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Towards an understanding of supply chain quality management

S. Thomas Foster Jr.*

Global Supply Chain Management, Marriott School of Management, Brigham Young University, Provo, UT 84602, United States

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Abstract

In this paper, we define supply chain quality management (SCQM) to operationalize and understand the effect of increased emphasis on supply chain management on the practice of quality management. We review current research in quality management and identify common themes found in the literature. Key quality management content variables identified are customer focus, quality practices, supplier relations, leadership, HR practices, business results, and safety. We use these variables to propose areas for future research in the field of supply chain quality management.

Keywords: Supply chain quality management (SCQM); Supply chain management; Quality management

1. Introduction

The increasing emphasis on supply chain management is causing researchers to rethink models, constructs, and frameworks for quality management that have been developed for the field of operations management. While some work has been done in this area (Thirumalai and Sinha, 2005; Benton and Maloni, 2005; Flynn and Flynn, 2005), more scholarly work is needed. Research in quality management has often focused on internal versus external views of quality, with the internal view focusing on process and the external view focusing on the customer. As firms adopt the systems approach implicit in supply chain management, they must merge these views as they internalize upstream and downstream processes with their own.

To understand the field of supply chain quality management (SCQM), we must first define the term by deconstructing it. Bowersox et al. (2007) state that supply chain management consists of firms collaborating to leverage strategic position and to improve operating efficiency. This includes partnering with other firms in chains of relationships that result in downstream benefits to customers. Similarly, the quality management perspective has traditionally considered interacting aspects of systems such as processes, inputs, machines, people, procedures, plant, and equipment as means of creating excellence in products and services (Deming, 2000). This systems-based view of quality also applies to supply chains as well.

According to Fawcett et al. (2006), competition now is not only found at the firm level. Business competition now exists as supply chains seek to gain advantage over competing supply chains. This level of competition requires a much greater level of coordination among chains or networks of suppliers, distributors, producers, and customers. As a result, we adopt the following definition:

> Supply chain quality management (SCQM) is defined as a systems-based approach to performance improvement that leverages opportunities created by upstream and downstream linkages with suppliers and customers.

* Tel.: +1 801 422 2444.
E-mail address: tom_foster@byu.edu.

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This special issue on research in supply chain quality contains papers that provide greater insights into how decisions about quality management, quality assurance, and quality control need to be recast to improve supply chain performance.

2. Current Research in SCQM

2.1. Kaynak and Hartley

Kaynak and Hartley develop a structural equation model showing the relationships between quality management practices and upstream and downstream entities in the supply chain. Supplier quality management and customer focus variables are used to study quality management practices as they extend into the supply chain. They study how these two upstream and downstream practices influence quality-related performance. In addition, they examine other QM practices that mediate these relationships.

In this issue of the Journal of Operations Management, Kaynak and Hartley examine eight QM practices in their paper—management leadership, training, employee relations, customer focus, quality data and reporting, supplier quality management, product or service design, and process management. It is important to note that as a result of supply chain management, these previously internal QM practices have now been externalized to suppliers and customers. Explicit supply chain relationships they study include:

- employee relations and customer focus;
- quality data reporting and customer focus;
- quality data reporting and supplier quality management;
- product and service design and supplier quality management;
- process management and supplier quality management;
- effective inventory management with supplier quality management.

Their study confirms the need for implementing quality management as an integrated system instead of just a loose set of quality practices. This is particularly interesting as many firms are focused on tools and practices instead of creating a quality management infrastructure that will lead to long-term positive results. Kaynak and Hartley suggest that managers should extend their vision beyond their own firms into the supply chain to manage quality. However, for this to happen, differing firms within the supply chain must each develop interlocking practices that are based in collaboration, communication, and collaborative integration. This includes both upstream and downstream quality improvement processes that must be integrated to provide service and product quality to the customer.

Kaynak and Hartley find a direct relationship between management leadership, customer focus, management leadership, and supplier quality management. This demonstrates that leadership is essential to navigate cultural, process-oriented, and human resource practices that differ for firms all along the supply chain. Finally, they find that the role of suppliers in assuring low defect levels in incoming materials not only affects quality downstream, it also affects inventory management practices as the need for safety stock to hedge against this type of variation is obviated.

2.2. Yeung

Yeung studies competition between supply chains to understand the extent to which strategic supply chains interact with quality management systems to drive competitiveness. In his study of manufacturers in Hong Kong and the Pearl River Delta region of Guangdong, he attempts to understand the efficacy of creating strategic supplier partnerships and leveraging supplier management efforts. His stated objectives are to examine the effects of contextual factors such as size, process, ISO 9000 certification, and quality management (QM) on strategic supply management (SSM). In addition, he investigates the impact of SSM on organizational performance in the form of efficiency, customer satisfaction, and business outcomes.

The relationships he studies directly include:

- SSM and ISO 9000 certification;
- SSM and QM implementation;
- SSM and company size;
- SSM and strategy process type;
- SSM and time-based efficiency;
- SSM and cost-related efficiency;
- customer satisfaction and efficiency (time and cost);
- business performance and customer satisfaction.

Using surveys and follow-up interviews for a deeper understanding of the findings, the author classified quality systems into four types (e.g., undeveloped, framed, accommodating, and strategic). Using representative samples of each type, he administered surveys and clarified survey findings with exploratory interviews by interviewing staff from purchasing, quality, or operations areas. Further, he identified firms as either