# INVESTIGATING BRAND EQUITY OF THIRD-PARTY SERVICE PROVIDERS

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**Structured Abstract**

**Purpose:** This research applies theory and techniques from the services and marketing literature to a supply chain context consisting of a shipper or seller, a customer or buyer, and a third-party logistics service provider (3PL) to investigate corporate brand equity resulting from service quality, customer satisfaction and customer loyalty towards the 3PL.

**Design/methodology/approach:** A conceptual model was developed from the literature and tested with Finnish industrial firms using an online survey. Data were analysed using structural equation modelling to examine relationships among the four constructs.

**Findings:** Hypothesised relationships among the four constructs in the conceptual model were supported however the relationship between loyalty and corporate brand equity was weak.

**Research limitations/implications:** This investigatory research is based on a one country sample making transferability and generalisability to other countries difficult.

**Practical implications:** The findings of this research should enable 3PL managers to determine service offerings that are most important to either shippers or customers, develop a service package using such offerings to satisfy needs, and thus build loyalty and corporate brand equity among both parties.

**Originality/value:** This paper adds to our knowledge of these constructs in a supply chain context, particularly for 3PLs, and provides an interdisciplinary approach to research in the supply chain domain.

**Keywords:** Third-party logistics service providers, service quality, customer satisfaction, loyalty, corporate brand equity

**Paper classification:** Research Paper

**Introduction**

The primary role of a third-party logistics service provider (3PL) is to move and/or store goods through the supply chain from point of origin to point of consumption on behalf of shippers or sellers and customers or buyers. By performing this function in a timely and efficient manner a 3PL will satisfy the needs of both the shipper and customer for that service provision; this objective is similar to the output of the marketing concept (Marketing Staff of the Ohio State University, 1965).

The linkage between logistics and supply chain activities and the marketing domain has been well-documented by many authors over the last forty years, for example see Bowersox (1969); Mentzer et al. (1989); Bartels (1993), Stock (1997); and Grant (2010). Further, functions provided by 3PLs consist primarily of services inasmuch they exhibit classical service characteristics by being intangible, unable to be inventoried, inseparable from production and use or 'consumption' and are possibly inconsistent or heterogeneous between LSP and customer (Grant, 2012). Thus, it is considered appropriate to evaluate logistics services with extant and well-tested models and practices from the services marketing discipline (Kristensen et al., 2000; Grant, 2004).

There have been several conceptual discussions indicating a linear path where a firm's provision of excellent service or service quality leads to customer satisfaction, which should then develop into loyalty after repeated satisfactory 'service performances' (Morgan and Hunt, 1994; Parasuraman and Grewal, 2000). In turn, this loyalty should manifest itself as a corporate brand equity with the firm's customers (Bendixen et al., 2004; Davis et al., 2008; Marquardt et al., 2011) and hence the firm should develop their brand leadership as a capability that gives it a competitive advantage (Beverland et al., 2007).

Various segments of this linear path have been empirically tested on a discrete basis or with some overlap, however to our knowledge there have not been any studies encompassing the entire path from service provision to corporate equity and associated relationships, particularly in the business-to-business (B2B) 3PL service provision arena. This paper addresses this gap and reports on a research study investigating the associated relationships of a 3PL's service offerings, resultant customer satisfaction, customer loyalty towards the 3PL, and resultant corporate brand equity for the 3PL.

This paper is structured as follow. We first discuss extant literature and research regarding these four constructs and propose a conceptual model that encompasses them and their relevant underlying variables or items. Then, we present the findings of an empirical study of various industrial businesses regarding these dimensions and items using techniques from the services marketing literature. Lastly, we offer conclusions, theoretical and practical implications, study limitations and opportunities for future research.

## Literature and Previous Research

### Third-party Logistics (3PL) Service Quality and Satisfaction

A 3PL that provides supply chain services for a shipper and/or a customer is usually considered outside the shipper-customer relationship. In this paper we deal only with the term 3PL and do not deviate into various configurations such as logistics services providers (LSPs) or fourth-party provider (4PL). Our point of departure is the fact that a 3PL is hired by the shipper or customer to provide services, no matter how encompassing their service offering may be.

Being a third-party, a 3PL may sometimes be neglected below a 'line of visibility' as shown in Figure 1; i.e. the 3PL's services are in the 'backroom' as denoted in Parasuraman et al.'s (1985) original conceptual model service of service quality. Thus, a customer's perception of the flow of goods and information may be very different from the actual flow. Because the 3PL is responsible for an efficient and timely flow from shipper to customer, their impact on the service provision process is important, and thus their corporate brand equity may also be important to both customers and shippers to ensure their respective service expectations are confirmed by subsequent performance perceptions and generate loyalty towards the 3PL.

**Insert Figure 1 here.**

Recently, large 3PLs have begun marketing initiatives in an attempt to build and maintain such brand image in both the consumer and business to business (B2B) segment. For example, DHL (2012) notes that is "*the global market leader in the international express courier business, with a parcel delivery network spanning more than 220 countries. As a DHL customer, you can benefit directly from this.*" Further, UPS (2012), as part of its *"We*

*Love Logistics"* advertising campaign, is encouraging visitors to its website to download its television commercials for viewing and its campaign jingles for mobile phone ringtones. Lastly, a recent ranking survey of 'superbrands' in the UK (Superbrands, 2012) found three 3PLs in the top twenty: FedEx (12), Eddie Stobart (15) and DHL (16).

