

# **Impact of service quality, image and relational aspects on satisfaction and loyalty in logistics outsourcing relationships**

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## **Abstract**

This paper examines the links between service quality, customer satisfaction and loyalty in logistics outsourcing relationships. Besides service quality, also the role of inter-firm relationships and service provider's image are examined. A theoretical model is developed and tested with structural equation modeling using survey data from industrial companies in Finland. It is shown that perceived service quality influences the customer's satisfaction which again affects loyalty. Inter-firm relationships and service provider's image affect loyalty directly and indirectly through satisfaction.

**Keywords:** Outsourcing, Service quality, Logistics

## **Introduction**

Outsourcing of non-core activities such as logistics is today seen by many companies as an essential means for improving operational efficiency and strengthening focus on core competencies. The drivers and benefits of outsourcing have been widely documented in the literature (e.g. Razzaque and Sheng, 1998; Kremic et al., 2006), but critical views have also been presented pointing out potential risks and drawbacks (e.g. Kakabadse and Kakabadse, 2000). Generally, however, empirical surveys show high levels of buyer satisfaction in outsourcing relationships (Knemeyer & Murphy, 2004; Wilding and Juriado, 2004).

Being able to meet service commitments is critical because service quality is generally conducive to customer satisfaction and loyalty (Olsen 2002). Moreover, the service provider's image (Andreassen and Lindestad, 1998) and good inter-firm relationships (Anderson and Weitz, 1989; Ring and Van de Ven, 1994) are important criteria for customer's loyalty in business-to-business service environment. However, defining service performance in business-to-business relationships can be problematic (Chumpitaz and Paparoidamis, 2004). Similarly, the definition and determinants of customer loyalty in business-to-business environment are not clear and are under-represented in service research (Chumpitaz and Paparoidamis, 2007; Davis-Sramek et al., 2009).

This study addresses the question of how perceived service quality influences the service buyer's satisfaction and loyalty in logistics outsourcing relationships. In addition, the study focuses on the parallel impacts that affect customer satisfaction and loyalty in business relationships. Among these impacts are inter-firm relationships and the service provider's image, which affect loyalty either directly or indirectly in business relationships. A theoretical model is developed outlining the hypothesized relationships between the key constructs and the model is then tested with structural equation modelling (SEM) using the LISREL software package. The empirical data of the study was collected from industrial companies in Finland during the spring 2008. A total of 235 companies participated in the survey (response rate 22.5 percent) that was administered over the Internet using the "Webropol" tool for Internet surveys.

The paper begins with a presentation of the theoretical foundations based on previous research in service quality, business relationships and brand image. A conceptual model is then developed and testable hypotheses are presented together with the operational measures for the key concepts. The empirical study is then reported based on the SEM estimation and statistical test indicators. The paper concludes with theoretical and managerial implications and further research suggestions.

### **Theoretical background**

*Service quality* and business relationships are popular topics in academic research of marketing and service management (for an overview, see Seth et al., 2005). Influential research describes the dimensions and attributes of service quality (Grönroos, 1984; Haywood-Farmer, 1988), differences between quality expectations and performance (Parasuraman et al., 1985 and 1988; Bolton and Drew, 1991), linkages between service performance, customer satisfaction and loyalty (Oliver, 1980; Cronin & Taylor, 1992; Sweeney et al. 1997), customer service in business-to-business relationships (Parasuraman, 1998; Chumpitaz & Paparoidamis, 2007) and the role of image in service evaluation, satisfaction and loyalty (Andreassen & Lindestad, 1998). However, despite active research in the area, no unanimity has been achieved regarding the dimensions of service quality and the linkages between satisfaction, quality and loyalty (e.g. Asubonteng et al., 1996).

The *disconfirmation-of-expectations* model argues that customer loyalty is a function of customer satisfaction, which again is influenced by cognitive comparison of expectations prior to consumption and actual experience (Parasuraman et al., 1988; Andreassen and Lindestad, 1998). An alternative model, the *performance-only model* (SERVPERF), directly captures the customers' perceptions of the service encounter, which makes it a more efficient measurement instrument (Cronin and Taylor, 1992). However, both models share the same idea that there is an indirect influence between the customer's service quality perception and loyalty through satisfaction (Olsen, 2002).

