

## Similarities and Differences between a 3PL and a Company with a Logistics Department in-house in Quality of Services

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### **ABSTRACT**

*The importance of the logistics function has increased dramatically the last years. Logistics is becoming a major strategic issue for all types of organizations. In order to become these organizations more competitive they adapt quality practices in their logistics functions that gave them a competitive advantage against the others. This paper presents the results of an exploratory literature review investigating the similarities and differences between a Third Party Logistics Provider and a company with a logistics department in-house, in how both of them apply quality in their services. The survey contains information about the forces that encourage managers to implement quality practices in the logistics function, the quality methods being used and also the level of their satisfaction with the current quality management in logistics.*

**Keywords:** Service quality, 3PL, Customer satisfaction.

### **1. Introduction**

Recently, more and more publications are in the area of Third Party Logistics (3PL). This can be partly explained by the growing trend of outsourcing logistics activities in a wide variety of industrial sectors (Transport Intelligence, 2004). From the early 80's, a lot of transport and warehousing companies developed in Third Party Logistics Providers (3PL) (i.e Exel Logistics, Frans Maas) (Bergund et al., 1999; Hertz and Alfredsson, 2003). Since then, there have been two types of companies. Those that are 3PL companies and specialized in providing all the activities that connected with the supply chain and those companies that are commercials or industrials and have a logistics department in-house in order to carry out all the activities that are related to the supply chain.

Terms such as "Third party logistics" or "logistics outsourcing" have been used to describe the organizational practice of contracting-out part of or all logistics activities that were previously performed in-house (Aertsen, 1993; Bowersox, 1990; Lieb, 1992; Sink et al., 1996). 3PL is usually associated with the offering of multiple, bundled services, rather than just isolated transport or warehousing functions (Leahy et al., 1995).

The continuing wave of consolidation within the 3PL industry has also resulted in the emergence of large companies that have the capabilities to offer sophisticated logistics solutions on a continental or even global scale. Such logistics service providers (LSPs) strive to assume a more strategic role within the supply chain of clients, expanding their scale and scope of operations (Selviaridis and Spring, 2007).

On the other hand, there are companies that make all or the biggest part of logistics activities in-house. According to the Wilding and Juriado (2004) it is usual that shippers employ a mixed strategy regarding logistics and retain important logistics activities (e.g order management) in-house. The "do or buy" decision is also affected by the evaluation of cost/service trade-offs (Selviaridis and Spring, 2007). One important determinant of the decision is cost comparison between alternative options. Costs associated with performing logistics activities in-house and investment in capital assets is traded-off against service provider fees. The lowest cost solution should then be selected (van Damme and Ploos van Amstel, 1996). However, cost is not the single most important decision variable and logistics service issues are also considered (La Londe and Maltz, 1992; McGinnis et al., 1995; Sarel and Zinn, 1992). Aertsen (1993) argued that high asset specificity coupled with difficulties in performance measurement should lead to in-

house distribution (Selviaridis and Spring, 2007). Maltz (1994a) found that high asset specificity is associated with in-house warehousing, whereas high transaction frequency leads to outsourcing (Selviaridis and Spring, 2007). Another important determinant of the decision is the quality. Quality is a dominant concept that creates value in logistics (Bowersox et al., 1993). A higher quality management performance is expected to result in higher quality logistics services and thus higher satisfaction of the final customer (Gotzamani et al., 2010).

These two types of companies have both similarities and differences in how they apply quality practices in their logistics activities. The aim of this exploratory study is to mention the principal papers that have published globally in order to provide a comparison of quality management practices between these two types of companies.

## **2. Literature Review**

There are a lot of studies that investigated the application of quality practices in the logistics activities, with the aim of gaining insight into the extent to which quality initiatives were practiced, how such programs were structured and their main results. Some of the studies investigated the application of quality practices in companies that are 3PL and some other studies investigated the application of quality practices in companies that have a logistics department in-house. In the first part of the literature review will be presented papers related to 3PL and in the second part will be presented papers related to companies with a logistics department in-house.