However, does a shipper or customer appreciate the efforts of the 3PL? When a shipper provides goods or a customer receives goods they will perform an evaluation of the entire service experience provided by the 3PL and compare this perception to their original expectations. If their perception is equal to their expectation their expectation is confirmed and the customer is satisfied. If however their perception does not equal their expectation the expectation is 'disconfirmed' and the customer is either dissatisfied if their perception is less or possibly 'delighted' or more than satisfied if their perception is greater.

This 'expectancy-disconfirmation' paradigm is commonly used in the services marketing literature for consumer services such as banks and restaurants (Parasuraman et al., 1985) but has had only limited use in logistics and supply chain applications (see for example Mentzer et al., 1989 and Grant, 2004). Further, this paradigm has been criticised regarding the difference or disconfirmation scores between the expectations and perceptions items used. Difference scores are considered psychometrically unreliable due to problems with discriminant validity, spurious correlations and variance restriction (Brown et al., 1993; Lee et al., 2000) and also may not add any information beyond item scores of perceptions (Cronin and Taylor, 1992, 1994).

Cronin and Taylor (1992) empirically compared expectation-perception difference scores to a performance-only score they termed SERVPERF and argued it is superior in terms of construct validity and operational efficacy. Empirical analysis of expectations battery scores has also provided evidence of psychometric unreliability as scores have tended to be highly skewed, indicating possible social desirability response bias (Brown et al., 1993, Lee et al., 2000). For these reasons we focused on a SERVPERF-type of investigation for this study.

Kristensen et al. (2000) proposed a framework, shown in Figure 2, for a European Customer Satisfaction Index based on the American Customer Satisfaction Index (ACSI) used by Anderson and Sullivan (1993). It includes loyalty as an output of customer satisfaction, but

also differentiates between 'service' or 'software' and 'hardware' or 'product quality.' This framework was not empirically tested however Juga et al. (2010) studied the effect of 3PL service quality on satisfaction and its possible impact on loyalty. Their research included dimensions and variables of price and technical quality, the latter similar to Kristensen et al.'s hardware quality; however neither dimension was present in their final model. Juga et al. (2010) found that the key dimensions of 3PL service quality were operational and personal service.

**Insert Figure 2 here.**

*Third-party Logistics (3PL) Service and Loyalty*
Two studies by Stank et al. (1999, 2003) investigated various impacts of a 3PL's performance on customer satisfaction, loyalty and market share and found that dimensions of service performance are relevant in an industrial service context. These studies also showed that operational performance has an impact on loyalty through satisfaction; but in contrast it appears that the impact of relational quality is only marginal.

Davis and Mentzer (2006) used qualitative evidence to explore how perceptions of logistics service quality affect loyalty in supplier-customer relationships. Their study revealed that service quality has a positive effect on loyalty, even if the assessment of loyalty seems to be problematic. It should be remembered that the complex nature of LSP arrangements generally makes it difficult to assess outsourcing performance (Deepen et al., 2008). Further, Grant (2005) noted that there are additional issues affecting satisfactory B2B relationships, such as the use of power and lack of trust identified by Morgan and Hunt (1994).

Finally, Juga et al.'s (2010) study also investigated the impact of satisfaction on loyalty and found that repeated satisfactory experiences did indeed lead to loyalty towards the LSP and shipper.

*Third-party Logistics (3PL) Service Loyalty and Brand Equity*
Brand equity has been studied in both B2B industrial markets (Bendixen et al., 2004) and service markets (Roberts and Merrilees, 2007; Davis et al., 2008; Rauyruen et al., 2009; Juntunen et al., 2011; Marquardt et al., 2011). Such studies have suggested that corporate

image and thus corporate brands may have a salient role in the selection of subcontractors. Further, in B2B markets brand equity exists in the form of a buyer's propensity to pay a price premium for their preferred brand (Bendixen et al., 2004; Rauyruen et al., 2009).

Davis et al. (2008), Juntunen et al. (2011) and Marquardt et al. (2011) are three of the few studies that have examined branding in logistics and supply chain service markets. Davis et al. (2008) adopted Keller's (1993) definition of brand equity as the differential effect of brand knowledge on response to the marketing of the brand and propose that brand equity that accrues to a firm, rather than to a product, is the relevant dependent variable in the context of B2B services. They concluded that a positive relationship exists between brand awareness and brand equity in logistics and supply chain services, as well as between brand image and brand equity.

On the other hand, Juntunen et al. (2011) found that corporate brand loyalty is neither an outcome nor a component of corporate brand equity. Further, they found that corporate brand equity does not create loyalty among logistics service purchasers. Instead, corporate brand image impacts on corporate brand loyalty. Finally, Marquardt et al. (2011) found that the strength of the brand, comprising brand awareness and meaning, is influenced by differentiated value or service propositions that are communicated to customers and provided with consistent service. Thus, the linkage of shipper or customer loyalty to a 3PL and its brand appears weak.

*Summary and Conceptual Model*

Given these considerations and the gaps in the literature within the linear link from logistics service to brand equity, we developed a conceptual model to investigate the linkages across the entire path from service quality to corporate brand equity as shown in Figure 3. We developed our path model (Loehlin, 1998) from the literature discussed above where the dependent construct or dimension of corporate brand equity is positively affected sequentially by the dimensions or constructs of 3PL service quality and resulting satisfaction based on the 'expectancy-disconfirmation' paradigm through loyalty.