Besides the service experience and satisfaction, the customer's loyalty can also be attributed to good *inter-firm relationships*. Long-term relationships increase trust (Anderson and Weitz, 1989; Ring and Van de Ven, 1994) and reduce the perception of opportunistic behaviour between the parties to the relationship (Parkhe, 1993) through evolving norms of mutual equity (Bolton, 1998; Coulter and Coulter, 2002). A solid relationship increases the service provider's specific knowledge about its customer, which has a significant positive impact on customer loyalty (Lee and Cunningham, 2001). Closeness and duration of the relationship can also be seen as relationship investments that increase commitment and reduce the propensity of relationship dissolution (Hocutt, 1998).

*Corporate image* (Abratt, 1989) and reputation (Fombrun and van Riel, 1997) refer to the stakeholders' perceptions of the company which stem from long-term experience that the customer has with a service provider. A brand or an image involves a perception of quality and serves as an embodiment of the firm's credibility (Selnes, 1993; Sweeney and Swait 2008). Very much like trust which results from long-term relationships, the company's image creates loyalty to the service provider either directly or through service perception and satisfaction judgment (Andreassen and Lindestad, 1998). For new customers, a company's image may be primarily based on advertising or word-of-mouth impacts, while old customers are more likely to form their perceptions from earlier experiences (Brunner et al., 2008). To some extent, a brand can also act as a substitute for personal relationships in situations where direct relationships are difficult to achieve (Palmer, 1997).

The conceptualization of *loyalty* has evolved over the years. Initially, the emphasis was on behavioural dimension of loyalty, where brand loyalty was simply measured in terms of its outcome characteristics (e.g. proportion of purchase devoted to a given brand). However, attitudinal and cognitive dimensions of loyalty which relate with the consumer's decision making process in the evaluation of products or brands have also been recognized in later research. Caruana (2002) defines service loyalty as the degree to which a customer exhibits repeat purchasing behaviour from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service exists. Loyal customers are less costly to than acquiring new ones and increase revenues through repeat sales and referrals (e.g. Reichheld et al., 2000). Besides the sellers, loyalty may also involve advantages for the customers themselves through functional benefits such as time savings and convenience as well as social benefits such as good relationships with business partners (e.g. Reynolds & Beatty, 1999).

### **Conceptual model and measures**

This study builds on the satisfaction-loyalty paradigm in service management research (Oliver, 1980; Olsen 2002), notably the "*performance-only*" (SERVPERF) model advocated by Cronin and Taylor (1992). It is hypothesized that perceived service quality is positively associated with the service buyer's overall satisfaction in an outsourcing relationship (H1), which positively influences the buyer's loyalty to the 3PL service provider (H2). Moreover, it is hypothesized that the service provider's image positively influences the buyer's satisfaction (H3) and loyalty (H4), as indicated by the empirical studies of Andreassen and Lindestad (1998) and Sweeney and Swait (2008). Finally, it is hypothesized that the quality of relationship between the service provider and the buyer positively affects the buyer's satisfaction (H5) and loyalty (H6), as suggested by Crosby and Stephens (1987) and Andersson and Weitz (1989), respectively. The resulting theoretical model with the hypothesized relationships is presented in Figure 1.