On the one hand, there have been a lot of studies investigating the application of quality practices in companies that are 3PLs. The concept of service quality goes beyond the technical aspects of providing the service. It includes customers' perception of what the service should be and how the service is to be conveyed (Tsaor et al., 2002). Therefore, 3PL service providers should understand how customers perceive and evaluate service quality, because service quality is related to customer satisfaction, which in turn influences the performance of their organizations (So et al., 2006). So et al. (2006) in their study attempted to use the five dimensional structure of SERVQUAL, which is an instrument suggested by Parasuraman et al., (1988, 1991) in order to measure the quality of service provided by 3PL service providers. Parasuraman, et al. (1985) followed a general procedure of qualitative research (interviews and focus groups) to develop the initial scale and then performed quantitative surveys to refine and empirically test the scale, in order to develop SERVQUAL (Mentzer et al., 2001).

The five service quality dimensions that have been identified in the study of So et al. (2006) were tangibles, reliability, responsiveness, assurance and empathy. More specifically, tangibles are the physical facilities, appearance of personnel and tools or equipment used to provide service. Reliability is the ability to perform the promised service dependably and accurately. Responsiveness is the willingness to help customers and provide prompt service, responds immediately to customer request and site problems. Assurance is the skill, knowledge and courtesy of service providers and the level of confidence that they convey to customers. Finally, empathy is the care and personalized attention the firms provide for its customers (So et al., 2006). Although the conceptualization and dimensionality of SERVQUAL have been subjected to some severe criticisms (Buttle, 1996), there is a general agreement that the five dimensions are reasonably accurate predictors of perceived service quality (Sureshchandar et al., 2002).

Another study investigating the application of quality practices in logistics is that of Rahman (2006). In this study selected and examined 350 Australian companies, consisting of 120 logistics, 103 manufacturing and 127 retail/service companies. The survey instrument developed by Millen and Maggard (1997) and used with only minor modifications (Rahman, 2006). At this point, from the Rahmans' (2006) study the results only from the logistics firms would be isolated. Managers were asked how they define logistics quality by identifying the most important components that describe quality in logistics. The top two components that identified quality for logistics firms were on-time delivery and total support of customer needs. After that was the error-free transactions, no goods damaged in handling or delivery, consistency of order cycle, defined procedures and work instructions, reliable suppliers and finally accurate inventory information. No manager of the logistics firms believed out-of-stocks to be an important component of logistics quality (Rahman, 2006). The factors that impeded the implementation of the quality management program were, firstly, changing the corporate culture and at the same rank training and educating employees and follows establishing employee ownership of the quality process,

establishing a common vision through the organization and finally, lack of data availability, gaining senior executive commitment and considering quality in long-term planning (Rahman, 2006).

Also this study showed the practices that used to measure the quality performance. The most important practices in the logistics firms were the quality audit by internal resources and competitive benchmarking which both took the first place and then follows the survey of customer expectations, the process-specific measures and the quality audit by customers respectively (Rahman, 2006). The main reasons for not implementing a quality program were lack of human resources, firstly, and then lack of financial resources, no pressure to initiate, lack of training and finally a 18,2% of the respondents answered that there is no need (Rahman, 2006).

Brah and Lim (2006) conducted a study of 325 Singaporean logistics companies from a list of certified logistics companies obtained from three main sources namely, Singapore trade development board 2001/2002 and two online directories. This study showed that the 49,4% of the logistics companies were companies that apply TQM practices and 50,6% of them were non-TQM companies. In this study indicated that there have been three performance constructs that are operational performance, quality performance and technology performance. More specifically, operational performance includes the cost, as compared to main competitors, and the delivery quality and flexibility. Quality performance includes the employees' quality, inter-organizational and external and technology performance includes all the IT systems that used by the company (Brah and Lim, 2006). Brah and Lim (2006) proved that the implementation of TQM in Singaporean logistics companies enable them to achieve superior operational performance than their competitors (Gotzamani et al., 2010). The results from the study showed that the reasons for not implementing TQM practices were mainly the lack of financial support, no pressure to initiate and lack of management support (Brah and Lim, 2006).

