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ITJ

ISSN 1812-5638

INFORMATION TECHNOLOGY JOURNAL

ANSI*net*

Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

A SERVQUAL Model for Assessment of Service Quality in Supply Chain

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Abstract: To assess service problems faced in the supply chain industry, this paper attempts to introduce SERVQUAL scale to measure service quality. According to the characteristics of supply chain industry, an evaluation theory model of service quality is constructed, together with 22 indexes within five dimensions for measurements. The study concludes the range of application for each dimension. From a managerial perspective, the SERVQUAL scale is useful for assessing service quality in the supply chain industry.

Key words: SERVQUAL, supply chain, service quality

INTRODUCTION

In recent years we have witnessed many advanced and complex supply chains, owing to the rapid technological change, intense competition and globalization (Zhang *et al.*, 2011). Many difficult supply chain issues have emerged and challenged businesses, especially service quality. The service quality of supply chain is generally recognized as a critical success factor to differentiate from other competitors. Good service quality leads to the retention of existing customers and reduced costs and ultimately, enhanced profitability.

The SERVQUAL scale, which was developed by Parasuraman *et al.* (1985), has been the best known and the most commonly used to measure service quality. Typically, this method has been used to measure service quality in a wide variety of service environment, such as retail banking, credit card service, repair and maintenance of electrical appliances, long-distance telephone service (Ladhari, 2009) and health care (Brown and Swartz, 1989). Quinn (1992) pointed out that SERVQUAL technique had been the dominant exemplar in service quality research. However, few studies has been applied SERVQUAL scale into supply chain. Rafele (2004) developed a referring model to evaluate the logistic performances. However, perceived service cannot be measured. Introducing the SERVQUAL scale is the first time made to measure the service quality in the supply chain industry.

SERVQUAL MODEL

This section aims to construct a SERVQUAL evaluation model on supply chain. Supply chain consists of many parts, such as manufacturing, retailing,

supplying, transporting and so on. As the customer satisfaction is a crucial benchmark of the success of supply chain, effective service quality improvement of the linking process is crucial. The evaluating process is shown in Fig. 1. We continue to figure out some useful theoretical suggestions from the literature and experts in supply chain industry. According to five dimensions, we need to design 22 indexes about the service of supply chain. Giving a survey which can collect the evaluation score, we obtain the data from this seven-point Likert scale. Then calculating the gaps between customers' expectation and perception are effective. Analyzing the differences between customers' expectation and perception, we can realize what we should improve our service provided.

Service quality can be conceptualized as the so-called "gap" between what consumers feel that the service Parasuraman *et al.* (1985) presented the five gaps model of service quality to explain the formation of the conceptual framework for the service quality gap model. Our SERVQUAL instrument is based on these gaps to evaluate service quality of supply chain industry by comparing consumers' expectation with consumers' perception on five generic dimensions, which are reliability, responsiveness, tangibles, assurance and empathy. In Fig. 2, it shows that SERVQUAL model indicates the relationship between the generic dimensions of SERVQUAL and service quality.

Considering about the characteristics of supply chain, choosing 22 items represents these five dimensions. Each item is captured different responses on customers' expectation on how the performance and consumers' perception of regarding actual service levels. When the gap between perception and expectation is

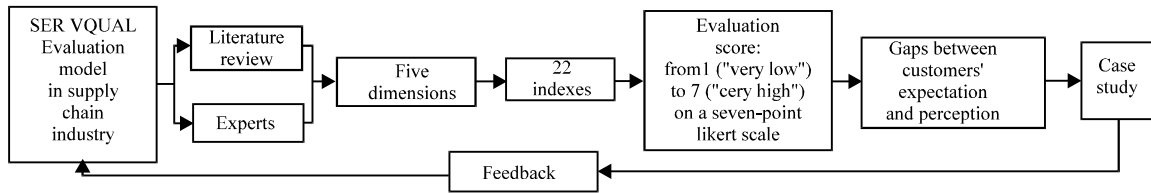


Fig. 1: Process of SERVQUAL evaluation theory

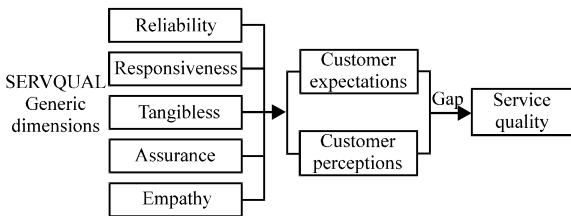


Fig. 2: SERVQUAL model on supply chain

Table 1: Ten dimensions

Dimensions	Content
Tangibles	The appearance of physical facilities, equipment and personnel
Reliability	The ability to perform the promised service dependably and accurately
Responsiveness	The willingness to help customers and provide prompt service
Communication	The level of caring and individualised attention the firm provides to its customers
Credibility	The information the staff give should be trusted
Security	The private service can ensure the privacy
Competence	The staff can provide perfect service for their consumers
Courtesy	The attitude the staff treat to consumers
Understanding/ customers'	The staff can provide their service actively before knowing request
Access	The special service provide for disabled person and old man

positive, the result will be satisfied on the service quality. When the gap is negative, customers feel dissatisfied on the service quality (Hu and Fu, 2013).

