechanism. This exploratory research makes adaptive use of 'Conceptual framework analysis' as a qualitative research tool in drawing reference based inferences. The entire literature of the study

was broken into vital conceptual frames based on the degree of commonality (common keywords) and later extrapolated to yield meaningful deductions. An equivocal emphasis on the similar subject and same reference point is used a focal tool for deducing the eventual findings of this paper.

5.0 FINDINGS

From the research, it has been observed that GSCM & the three identified organizational theories work in orchestration and pave way to the following probable deductions:

- Resource acquisition needs to be well supported by both upstream and downstream flow of supply chain to lay the foundation of GSCM
- GSCM needs to be propelled by adherence to environmental protection related legal framework coupled with principles of industrial development
- GSCM is inter-disciplinary in nature and can be observed as an intersection point of eco-concerns, environmental laws, operations and logistics

- Innovation diffusion mechanism imparts momentum to GSCM and sets pace for an ecological cum technology driven society
- Eco-designs of products lay the foundation of GSCM at the base level because it attracts customers at the first instance (pull strategy) and furthers the pressure on manufacturers to prove their products superior in an ecologically competitive green market by making the prices affordable
- Minimization of complex unstructured systems to facilitate rapid implementation of GSCM
- Removing barriers in internal GSCM loops by putting legal obligations on both suppliers and end customers.

6.0 CONCLUSION

The nascent literature on GSCM has been inflated with new prescripts drawn from three organizational theories found pertinent within the ambit of this research paper. The best practices like lean manufacturing and just-in-time have imbibed the concept of environmental stewardship & exhibited itself in the form of GSCM. Ranging from upstream and downstream flow of material

acquisition to the legal intricacies of environmentalism, the three organizational theories (Resource Dependence Theory (RDT), Ecological Modernization Theory (EMT) and Complexity Theory) cover all vital issues of GSCM. This paper attempted to unfold such vital issues in the light of modern logistic approach of supply chain. Removing obstacles via stringent pro-environment legal framework that not only supports the supply chain but also balances the carbon footprint through eco-designs and green manufacturing platforms have been well attested via the selected organization theories. The theories investigated in this paper have collaboratively acted in exposing the underpinnings of GSCM as a foundation structure. It is anticipated that this paper would serve as

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