Gotzamani et al. (2010) studied a sample of 193 manufacturing and 107 3PL companies, in order to evaluate the logistics services outsourcing dilemma and the decision to select a 3PL provider via a quality management and a financial performance viewpoint. The data for this study were collected through a structured questionnaire that was built upon the initial instrument prepared by Read and Miller (1991) and its modified version by Millen et al. (1999) (Gotzamani et al., 2010). The results of their study showed that the most important quality strategy components of the logistics services were, firstly, the total support to customer needs and then on-time delivery, error-free transactions, consistency of order cycle and no goods damaged in handling or delivery respectively. While no stock outs, defined procedures and logistics service instructions, accurate inventory information and reliable suppliers were less important factors (Gotzamani et al., 2010). On the other hand, there have been a lot of impediments to the implementation of a quality management system which were firstly, lack of data availability, considering quality in long term planning and changing the corporate culture and follows establishing a common vision, establishing employee ownership of quality, fund availability and last training and educating employees and gaining senior executive commitment (Gotzamani et al., 2010).

The methods used by the companies, in order to measure the quality performance in logistics services were quality inspection by internal inspectors, survey of customers' expectations, quality inspection by customers and quality inspection by external inspectors and follows the competitive benchmarking and the process specific measures (Gotzamani et al., 2010). The study also showed the major drivers to quality management which were top management initiative, customers' complaint/dissatisfaction, revision of overall strategy, internal pressures and follows the competitors' quality initiatives, the decrease in sales, the loss of customers and finally the benchmarking results (Gotzamani et al., 2010). The methods used by the companies, in order to measure the quality performance in logistics services were quality inspection by internal inspectors, survey of customers expectations, quality inspection by customers and quality inspection by external inspectors and follows the competitive benchmarking and the process specific measures (Gotzamani et al., 2010).

Other studies that have investigated the quality practices in 3PL companies are those of Fung and Wong (1998) in which they studied a logistics service provider from Hong Kong, which had implemented TQM practices in its operations and found that customer satisfaction, flexibility and continuous improvements were the main outcomes of logistics quality practices implementation (Fung and Wong, 1998). Another study, that of Lai et al. (2004) investigated a Hong Kong logistics service provider and found that a successful implementation of a quality management system is the key to survival and long-term prosperity for a logistics company (Gotzamani et al., 2010). Also, Anderson et al. (1998) examined causal

relationships between quality management components and logistics performance, in shippers from the American Society of Transportation and Logistics, and identified a causal model that supported this relationship (Gotzamani et al., 2010).

On the other hand, there have been a lot of studies investigating the application of quality practices in companies that are not 3PL. One of these studies is the study by Read and Miller (1991), which was conducted by the Cleveland Consulting Group, who surveyed 2200 American and European managers. This paper conducted an exploratory study of quality in logistics. Read and Miller (1991) showed that the most important factors that define quality were the total customer satisfaction, on-time delivery, zero defects, employee awareness of quality importance and then follows the reduction of the cost of quality, the best-in-class practices and the human resource excellence. One of their critical findings is that logistics quality programs are not driven by overall business success factors, as was previously believed (Rahman, 2006). They also indicated that quality management practices are often more fully implemented in purchasing than in other logistics areas (Read and Miller, 1991). They found that lack of pressure to initiate and lack of managerial support were the major obstacles to implement a logistics quality program. Their study also showed the most important logistics quality measures, which were on-time delivery, order cycle time, order fill rate, accuracy of order and customer satisfaction (Read and Miller, 1991). Another important finding of their study is “a clear gap between the importance given to the components of logistics quality, and the measures being used” (Chow et al. 1994).