MEASUREMENT OF SUPPLY CHAIN QUALITY

Parasuraman *et al.* (1985) concluded that consumers evaluated service quality by comparing expectation with perception on originally ten dimensions, which is shown in Table 1. Later these are reduced to five by a total of 22 items, which are reliability, responsiveness, tangibles, assurance and empathy. Each item is measured on the basis of responses.

Multiple dimensions of service quality have been suggested (Brady and Cronin Jr., 2001). Most of the past literature have treated the SERVQUAL dimensions as independent factors and the relative importance of these

factors are derived by taking the absolute mean differences between perception and expectation (Kumar *et al.*, 2010).

Cronin Jr. and Taylor (1992) argued that the evaluation of service quality based on the expectation-performance gap derived from Parasuraman *et al.* (1985, 1988) is insufficient because much of the empirical research supported performance-based measures of service quality. However, the interdependency of the factors has been the dominant analysis in SERVQUAL model. Analyzing the relative importance of critical factors on the overall service quality gap is getting important on researching service quality.

SERVQUAL scale has more explanatory power than measuring service quality that are based on the gap between expectation and performance (Babakus and Boller, 1992; Babakus and Mangold, 1992; Churchill Jr. and Surprenant, 1982). Bahia and Nantel (2000), Sureshchandar *et al.* (2002) has been added additional three extra variables to the original SERVQUAL scale on service of bank, interest rate and customer complain handling system. However, the content of some dimensions are overlapped.

The gaps between customers' expectation of service and their perception are defined by Parasuraman *et al.* (1985), as follows:

- **Gap 1:** Differences between consumers' expectation and management's perception of those expectations
- **Gap 2:** Differences between perception of consumers' expectation and service quality specification on management
- **Gap 3:** Differences between service quality specification and service actually delivered
- **Gap 4:** Differences between service delivery and the communication to consumers about service delivery
- **Gap 5:** Differences between consumers' expectation and perceived service. This gap depends on size and direction of the four gaps associated with the delivery of service quality on the marketer's side

Table 2: Operational variables used in this study

Generic dimensions	Evaluation index
Reliability	Reliable delivery of information
	Resolution of product/service delivery problems
	Explanation of product/service delivery problems
	Resolution of product quality problems
	On-time delivery of products/services
	Conduct transaction immediately or after a short waiting period
	Insistence on error-free records
	Inventory quantity
	Fast delivery of products/service
	Quality of delivered products/service
Responsiveness	Providing service at the right time
	Ability to meet customers' expectation
Tangibles	Modern equipments
	Professionally appearing staff
	Layout
Assurance	Providing dependable service
	Willingness to help users
	Readiness to respond to users' requests
Empathy	Staff who understand the needs of users
	Courteous staff
	Convenient hours of operation
	Special service or counters for elderly/disabled

Based on the model constructed in section 2, we discuss the forementioned five dimensions. These five dimensions are assessed by a total of 22 items. Reliability refers to the ability of supply chain to perform promised service dependably and accurately. In the operating process of supply chain, it is not easy to avoid the delivery delay which is caused by the traffic or the errors of staff. This dimension is measured by 10 items. Responsiveness is the willingness to help customers and provide prompt service. When the delivery is delayed, staff is responsible to make customers know. Two items are used to measure this dimension. Tangibles refers to physical facilities, equipment and personnel. Good environment can enhance consumers' demands. This dimension includes 3 items. Assurance is the ability of employees to inspire trust and confidence in customers. This dimension is measured by 3 items. Empathy refers to the amount of caring and individualized attention provided to customers. Four items are used to measure this dimension. SERVQUAL statements on supply chain are provided in Table 2.

The more important the SERVQUAL dimension, the higher is the desired service level. For the less important SERVQUAL dimension, the measurement of service quality must provide companies with directions for improvement and optimal management decisions under resource limitations (Lee *et al.*, 2013).

CONCLUSION

As supply chain expanded in importance throughout the global economy, measuring service quality quickly, reliably and accurately will mature as an increasingly

important task for supply chain. Based on SERVQUAL technique, service quality of supply chain has been studied. An SERVQUAL evaluation model of supply chain has been designed, including 22 indexes representing five dimensions, reliability, responsiveness, tangibles, assurance and empathy. How to improve service quality of supply chain can be found by analyzing the differences between consumers' expectation and perception. If SERVQUAL is to be relied upon by service companies for their survival, then understanding the nuances of what these instruments has significant implications for measuring their service quality.

ACKNOWLEDGMENTS

This work is supported by the MOE (Ministry of Education in China) Project of Humanities and Social Sciences under Grant No. 11YJC630287 and the Youth Scholar Backbone Supporting Plan of Heilongjiang General College and Universities under Grant No. 1253G028.

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