**Insert Figure 3 here.**

Following the general structure of the satisfaction-loyalty model (Oliver, 1980; Olsen, 2002), we propose that third-party logistics service quality positively influence shipper and customer satisfaction, which again positively influences loyalty. This construct of logistics service quality is based on service, cost, capacity and schedule is deemed appropriate based on the findings of Juga et al. (2010) and Stank et al. (1999, 2003). The vital role of continuing interaction and relationships in industrial markets is widely recognized in B2B and service management literature and the impact of relationships on satisfaction and loyalty in B2B markets has been described in earlier studies by inter alia Homburg et al. (2003), Chumpitaz and Paparoidamis (2007) and Rauyruen et al. (2009). However, also branding plays a more important role in B2B decision-making than is generally recognized (Mudambi, 2002).

Traditionally, the marketing literature has considered loyalty as a component of brand equity (Aaker, 1991), however others have argued that loyalty is an outcome of brand equity (Van Riel et al., 2005) and can positively influence a customer's willingness to stay, repurchase and recommend the brand (Vogel et al., 2008); i.e. a strong brand may result in increased customer loyalty. The impact of loyalty on corporate brand equity has been observed in the B2B service literature by Andreassen and Lindestad (1998) and in the SMC literature by Wagner et al. (2011). While it could also be argued that brand equity could conversely affect loyalty we nevertheless adopt Aaker's (1991) view that loyalty is an antecedent component and influencer on corporate brand equity. In summary, we hypothesize that:

H1: Logistics Service Quality positively influences Satisfaction
H2: Satisfaction positively influences Loyalty
H3: Loyalty positively influences Brand Equity

We tested this model using techniques from not only the logistics and 3PL contexts but also the marketing and services marketing contexts (Churchill, 1979; Cronin and Taylor, 1992; Mentzer and Flint, 1997; Grant, 2004; Rafic and Jaafar, 2007), reflecting an interdisciplinary approach called for by Stock (1997) and Grant (2010). We used Churchill's 'paradigm' for construct and scale development to first interrogate the literature review to propose dimensions and variables. The dimensions or constructs in the model are considered latent factors that are not directly observable but are inferred from other operational variables or items. In practice, operational items are usually presented in a questionnaire as attitudinal

statements based on a 7-point Likert scale. Our operational measures also used attitudinal statements and service quality levels were measured by Cronin and Taylor's (1992) performance perceptions or SERVPERF model with questions that were anchored by 'weak' and 'excellent'. Satisfaction anchors were 'very unsatisfied' and 'very satisfied' and followed guidelines for the use of a single-item measure for satisfaction suggested by Bergkvist and Rossiter (2007) and Fuchs and Diamantopolous (2009). All other questions were anchored by 'strongly disagree' and 'strongly agree'. The descriptions and the operational items of the dimensions are presented in Table 1 together with their literature sources and the resultant descriptive statistics from the analysis.

**Insert Table 1 here.**

**Methodology and Data Analysis**

*Data description and demographic analysis*

The context of study was the country of Finland, where deregulation of the transportation business began in the 1990s and greatly increased the number of 3PL and transportation companies; thereby improving the opportunities for industrial companies to outsource transport and supply chain operations to external service providers. However, the sizes of such companies generally remain small, and competition has turned out to be very tight. Rates have stayed at low levels and fuel price changes have often led to considerable problems for companies. Due to this tight competition in the industry, 3PLs need to find new ways to differentiate themselves from the competitors. One way to do this is by developing and providing strong service offerings, which should in turn lead to satisfaction, loyalty and brand equity as discussed above.

As ~~discrete~~ prior research has discretely investigated the various themes discussed above, our research design sought to test service quality and satisfaction theory as it applies to loyalty and brand equity in a B2B logistics context, as discussed in the literature review, and thus concurrently provide ~~such~~ explanation ~~of~~ for all themes ~~concurrently~~. Accordingly, a survey of companies was undertaken to provide such explanation. The study was a part of a large research project funded by the Finnish Funding Agency for Technology and Innovation TEKES and led by Oulu Business School and Aalto University, Finland during 2008-2010. Data for the project were collected from a target group of Finnish industrial companies with

an Internet survey using the 'Webropol' online survey package. The data base for the target group was obtained from the Itella Corporation (Finnish national postal organisation).

The first criterion for target group selection was that the company's line of business consumes a lot of logistics services (e.g. mining, manufacturing, oil, gas, and water maintenance, and construction). The next criterion was that the companies must have at least 50 employees and an annual turnover of over Euro 400,000. This criterion was used because larger companies are most likely to have continuous relationships with LSPs while smaller companies tend to be more 'order takes' than 'order makers' regarding the purchase of logistics services (Holter et al., 2010). The resulting target group included some companies twice because they had several offices in Finland. After eliminating double entries the final target group consisted of 1043 companies; there were 235 acceptable responses for a response rate of 22.5%.

The survey questionnaire was pilot tested by the steering group of the research project. The empirical study was carried out in a relatively short timeframe. An e-mail was sent to the companies with a link to the Internet questionnaire as well as background information about the project and the researcher's contact details. After a week's response time, the companies were contacted by telephone to remind them about the survey and ask for responses.