Another important study is that of Millen and Maggard (1997). They conducted a follow-up study to the Read and Miller (1991) and provided a comparison of quality management practices between the two studies (Rahman, 2006). In this study were examined quality logistics practices in the largest 500 US companies. The findings of the study showed that the two most important elements that define logistics strategy were total support of customer needs firstly, and then on time delivery. Elements such as reliable suppliers and accurate inventory information ranked last in this study (Millen and Maggard, 1997). Also, the study showed that in the 64% of the US firms all employees have some quality project responsibilities. However, 60% of them reported that specific employees have been dedicated to quality projects. Some more results from this study are the three areas where quality programs have been implemented the most extensively. These areas were identified as customer service, purchasing and transport (Millen and Maggard, 1997). On the other hand, this study also showed some of the greatest obstructions to a quality program in logistics. Changing the corporate culture was ranked as the greatest obstruction, while lack of data availability was ranked second and establishing a common vision throughout the organization and training and educating employees ranked third and fourth respectively by US firms (Millen and Maggard, 1997).

Similar to the study of Millen and Maggard (1997) is the study of Millen et al., (1999) which examines the application of quality management practices in the logistics function based on a field study of 165 Australian companies. There are several studies that have investigated the implementation of quality management practices in Australian organizations. However, none of these has specifically focused on the logistics function (Millen et al., 1999). In the Millen et al. (1999) study in order to address the status of quality practices in Australian companies they employed a questionnaire that was based on a survey instrument originally prepared by Read and Miller (1991). The resulting questionnaire addressed three main areas regarding logistics practices in the firms. The first area was quality practices implemented by the firm. Specific issues included whether the firm had such a program, what motivated the firm to have such a program, how the firm defined quality and how well integrated into the logistics function the quality management program was (Millen et al., 1999). The second area examined how the quality program was organized and implemented. Issues considered were how the program was administered, the extent of implementation in different logistics areas, and impediments to implementation.

The third area was improvement measurement. The process for measuring performance, performance versus customer expectations, the tools employed and the firm's satisfaction with the results achieved to date were examined in this area (Millen et al., 1999). The results showed that the major drivers for implementing a quality program in logistics were top management and the overall logistics strategy. Customer dissatisfaction and benchmarking were also factors, which influenced the implementation of quality practices in logistics. The results also showed that the three most frequently selected reasons for not implementing a quality program were a lack of management support, no pressure to initiate and a lack of financial resources (Millen et al., 1999). Additionally, respondents named the aspects that define logistics quality management. The most vital aspects were total support of customer needs, on-time

delivery, reliable suppliers, accurate inventory information, error-free transaction, defined procedures and instructions, no out of stocks, no goods damaged in handling and shipping and finally consistency of order cycle (Millen et al., 1999). On the other hand, the greatest factors that impeded the logistics program were identified as changing the corporate culture, establishing employee ownership of the quality process, establishing a common vision throughout the organization, training and educating employees, lack of data availability, considering quality in long term planning, gaining senior executive commitment and finally funding availability (Millen et al., 1999). In this study, Millen et al. (1999) also investigated the processes that used by the firms in order to measure quality performance. These processes were quality audit by internal group, survey of customer expectations, process specific measures, quality audit by external resources other than customer, competitive benchmarking and quality audit by customer (Millen et al., 1999). Finally, the study indicated the different levels of improvements from the total quality management program in logistics. These levels were customer satisfaction, information accuracy, communication, delivery, productivity, logistics costs, order cycle time and finally transaction costs (Millen et al., 1999).

Except from the above studies, there have been some others that investigated the implementation of quality management practices in developing nations like Malaysia or any other Southeast Asian nation. One of these studies is the study by Sohail et al. (2004). In this study, in order to determine the status of quality practices in Malaysian companies they conducted a mail survey using a questionnaire that was originally prepared by Read and Miller (1991) and Millen et al. (1999) (Sohail et al., 2004). The main areas that the study was focused on were the existence of quality management program in the logistics function, the barriers, if any, in the reasons for not implementing quality initiatives in logistics, the important constructs in the definition of logistics quality management, the major drivers of logistics quality management program, the major impediments in its implementation and the performance measures used to assess effectiveness (Sohail et al., 2004). The results from this study showed that the major drivers for implementing a quality program in logistics were initiated from top management, declining sales and competitors quality initiatives. Comparisons with industry benchmarks and customer dissatisfaction or complains were also factors that influenced the implementation of quality practices in logistics (Sohail et al., 2004). The factors that prevented these firms from implementing a quality program in logistics were lack of financial resources, no pressure to initiate and lack of management support (Sohail et al., 2004). These results are similar to those found in the Australian and US studies (Millen and Magard, 1997; Millen et al., 1999).