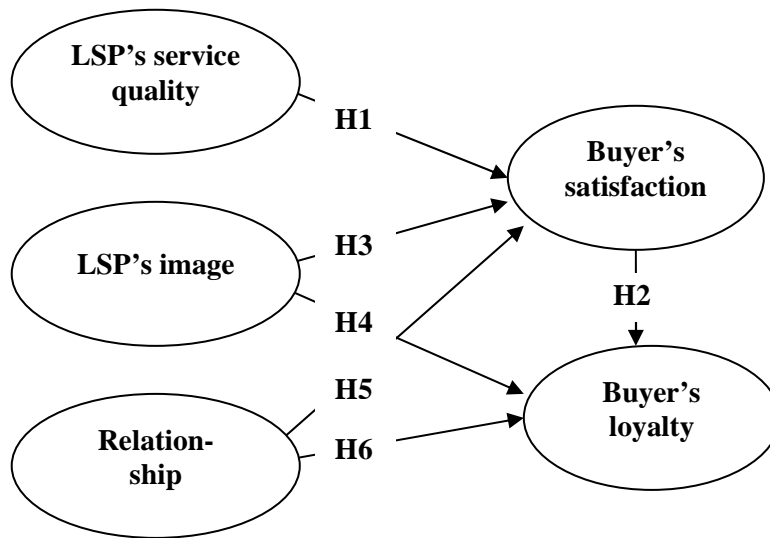


Figure 1 – Theoretical model

The service buyer's perception of outsourced service quality was measured with three indicators describing the operational aspects of service quality. Previous studies have emphasized the importance of operational service quality in logistics (Stank et al., 1999 and 2003) and its importance in overall quality perception of third party logistics service has been shown to outweigh personal and technical aspects of service quality (Juga et al., 2009). The logistics service provider's image was similarly measured with three indicators describing the logistics service provider's reputation among the service buyers. The indicators were selectively chosen from a broad set of measures that was originally developed and tested in third party logistics context by Davis et al. (2008). The quality of the relationship between the third party logistics provider and the service buyer was measured with three indicators that have been proposed and tested in an empirical study of logistics outsourcing relationships by Juga & Juntunen (2010).

Satisfaction, as a composite construct, was measured with a single indicator representing the service buyer's overall satisfaction with the relationship to the service provider. In service quality research, most measures of satisfaction are based on one-item scale although multiple-item scales are also available (Olsen, 2002). Finally, the buyer's loyalty to the main service provider was measured with two indicators describing the buyer's commitment to the ongoing outsourcing relationship. In service research, loyalty is a multifaceted construct involving both attitudinal and behavioural dimensions. However, measurement problems often lead to the omission of direct behaviour and focus is on intentions, assuming that intentions strongly affect behaviour (Cahill, 2007). In this study, two indicators were used describing the buyer's intentions to continue or discontinue the relationship with the main service provider for outsourced services in logistics.

The proposed theoretical constructs, which are shown as latent variables or factors in SEM analysis, and their operational statements (i.e. the observed variables) used in the survey questionnaire are presented in Table 1. All variables were measured on a 7-point scale, including quality ratings for the concepts of operational service quality (poor ... excellent) and satisfaction (very dissatisfied ... very satisfied), as well as Likert-scale statements for image, relationships and loyalty (fully disagree ... fully agree).

Table 1 – Latent constructs and operational measures

Latent variable	Operational measures in the questionnaire	Label
<b>Perceived service quality</b>	Based on recent experiences with your main logistics service provider, evaluate the service in terms of (scale: 1 poor ... 7 excellent): <ul style="list-style-type: none"> <li>- ability to keep schedules</li> <li>- ability to offer service promptly</li> <li>- ability to provide sufficient capacity</li> </ul>	QUALITY  schedule quick capacity
<b>LSP's image</b>	Please describe the impression you have of your main logistics service providers (scale: 1 fully disagree... 7 fully agree): <ul style="list-style-type: none"> <li>- Compared to other logistics service providers, our logistics provider is a leading brand in the industry</li> <li>- Our main logistics service provider is a highly respected company</li> <li>- Compared to other logistics service providers, our logistics provider is highly respected</li> </ul>	IMAGE  brand resp comresp
<b>Relationship</b>	Please describe the relationships with your logistics service providers (scale: 1 fully disagree... 7 fully agree): <ul style="list-style-type: none"> <li>- We have cooperated for a long time with our logistics service providers</li> <li>- We have good personal relationships with our logistics service providers</li> <li>- We have good routines to solve emerging problems with our logistics service providers</li> </ul>	RELATION  history personal routines
<b>Satisfaction</b>	Indicate your satisfaction with the present service provider (scale: 1 very dissatisfied ... 7 very satisfied): <ul style="list-style-type: none"> <li>- Give an evaluation of your overall satisfaction with the operation of your main logistics service provider.</li> </ul>	SATIS  satisfi
<b>Loyalty</b>	Indicate your intentions regarding relationship continuity (scale: 1 fully disagree ... 7 fully agree) <ul style="list-style-type: none"> <li>- With high probability we will continue the relationship with our present logistics service providers as long as possible.</li> <li>- We are likely to recommend our main logistics service provider to our business partners</li> </ul>	LOYAL  continue change

### Data collection and estimation method

Data were collected from Finnish industrial companies during spring 2008. The survey was conducted over the Internet using the 'Webropol' online survey package and e-mail notification. The first criterion for target group selection was that a company's line of business should consume a lot of logistics services (e.g. mining, manufacturing and construction). The next criterion was that the company must have at least 50 employees and an annual turnover of over 400,000 Euros. This target group included some companies twice because they had several offices in Finland. After eliminating double entries from the register, the final target group consisted of 1,043 companies. There were 235 acceptable responses for an overall response rate 22.5 percent.

