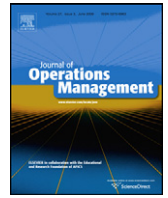




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Efficiency meets accountability: Performance implications of supply chain configuration, control, and capabilities[☆]

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ABSTRACT

The public increasingly holds firms accountable for social and environmental outcomes, such as product toxicity problems and human rights violations, throughout their global supply chains. How can companies improve the social and environmental performance within their supply chains, particularly as other competitive pressures, such as cost and quality, continue to escalate? Starting from an efficient versus responsive supply chain framework, we develop an integrative model that blends together elements of supply chain configuration, stakeholder management, and capability development. Specifically, we spotlight the dimensions of control and accountability that collectively determine stakeholder exposure, and show how this new construct affects the linkages between supply chain capabilities, configuration, and performance. In particular, this analysis reveals that the nature of stakeholder exposure determines how social/environmental technical and relational capabilities impact social and environmental outcomes. We conclude with implications for research and practice, discussing how current supply chain theories must be extended to incorporate external stakeholders, to clarify strategies and identify potential pitfalls, and to better predict performance outcomes.

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1. Introduction

Nike is vilified for the behavior of its overseas subcontractors. Dell is besieged by college activists for its indifference to the disposal of electronic waste. Home Depot is targeted by consumers for purchasing lumber from old growth forests. Coca Cola is picketed for receiving water diverted from public sources in India to its bottling operations. Mattel is confronted by parents about toys that contain high levels of lead in paint and poorly designed magnet components.

Events like these, increasingly frequent occurrences in recent years, represent an important trend in managing supply chain partners and external stakeholders. In many ways, one could argue

that these examples implicate well-managed firms with efficient or market responsive supply chains. Yet, the problems not only involve the firm's activities, but also those of upstream suppliers and the behavior of customers after product purchase. Consumers, activists and other stakeholders now demand accountability for behaviors that encompass several tiers of supply chain partners, over which the firm has varying degrees of control. Should managers have predicted these controversies, and should anticipatory changes have been introduced into their supply chains?

It is well established in the scholarly and managerial literature that firms can configure their supply chains for efficiency or responsiveness (Fisher, 1997), but it is much less clear how the configuration of a supply chain affects environmental or social performance. Moreover, the two key literature streams that could inform this issue – supply chain configuration and stakeholder management – have unfolded largely independent of one another. Suppliers, customers, and operational issues are rarely discussed in stakeholder theory (Freeman, 1984; Donaldson and Preston, 1995). Recently, there has been growing research in sustainable supply chain management (e.g., Carter and Jennings, 2004; Pullman et al., 2009; Mollenkopf et al., 2010). However, with few exceptions (e.g., Pagell and Wu, 2009; Reuter et al., 2010), this research does not explore the origins of stakeholder demands or supply chain characteristics best suited to address these issues. Further complicating the situation, the constructs of control and accountability have often been blurred in both streams.

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Given this gap, our paper integrates a stakeholder management approach with familiar supply chain concepts to elaborate a framework that links supply chain configuration with control and accountability. Our framework employs the capabilities literature to bridge this gap, by considering how technical and relational capabilities developed within a supply chain configuration can lead to social/environmental capabilities, and how these impact performance. The model specifies variables that create exposure to stakeholders along the supply chain, relates supply chain configuration (i.e., efficient versus responsive) to capabilities, and suggests that these capabilities interact with stakeholder exposure to affect the triple bottom line: economic, social, and environmental outcomes.

While our work connects to the expansive literature on Corporate Social Responsibility (CSR), we take a focused approach, incorporating social and environmental issues that are relevant to supply chains. Although moral and ethical considerations are important (Jones and Wicks, 1999; Waddock, 2004), we stress operational motivations and outcomes. In this way, we expand on previous research on sustainable and green supply chains (e.g., Zsidisin and Siferd, 2001; Klassen and Johnson, 2004; Corbett and Klassen, 2006; Linton et al., 2007; Srivastava, 2007) that considered the impact of supply chains on environmental performance. We build on this work by also considering social outcomes, by focusing on capabilities rooted in the configuration of the supply chain, and by introducing a stakeholder perspective.