In this study, the respondents named the three most important measures in their definition of logistics quality management. The findings were total support of customer needs, on-time delivery and error free transactions. About the procedures utilized to measure quality performance, the respondents of the study named firstly a quality audit by internal auditors and secondly surveys of customer expectations. Competitive benchmarking, quality audit by customers and process-specific measures were the other procedures used to measure quality performances (Sohail et al., 2004). Finally, the study indicated the different levels of improvements from the total quality management program in logistics. These levels were customer satisfaction, internal communication/co-ordination, productivity, delivery quality and reliability and also information accuracy (Sohail et al., 2004).

Other studies that investigated the implementation of quality management practices in Malaysian organizations in an overall context are the studies of Poh and Hamid (2001) and Hazman (2000) with similar findings.

### **3. Discussions and Conclusion**

From the analysis of the literature review the findings showed that there have been a lot of similarities in the way that 3PL companies and companies with a logistics department in-house implement quality practices in their logistics functions but also there have been a lot of differences too. More specifically, the three most important components that identified quality for companies that are 3PL were the total support to customer needs, on-time delivery, and error-free transactions. Respectively, the three most important components for companies with a logistics department in-house were the same as those of the 3PLs. The main factors that impeded the implementation of the quality management program in 3PL companies were similar to those of companies that are not 3PL. The major of these factors were lack of management support, no pressure to initiate, lack of financial resources, lack of data availability, considering quality in long term planning, changing the corporate culture, establishing a common vision,

establishing employee ownership of quality, training and educating employees and finally gaining senior executive commitment. But in total, 3PL seem to face less problems compared to the others in the implementation of quality management and improvement programs in logistics services. The results of this study show that both types of firms have applied the same quality tools to monitor and measure improvements in various areas of logistics functions, such as quality audit by internal group, survey of customer expectations, process specific measures, quality audit by external resources other than customer, competitive benchmarking and quality audit by customer. But, 3PL companies show a significantly higher use of all possible methods that help to measure quality performance, to identify customers' perceptions and to evaluate quality improvements in logistics services than the companies that are not 3PL. Finally, the study indicated the different levels of improvements from the total quality management program in logistics companies and in companies with a logistics department in-house.

The results showed some differences between the two types of companies. In the 3PL companies the levels of improvements were the top management initiative, customers' complaint/dissatisfaction, revision of overall strategy, internal pressures and follows the competitors' quality initiatives, the decrease in sales, the loss of customers and finally the benchmarking results. On the other hand, in companies that are not 3PL these levels of improvements were customer satisfaction, information accuracy, communication, delivery, and productivity. Finally, the comparison of the two types of companies showed that 3PL providers implement quality programs in more logistics' related areas compared to companies that operate their own logistics departments and this is a result of the experience and the ability that 3PL companies have in every aspect of the logistics functions more than the companies that are not 3PL.

In the literature there have been many papers about the quality practices that implement 3PL companies as well as the quality practices that implement companies with a logistics department in-house. This paper tried to investigate the quality practices from the principal studies and to evaluate if there have been similarities and differences between these two types of companies. The results of this research proved that in many aspects 3PL companies and those that are not 3PL implement quality practices with the same way. The results obtained from this analysis offer a better understanding of what are the forces that encourage managers to implement quality practices in the logistics function, the quality methods being used and also the level of their satisfaction with the current quality management in logistics. The research shows the way for other, in-depth studies not only in the literature but also comparing the two types of companies using a sample of 3PL companies and a sample of companies that have a logistics department in-house using qualitative and quantitative methods in order to assume more reliable results about their similarities and differences in the way they implement quality practices in their logistics functions.

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