Non-response bias was studied by comparing different response waves using randomized one-way analysis of variance (ANOVA). The first wave included companies that responded after the original e-mail request (37.4 percent). The second wave consisted of companies that responded after a telephone reminder (62.6 percent). There were no statistically significant differences (at  $p < 0.05$  level) between the two groups for any of the variables used in the study. Thus, non-response bias was not considered to be a problem in the study and we consider the resultant sample satisfactorily represents the target group population.

Respondents had completed the questionnaires with good accuracy and item non-response rate was low. However, to avoid any loss in sample size missing data were completed with the SPSS expectation maximization (EM) function. Likelihood based procedures are generally recommended for missing data completion where available (Schafer and Graham, 2002) and the EM technique was selected as it shows little bias under most conditions (Hair et al., 2010).

The model was tested using SEM and LISREL software (Jöreskog and Sörbom 1993a, 1993b; Jöreskog et al., 2000). SEM is a statistical technique that can be used for testing and estimating the reliability and validity of theoretical constructs as well as inferential relationships among these constructs (Hair et al., 2010). The estimates were calculated using the maximum likelihood (ML) method based on covariance matrix. Prior to model estimation, the normality of the variables was studied with the Prelis2 software.

### **Empirical results**

The empirical test (see Figure 2) shows a good statistical fit of the model to the data ( $\chi^2$  62.01, df. 45,  $p$  0.047, RMSEA 0.040). The directions of the relationships in the empirical test are as proposed in the theoretical model. It can be seen that strong links exist between the theoretical constructs of perceived service quality (QUALITY), customer satisfaction (SATIS) and loyalty (LOYAL), which is fully consistent with the satisfaction-loyalty paradigm in service quality research. There is also an association between the quality of relationship (RELATION) and loyalty (LOYAL) and the logistics service provider's image (IMAGE) and customer satisfaction (SATIS). Compared to the main effects between service quality, satisfaction and loyalty, however, the impacts from image to satisfaction and relationships to loyalty are considerably weaker.

Interestingly, not all relationships in the empirical model are statistically significant (the relationships that are statistically significant on the 0.05 level are underlined in Figure 2). On the one hand, the direct link between image and loyalty is not statistically significant, so there is only an indirect impact from image to loyalty via overall satisfaction. On the other hand, the association between the quality of relationship and satisfaction is not statistically significant, while a direct link from relationship to loyalty is significant. Thus, both image and inter-firm relationships are important elements in the customer's decisions concerning the continuity of outsourcing relationships, but there seem to be different mechanisms how these two constructs affect on the customer's satisfaction and loyalty.