The respondent demographics indicated that different company sizes were quite well represented in the sample population. Measured by personnel, 47% of the respondent companies were small (less than 100 persons), 34% were mid-size (100-250 persons) and 19% were large (over 250 persons). This corresponds fairly well with the general industry statistics in Finland, considering that the smallest companies were excluded from the target population. Among the main industry branches represented in the sample the manufacturing of metal products is the largest sector (19% of respondents), followed by the production of machinery and equipment (12%), groceries and beverages (11%) and construction (10%). Some 25% of the respondents were heavily export-oriented companies (export share over 60% of turnover) while 50% of the companies reported small export value (export 0-20% of turnover).

Non-response bias was studied by comparing different response waves (Armstrong and Overton, 1977). The first wave included companies that responded after the original e-mail request (37.4%). The second wave consisted of companies that responded after the telephone reminder (62.6%). There were no statistically significant differences between the two groups using the criterion of $p<0.05$ for any of the items used in this study. Thus, we consider non-response bias was not a problem in the study and that the sample fairly represents responses for the target group.

Respondents completed the questionnaires diligently and item non-response rate was low (the overall fill rate being over 98%). However, to avoid any loss in sample size, missing data were completed with the SPSS expectation maximization (EM) function, which was selected because it shows little bias under most conditions (Hair et al., 2010). Before the estimation, the normality of the variables was studied and confirmed with Prelis2 software (Joreskog and Sorbom, 1993b).

According to Doty and Glick (1998), in any given study common methods bias may inflate some observed relationships and deflate others relative to the true relationships among constructs. However, the accuracy of population parameter estimates can be improved by using, for example, differences in measurement techniques, differences in data sources, and time lags. While it may be impossible to ensure that method effects do not influence the results (Conway and Lance 2010), we believe that a rich research tradition – albeit mostly in different industry contexts but also to some extent in logistics and supply chain management (Stank et al. 1999, 2003; Juntunen et al., 2011) – regarding the relationships between the central concepts of the study, supports our findings and reduces risk of common method bias of the study.

*Data analysis*
Using the operational items described above, the proposed model was tested and the results are shown in Figure ~~3~~ 4. Model estimation was performed with structural equation modelling (SEM) using the Lisrel software package (Joreskog and Sorbom, 1993a; Joreskog 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 and thus best suited the explanatory purpose of the study (Hair et al., 2010). The

estimates were calculated using the maximum likelihood (ML) method based on a covariance matrix.

**Insert Figure 4 here.**

It can be seen that all linear relationships from service quality→ satisfaction → loyalty → corporate brand equity are positive relationships. All relationships in the final model are statistically significant and their directions are similar to the proposed model. However, the coefficient for loyalty→ corporate brand equity is weak at 0.2 3; thus loyalty does not necessarily translate into brand equity.

The model also has a good statistical fit as shown in Table 2. Individual factor loadings are also good. The Chi-square test shows an acceptable fit of the model to the data, the minimum acceptable p-value being 0.001. According to Browne and Cudeck (1993), an RMSEA value below 0.10 indicates a close fit of the model. Jaccard and Wan (1996) argue that the model's CFI and GFI values should be above 0.90. The value of the normed chi-square should be between 1.0 and 2.0. Thus, based on the test values, the model can be considered acceptable.

**Insert Table 2 here.**

Additionally, each dimension or construct was evaluated for construct reliability (CR) as shown in Figure 4. Because some factors have only one or two items, they are unidentified without the full structure and thus it is impossible to perform factor analyses of individual latent variables. This also weakens the usability of traditional test values like Cronbach's alpha, and therefore the results should be evaluated primarily on the basis of the fit indices of the full model and theoretical background of these measures. In addition, the scale of the item 'Change' was reversed from being a negative scale. Nevertheless, the resulting CR values suggest a good statistical fit of the model. Further, as shown in Figure 4, all available t-values are above 1.96 at p-value = 0.05. Thus, based on the test values of the full model and the test values concerning individual factor loadings and factors, the results of empirical testing can be considered statistically adequate.

**Discussion and Conclusions**

Our findings indicate that a linaer path of service quality, satisfaction and loyalty does have a positive effect on corporate brand equity. The finding that service quality is an important antecedent to satisfaction confirms previous work by Mentzer et al. (1989), Kristensen et al. (2000) and Grant (2004). Further, the linkage between satisfaction and loyalty that was found supports the general structure of the satisfaction-loyalty work of Oliver (1980), Olsen (2002) and Juga et al. (2010) who found that repeated satisfactory experiences lead to loyalty.

While Juntunen et al. (2011) found that corporate brand equity does not create loyalty among logistics service purchasers, our results confirmed our hypothesis that loyalty is an antecedent of corporate brand equity. A contrary model where corporate brand equity is an antecedent of loyalty was tested, however all values were non-significant. Hence, for this group of respondents corporate brand equity is indeed dependent upon loyalty as noted by Aaker (1991).

Additionally, our finding differs from Juntunen et al. (2011) who found that corporate brand loyalty is neither an outcome nor a component of corporate brand equity, and supports the view of Beverland et al. (2007) who suggested that a firm should develop its brand leadership as a capability that gives them a competitive advantage. We note that the strength of the loyalty relationship with corporate brand equity is not particularly strong, but there is nevertheless an effect and the relationship is positive.

From a theoretical point-of-view this study adds to knowledge of service quality, satisfaction, loyalty, and corporate brand equity related to 3PLs in the supply chain, and to our knowledge is also the first study to examine all four dimensions in this linear chain of events. Thus, our contribution has been to combine elements that have been discretely investigated previously and confirm this intuitive liner relationship. Further, the study also answers a call (Stock, 1997; Grant, 2010) to conduct more interdisciplinary research in the logistics domain using techniques from marketing and service marketing.

