# Impact of quality management system ISO 9001 on supply chain performance: An empirical study

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## Abstract

The aim of the current study is to empirically investigate the relationship between quality management system ISO 9001 and supply chain performance. A total of 77 responses were received out which 73 were usable, representing the overall response rate of 15% using snowballing technique and cross-sectional survey design. Data were collected from managers working in the functional areas of supply chain management and quality control/ assurance. Correlation analysis was used to examine the relationship between ISO 9001 certification and supply chain performance. Multiple regression analysis was used to investigate the directionality of the relationship between ISO 9001 certification and supply chain performance. A comprehensive set of measures related to quality management system ISO 9001 and supply chain performance was used to study this relationship. The data collected by the survey clearly demonstrate that ISO 9001 certification has significant relationship with supply chain performance and ISO 9001 certified companies have better supply chain performance in terms of cost containment and performance reliability. The findings of the study contribute in the body of knowledge of supply chain management and quality management; it provides inclusive knowledge on ISO 9001 certification and its relationship to supply chain performance. It alsohelps the managers to design and implement ISO 9001 standards for better and improved supply chain performance.

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# 1- Introduction

## *1.1- Background*

Supply chain management (SCM) has been recognized as an important area and has generated a substantial amount of interest among consultants, practitioners and researchers. In current competitive environment, supply chain (SC) initiatives include new product development, process redesign, cost minimization, cycle time reduction and quality management system (QMS) in Supply chain (SC) is the most important tool for organizations to achieve their goals (Briscoe et al., 2004).

Since 1980s, Supply chain management (SCM) has been regarded as one of the most effective ways for firms to improve their performance (Li et al., 2006). Organizations increasingly find that they must rely on effective supply chain performance (SCP) to compete in the dynamic global markets and networked economies (Lai et al., 2002; Ou et al., 2010; Sila et al., 2006). Success of the organization is based on managed and well designed supply chain, therefore supply chain performance (SCP) is becoming increasingly important.

Furthermore, Quality management systems (QMS) have recently flourished across the globe. The globalization has created a high level of market pressure across the world for quick improvement in high quality products and services. However, achieving success in a dynamic market is determined by various factors; these include speed to market, quality of the product and the capability of the competitors (Soh and Markus, 1995). Among these factors, the organizational ability to deliver a high quality product is still considered to be one of the essential and significant competencies (Reimann and Hertz, 1994). Many organizations have

discovered that emphasizing on product and service quality is a strategic weapon to achieve customer satisfaction and competitive success in performing business (Lai et al., 2002).

Recent studies on quality management (QM), International Organization for Standardization (ISO) certification and SCM(Forker et al., 1997; Romano, 2002; Romano and Vinelli, 2001; Tan et al., 1999) have addressed quality as a key strategic variable that should be considered and managed not only within the single firm, but also across the SC's. Quality in supply chain stream from supplier's supplier to the customer's customer is an important element for effective supply chain. By integrating quality management practices (QMP) in SC; companies can easily meet the demand of their customers and provide them satisfactory products (Love et al., 2003).

The most widely used method for implementing a system of quality assurance is the ISO 9001QMS standards (Ilkay and Aslan, 2012; Romano, 2002). ISO 9001 documents the processes in a system and checks if they meet the guidelines or not (Stevenson and Barnes, 2001). The basic theme behind ISO 9001 certification is to ensure internal business processes from the beginning to the end of a value chain which include customer requirements, giving mutual benefit to suppliers and customers, focusing on product design, manufacturing, delivery, service, and support rather than focusing on product quality (Curkovic and Handfield, 1996; Heras et al., 2002; Ilkay and Aslan, 2012; Prajogo, 2011; Sroufe and Curkovic, 2008).

### *1.2- Research Gap*

Over the last two decades, there has been a steady increase in the number of companies across globe who adopted ISO 9001 as their national quality standard for certification (Marín and Ruiz-Olalla, 2011; Prajogo, 2011; To et al., 2011). According to the ISO survey there were approximately 1 million ISO 9001 certified entities worldwide. Such impressive numbers

indicate that ISO 9001 standards are universal and considerable phenomenon, deserving to be studied carefully from several perspectives (Sampaio et al., 2011).

Quality is an important factor in the value adding process involved in the production and delivery of products along the SC(Sila et al., 2006). The implementation of ISO 9001 quality standards help companies to improve their material and cash flows in manufacturing SC's(Lo et al., 2009). Beside this ISO 9001 certification has become an international quality standard that serves as a key selection criterion for supplier selection (Curkovic and Handfield, 1996). Therefore, sustaining quality efforts throughout the SC has significant implications for reduction of costs (Forker et al., 1997). Hence, management of such as ISO 9001 quality system across the SC has become an important tool to achieve organizational goals.

Given the large scale of the ISO 9001 phenomenon, it is quite surprising to note that very few empirical studies have attempted to use performance measures and statistical data analysis to investigate the real impact of ISO 9001 certification on SCP(Casadesús and de Castro, 2005; Erel and Ghosh, 1997; Franceschini et al., 2004; Ilkay and Aslan, 2012; Romano, 2002; Sampaio et al., 2011; Sroufe and Curkovic, 2008).There are few empirical studies related to the impact of ISO 9001 certification on SCP performance. However, there is no consensus among them. Some researchers claim that ISO 9001certification has benefits and increases SCP (Lo et al., 2009; Romano, 2002; Sroufe and Curkovic, 2008). Others claim that it has no benefits or effect on SCP (Ilkay and Aslan, 2012). Most of ISO 9001 studies have focused on individual companies. Some other considered either the upstream (supplier network) or the downstream (demand network) of the supply chain.However, very few studies have empirically examined the impact of ISO 9001 standards on SCP as a whole. Therefore, further empirical research in this area seems to be

necessary and there should be more in depth analysis on this phenomenon from the academic world.

### *1.3- Objectives of the study*

The objective of this study is to check the relationship between QMS ISO 9001 standards on Supply chain performance and provide empirical evidence for the impact of ISO 9001 certification on SCP.

### *1.4- Research Question*

In line with the theory and research gaps discussed above the thesis will answer the following research question.

Is there a relationship between ISO 9001 certification and supply chain performance?

This study is organized in the following manner. Chapter 2 presents a detailed literature review on SCP and QMS ISO 9001. Hypothesis of the study ends this Chapter. Chapter 3 explains methods employed for data collection. Chapter 4 includes data analysis and results regarding the tests of hypotheses. The discussion is presented in Chapter 5. Finally chapter 6 concludes this thesis, presents limitations of the study, managerial implications and its contribution to the researchers and practitioners. Future research perspective has also been discussed at the end of this chapter.