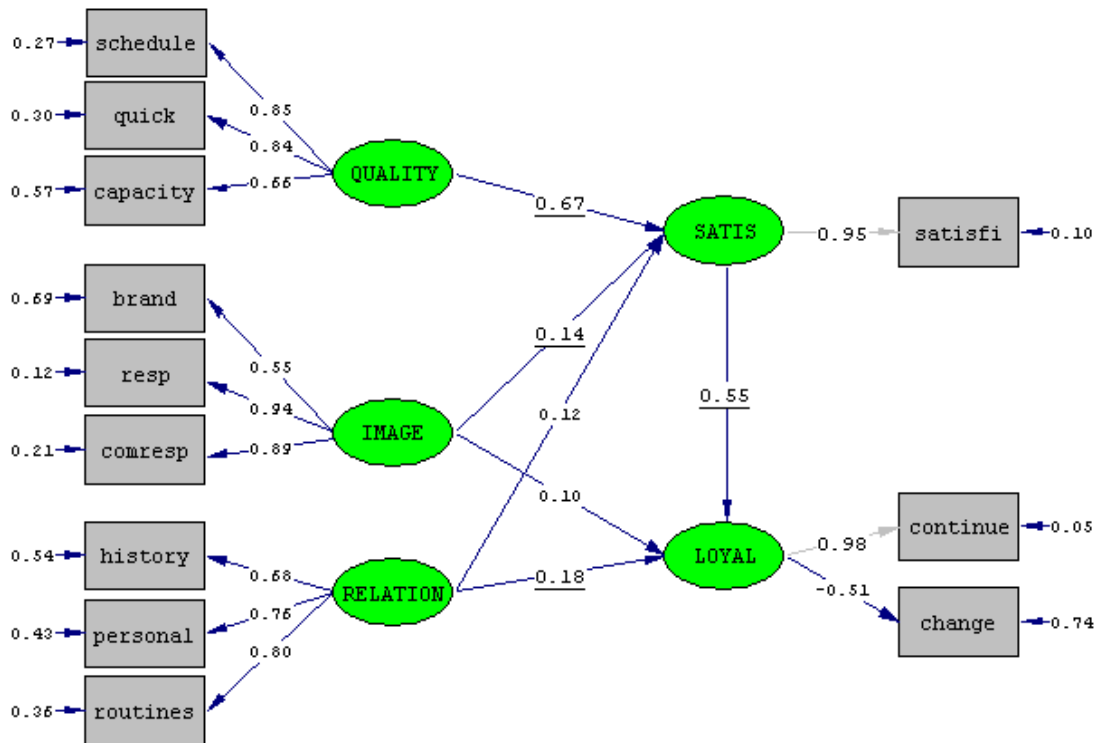


Figure 2 – Model estimation

The factor loadings of the indicator variables in the empirical model are generally good, indicating acceptable validity of the measures of theoretical constructs. However, it is problematic to evaluate the validity of constructs with only two or just one indicator variables (i.e. the endogenous variables “SATIS” and “LOYAL” in this case), so the validity should preferably be assessed on the basis of the whole model rather than individual factors of the model. The test statistics of the empirical model and latent constructs are presented in Table 2.

Table 2 – Test statistics of the final model

Path model			Latent constructs		
Test	Value	P-value		CR	AVE
chi-square (d.f.)	62.01 (45)	0.047	QUALITY	0.83	0.65
RMSEA	0.040		IMAGE	0.85	0.66
CFI	0.99		RELATION	0.79	0.63
GFI	0.96		SATIS	0.90	0.47
SRMR	0.034		LOYAL	0.74	0.55
normed chi-sq.	1.378				

## Conclusions

This study confirms the central role of service quality and overall satisfaction as the antecedents to buyer’s loyalty in logistics outsourcing relationships (H1 and H2). Moreover, somewhat weaker, but statistically significant, associations can be found between the service provider’s image and satisfaction (H3) as well as the quality of relationship and loyalty (H6). By contrast, the impacts of image on loyalty and

relationship on satisfaction are statistically not significant, and hypotheses H4 and H5 are therefore rejected.

The main effects between service quality, satisfaction and loyalty are consistent with the satisfaction-loyalty paradigm in service quality research. Thus, perceived quality influences overall satisfaction which again affects loyalty. At the same time, there seem to be different mechanisms how the service provider's image and inter-firm relationships affect on the customer's satisfaction and loyalty. Image has an indirect effect on loyalty via satisfaction whereas relationships affect loyalty directly without an impact on satisfaction. This difference may perhaps be related to the existence of the so-called "halo effect" (e.g. Wirtz, 2003; van Doorn, 2008) which distorts individual quality or satisfaction measures towards a general impression – for instance, a strong brand may have spillover effects on all products or services under the same brand name. In this case, a halo-like effect is seen as a positive impact of the service provider's image on buyer satisfaction which strongly affects loyalty.

In this paper the service quality evaluation is limited to one dimension, operational quality, and additional dimensions could be included to get a more comprehensive view of the various performance aspects in third party logistics (see e.g. Mentzer et al., 2001; Seth et al., 2006). In addition, the measures of the theoretical constructs should be further developed to improve the reliability and validity of the model. For instance, the concept of loyalty obviously involves various other aspects that could be included to complement the measures of intended behavior used in this study. The nature and role of the halo effect should also be further investigated in the business-to-business service context and outsourcing relationships.

A final comment concerns the geographic setting and timing of the study. The survey was conducted in Finland, which is a fairly small market for third party logistics services. To validate and expand the results, a broader international survey would be needed. In addition, it should be remembered that the survey was administered in spring 2008 and the logistics market changed dramatically at the end of that year because of the business slowdown initiated by the financial crisis. This may have changed the shippers' attitudes to outsourcing, perhaps shifting the focus more on cost efficiency than on service quality. Therefore, the study needs to be repeated - preferably with the inclusion also of the cost performance dimension - to get comparative findings under different economic conditions.

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