This study is also important to managers as well as academics since there is little research simultaneously investigating service quality, customer satisfaction, loyalty, and corporate brand equity in 3PL activity (Holter et al., 2008). The state of Finnish logistics is highly

competitive; Finland was rated third in the World Bank's Logistics Performance Index (LPI) in 2012 due to its logistics performance (Solakivi et al., 2012). Over 60 per cent of Finnish firms outsource more than half of their transportation to 3PLs – this is less than most other European and North American countries – and a fair number of larger 3PLs and transport companies also sub-contract transportation to meet demand.

Thus, a highly competitive market 3PL exists in Finland and the route towards outsourcing in this environment will require that *"there will need to be a an adequate range of good quality services on offer, as well as seamless cooperation in the management of both material and information flows between customer and service provider"* (Solakivi et al., 2012: 66). Hence, corporate branding is important for Finnish 3PLs, as well as 3PLs in other more competitive markets, to ensure shippers and customers are aware of the quality service that are provided (Davis et al., 2008; Juntunen et al., 2011; Marquardt et al., 2011).

Thus, in general 3PL managers 3PLs in other contexts should primarily concentrate on the quality of their service offerings to ensure customer satisfaction and thus increase loyalty from shippers and customers. This should add to their corporate brand equity which should also be beneficial in the long term. By doing so, 3PLs will better position themselves strategically and should generate a competitive advantage relative to competitors or firms considering internalising their logistics activities (Juga et al., 2008).

Methodologically, the research study exhibits good face, construct and internal validity (Mentzer and Flint, 1997). However, as with all studies there are limitations. Firstly, the relationships are statistically significant but as noted above our knowledge about the nature of the relationship between loyalty and corporate brand equity remains weak. Further research needs to deconstruct the extant research to determine more indicative measures for testing.

Secondly, the research was carried out in the discrete context of Finnish industrial companies. The results should apply to other contexts but further research should replicate this study in such contexts to determine the external validity of the findings.

Lastly, the prolonged world-wide economic recession that has been in effect since late 2008 may have now changed shippers and customers' attitudes to outsourcing and 3PLs, regardless

of any brand equity. The cost performance aspect, which was not considered here per Stank et al. (2003) and Juga et al. (2010), may thus have gained more credence notwithstanding they have remained at proportionately the same levels since that time (Solakivi et al., 2012). Therefore, this study should be repeated including the cost dimension to obtain comparative findings under different economic circumstances.