This paper proceeds as follows: we begin building our model by reviewing how supply chain configuration is linked to performance through technical and relational capabilities. We then define and discuss the antecedents of stakeholder exposure, control and accountability. We synthesize these ideas to create an integrative model in which stakeholder exposure moderates the capabilities-performance link. We develop propositions for our model to trace the logic connecting capabilities and stakeholder exposure to social, environmental, and economic performance. We conclude by discussing implications for scholarly research and managerial practice.

2. Supply chain configuration and capabilities

A classic perspective from which to view the configuration and development of supply chains draws from the seminal work of Fisher (1997). Depending on the characteristics of the product or service, two distinct supply chain configurations offer competitive advantage: one based on efficiency and a second based on market responsiveness. Competitive advantage is derived from developing capabilities that allow a firm to match the pattern of demand and rate of innovation with the supply chain configuration. Predictable markets with commodity-like products that have infrequent innovations are best served with efficient supply chains, whereas highly differentiated, fast moving markets are best served with responsive supply chains. Fig. 1 presents the initial linkages in our model, which are elaborated in the following sections.

2.1. Efficient versus responsive supply chain configurations

The purpose of efficient supply chains is to coordinate the flow of materials and services and thereby minimize inventory and maximize efficiency of the manufacturers and service providers in the chain (Fisher, 1997). Predictable demand for functional products permits high capacity utilization and minimal inventories in both the firm and its supply chain partners, while simultaneously offering high service levels to cost-oriented customers (Iyer et al., 2009). To fully leverage this configuration, product designs also are stable,

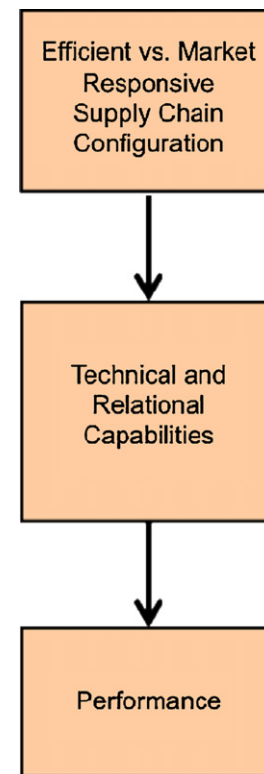


Fig. 1. Supply chain configuration, capabilities, and performance.

new introductions are infrequent, and variety is limited. Combined, these factors allow managers to configure a highly efficient, low-cost supply chain.

In contrast, market responsive supply chains are configured to react quickly to changes in the marketplace by investing in additional capacity, having flexible suppliers, or carrying inventories that allow the supply chain to hedge against variation and uncertainty in demand (Fisher, 1997). Responsive supply chains also accommodate or exploit markets that require customized products, have frequent new product introduction, or unpredictable demand. As a result, market mediation costs are incurred to match supply and demand (Iyer et al., 2009), but the timely response allows for higher margins. Other factors that contribute to configuring supply chains are product variety and complexity (Christopher and Towill, 2000).

This dichotomy of efficiency versus market responsiveness has been leveraged in subsequent work to help explain the development of relational capabilities (de Leeuw and Fransoo, 2009) and the impact of supply chain variability and organizational structure on performance (Germain et al., 2008). Identifying the point in the supply chain where product modularity should be introduced has been an important outcome (e.g., Yang et al., 2004). Moreover, as products mature and markets change, supply chain networks can be expected to evolve (Li et al., 2010) with corresponding changes in capabilities. To incorporate environmental performance, a comprehensive analysis must take interactions between multiple stakeholders into consideration, leading to a broadly integrated supply chain (Seuring, 2004).

2.2. Configuration drives capabilities

While not always fully realized, firms develop distinct capabilities based upon their supply chain configuration. We define capabilities as learned routines that firms use to convert inputs to outputs, typically combining both tangible and intangible resources

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