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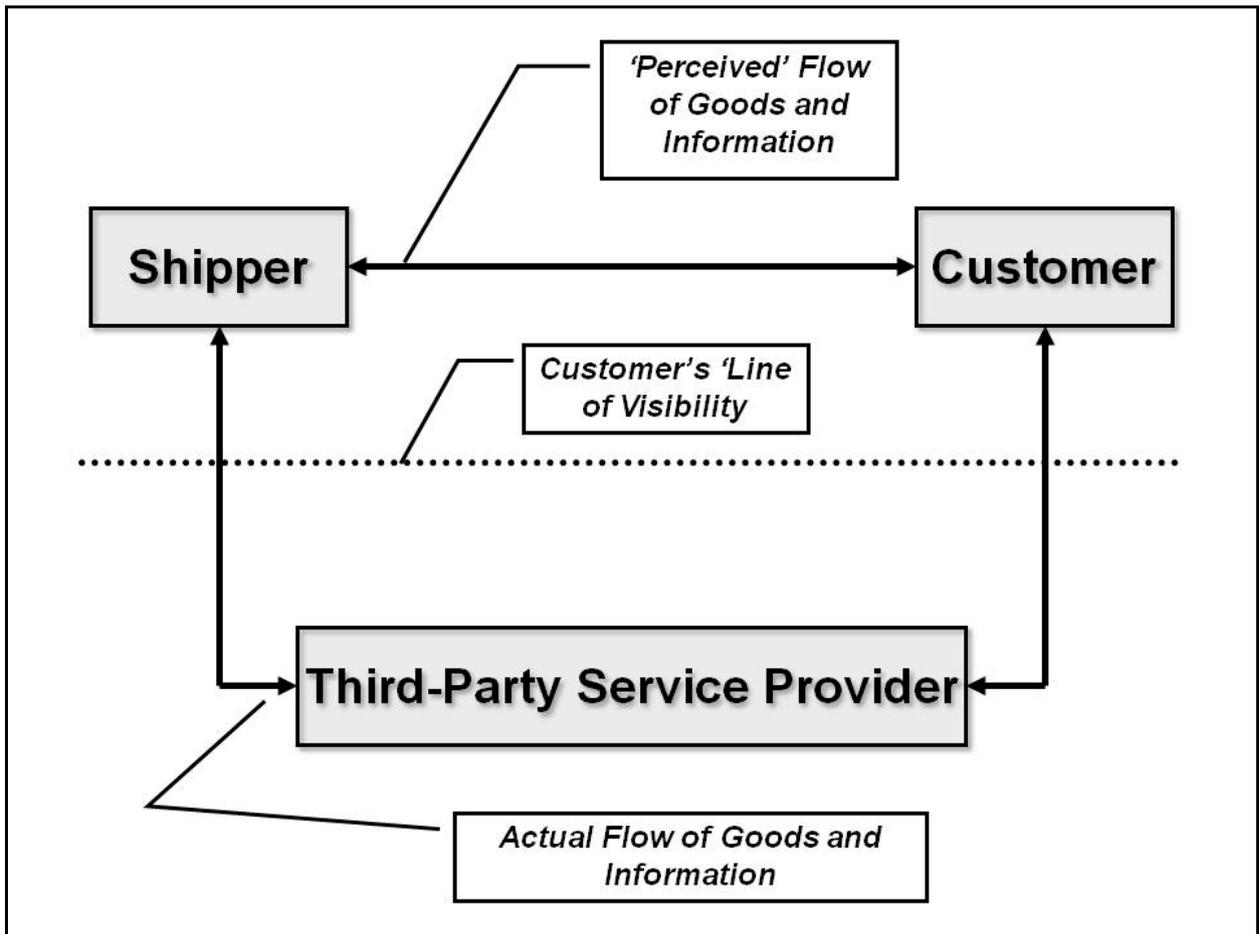
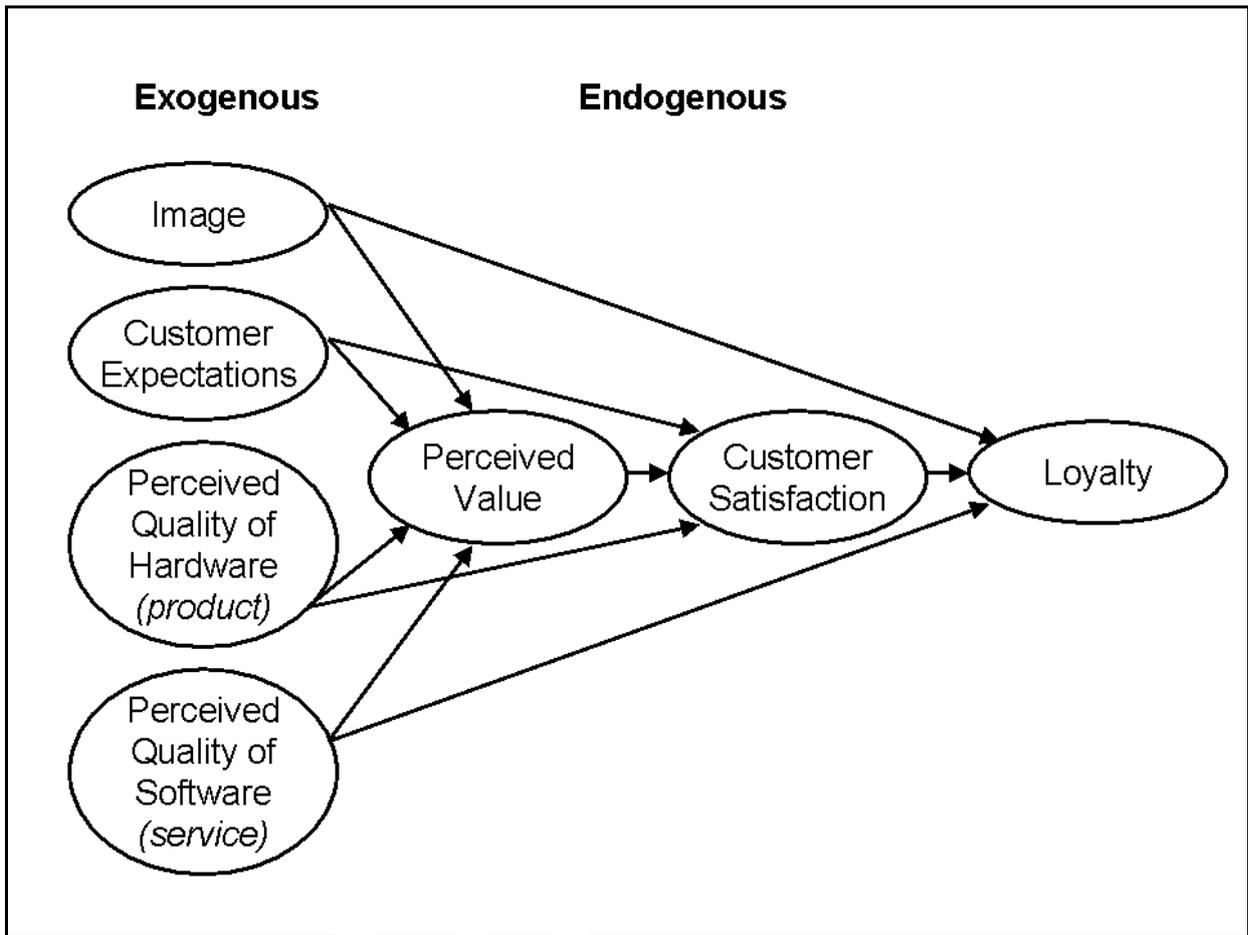**Figure 1: Customer's Perceived versus Actual Goods and Information Flows**

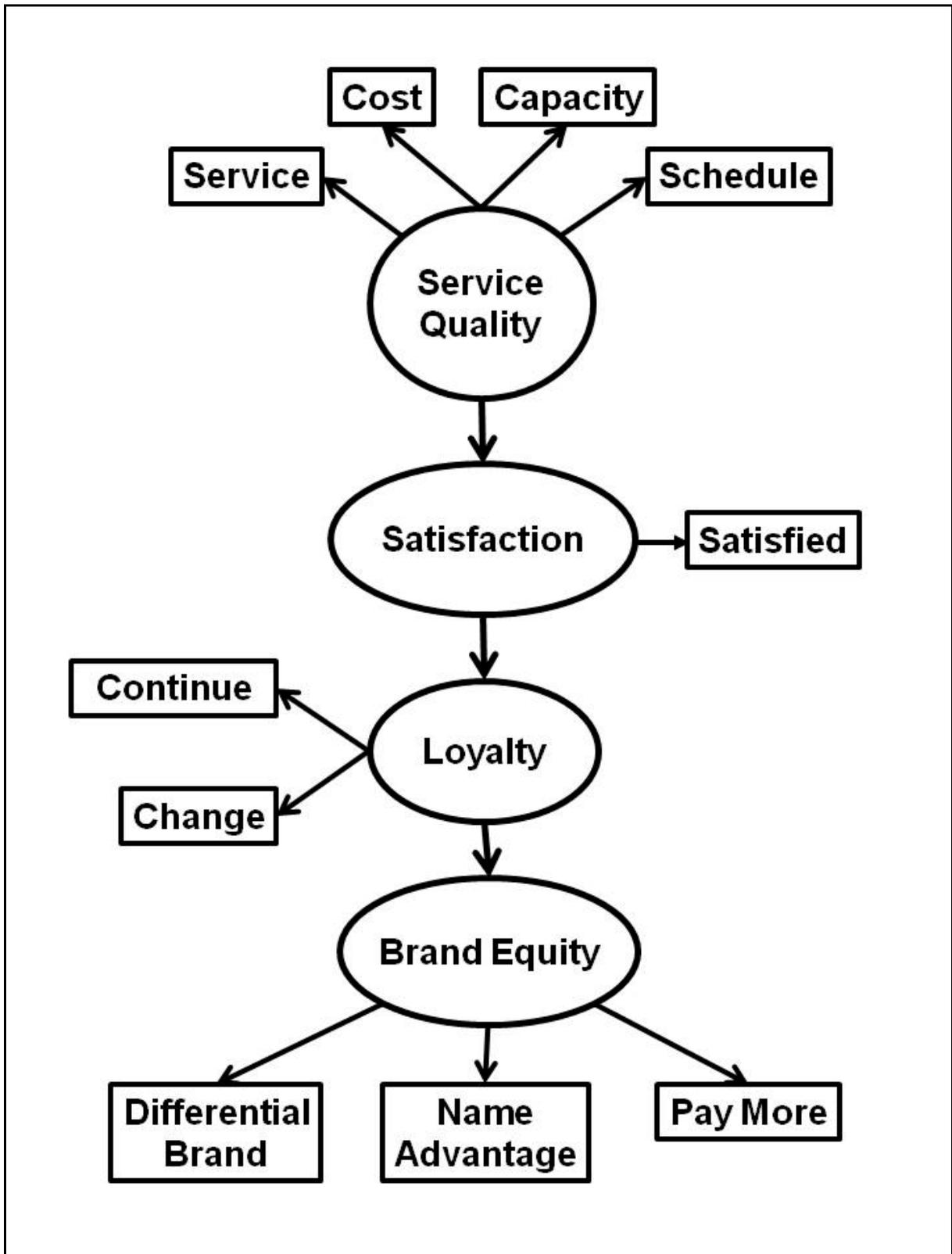**Figure 2: European Customer Satisfaction Index (Kristensen et al., 2000)**

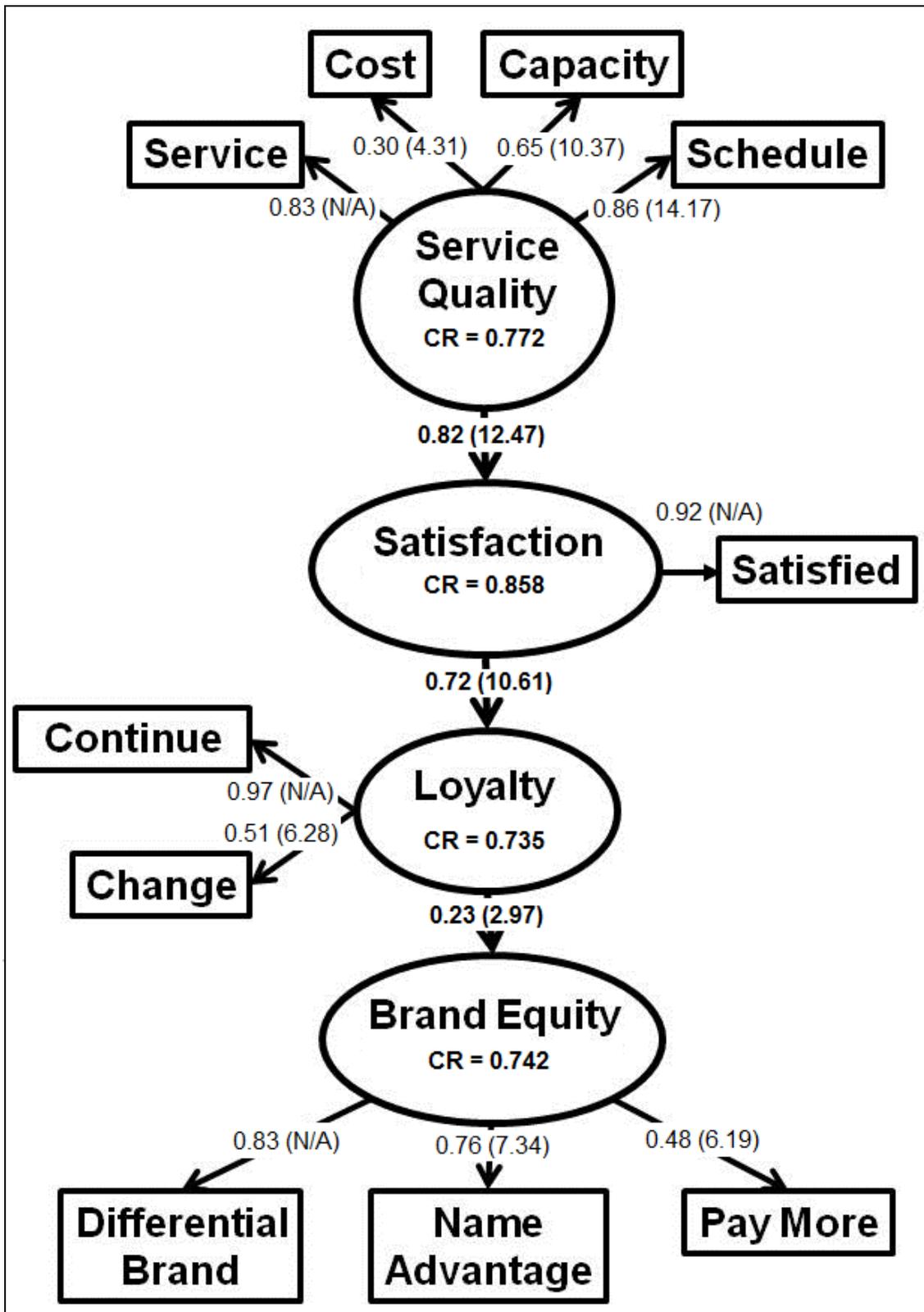**Figure 3: Conceptual Model, Dimensions and Variables**

**Figure 4: Empirical Model with Standardised Coefficients and (t-values)**

| Dimension or Construct | Survey Operational Variables or Measures and their Definition | Label |
|---|---|---|
| **Service Quality** | Refers to service quality variables provided by their main logistics service provider that are important to customers (Stank et al., 1999, 2003; Grant, 2004; Juga et al., 2010).<br><br>Cronbach's Alpha = 0.72 | **SERV** |
| | *"Outsourcing to our main logistics service provider has had a positive impact on the relationship between logistics costs and total costs."*<br><br>Mean 4.55; Std Dev 1.28; Normality p=0.937 | costrela |
| | *"Recent experiences with our main logistics service provider related to keeping schedules."*<br><br>Mean 5.20; Std Dev 1.13; Normality p=0.418 | schedule |
| | *"Recent experiences with our main logistics service provider related to sufficiency of capacity."*<br><br>Mean 5.29; Std Dev 1.22; Normality p=0.521 | capacity |
| | *"Recent experiences with our main logistics service provider related to service-mindedness of personnel."*<br><br>Mean 5.40; Std Dev1.14; Normality p=0.463 | service |
| **Satisfaction** | Refers to a customer's overall satisfaction with their main logistics service provider (Stank et al., 1999, 2003; Grant, 2004; Juga et al., 2010).<br><br>Cronbach's Alpha N/A | **SATIS** |
| | *"Evaluate your overall satisfaction with the operation of your main logistics service provider."*<br><br>Mean 5.22; Std Dev 0.93; Normality p=0.281 | satisfi |
| **Loyalty** | Refers to a customer's loyalty towards their main logistics service provider (Grant, 2004, 2005).<br><br>Cronbach's Alpha = 0.64 | **LOYAL** |
| | *"With high probability we will continue the relationship with our present main logistics service* | continue |

| | | |
|---|---|---|
| | *provider as long as possible."*<br><br>Mean 5.32; Std Dev 1.18; Normality p=0.446 | |
| | *"With high probability we will change our main logistics service provider in the next few years."*<br><br>**Scale reversed.**<br>Mean 4.96; Std Dev 1.37; Normality p=0.555 | change |
| **Corporate brand equity** | Refers to the corporate equity of the brand of the customer's main logistics service provider (Davis et al., 2008; Juntunen et al., 2010).<br><br>Cronbach's Alpha = 0.72 | **BE** |
| | *"This company's brand is different from other logistics service providers."*<br><br>Mean 3.44; Std Dev 1.26; Normality p=0.862 | difbrand |
| | *"The name of this provider gives them an advantage over other logistics service providers."*<br><br>Mean 3.32; Std Dev 1.32; Normality p=0.429 | nameadv |
| | *"We are willing to pay more in order to do business with our main logistics service provider."*<br><br>Mean 2.81; Std Dev 1.31; Normality p=0.134 | paymore |

**Table 1: Dimensions or Constructs and their Operational Variables or Measures**

| Test | Value | P-value |
|---|---|---|
| Chi-square (df) | 59.84 (32) | 0.002 |
| Root Mean Square Error of Approximation (RMSEA) | 0.061 | |
| Comparative Fit Index (CFI) | 0.97 | |
| Normed Fit Index (NFI) | 0.95 | |
| Non-Normed Fit Index (NNFI) | 0.96 | |
| Goodness of Fit Index (GFI) | 0.95 | |
| Standardised Root Mean Square Residual (SRMR) | 0.068 | |
| Normed Chi-square | 1.87 | |

**Table 2: Goodness-of-Fit Indices of the Empirical Model**