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Proactive improvement of logistics service providers as driver of customer loyalty

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Abstract

Purpose – The purpose of this paper is to provide a differentiated view of relationship-specific proactive improvement of logistics service providers (LSPs) that distinguishes between the cost and performance and the effect that these two dimensions of innovation have on three distinct customer loyalty dimensions (retention, extension, and referrals).

Design/methodology/approach – A confirmatory empirical study was conducted based on social exchange theory and customer value theory. The survey responses from 298 firms were analysed using structural equation modelling and multi-group analysis to test for direct effects and moderation.

Findings – Both dimensions of relationship-specific proactive improvement by LSPs (cost and performance) are strong drivers of all three customer loyalty dimensions and, thus, are important to customer relationship management and relevant areas to be considered within innovation management. The effect on customer loyalty is moderated by the dynamism of the customer's market. Proactive cost improvements are more important under high dynamism, while proactive performance improvements, contrary to initial assumptions, are more important when dynamism is low.

Research limitations/implications – Future studies should analyse other cultural settings, differentiate between functional and relationship value provided, consider other services, investigate how LSPs can facilitate proactive improvement and improve innovation management, and explore how customers can foster proactive improvement.

Practical implications – The currently low level of proactive improvement should be increased if LSPs want to enhance customer loyalty. In doing so, LSPs ought to consider the dynamism of their customers' markets.

Originality/value – The paper is the first to provide a differentiated view on the role of relationship-specific proactive innovation that distinguishes between cost and performance improvements and illustrates their effects on three distinct customer loyalty dimensions.

Keywords Innovation, Distribution management, Customer loyalty

Paper type Research paper

1. Introduction

Globally, the penetration of logistics markets by logistics service providers (LSPs) is high: about 80 percent of industrial companies outsource logistics activities accounting for an average of 60 percent of their total logistics costs (Langley *et al.*, 2007). At the same time, market concentration is low and competition among LSPs is intense. In this market environment, sustaining and extending business with existing customers is significantly more cost effective than acquiring new customers and leads to higher revenues and

returns on investment (Kalwani and Narayandas, 1995). Driven by this knowledge, managers of companies operating in competitive markets have identified the need for a loyal customer base (Stone *et al.*, 1996). Therefore, LSPs interested in maintaining or improving their market shares should focus less on targeting the small number of customers that have not outsourced any logistics activities and, instead, make stronger efforts to nurture relationships among their existing customers (Wagner, 2008).

In this context, innovativeness of LSPs offers significant potential that has thus far been widely neglected, both in theory and in practise. Only recently, has first research brought this topic to more prominence. Flint *et al.* (2005) and Wagner (2008) emphasise that innovativeness facilitates LSPs' differentiation from their competitors. Moreover, logistics outsourcing relationships have evolved to become long-term exchange rather than spot-market transactions (Murphy and Wood, 2004). Thus, proactive improvements, understood as customer-oriented innovations by an LSP within a specific relationship, have the potential to create added value for the customer and, as a result, to increase customer loyalty and market share. This is supported by Deepen *et al.* (2008), who show that proactive improvement increases the performance of logistics outsourcing relationships, and Cahill (2006), who shows that proactive improvement positively affects customer loyalty.

Still, LSPs are limited in their customer-related innovativeness; according to Wagner's (2008) quantitative analysis, the innovation output in the logistics industry is not only low in absolute terms, but is also (and especially) low compared to the resource inputs (efforts) made. LSPs face various challenges when trying to improve their innovativeness to forge better customer relations. On the one hand, customers are very cost focussed and seem reluctant to pay for outstanding service performance (van Laarhoven *et al.*, 2000). On the other hand, empirical studies show that relational performance (Stank *et al.*, 2003) and service quality (Cahill, 2006) are stronger drivers of customer loyalty than costs. Also, LSPs' process innovations are significantly more often directed to improving quality (47 percent of cases) than to reducing costs (11 percent of cases) (Wagner, 2008)[1]. Considering this trade-off, the question arises, on what aspect of relationship-specific innovation – costs or quality – LSPs should focus on.

Flint *et al.* (2005) emphasise that logistics services should not only be directed towards the current needs of the customers, but should also take the dynamic nature of those needs into account since a service that provides high value to a customer today may not be sufficient even in the near future. External market changes in particular may lead to changes in what the customers most value (Woodruff and Flint, 2003), and these changes offer potential for proactive improvements to the services provided. However, change also marks a challenge for LSPs, since the literature does not provide insights on whether the focus of relationship-specific innovation ought to differ depending on how dynamic the customer's market is.

The objective of this study is to reduce the aforementioned research gaps concerning the focus of proactive improvement and the moderating influence of dynamism in customers' markets. In pursuit of this objective, we first provide a conceptual framework that embeds pro-active improvement within innovation management and derive its importance for customer loyalty. We then conceptualise how the effect of proactive improvement is influenced by the dynamism of customers' markets using data from 298 logistics outsourcing relationships to test our hypotheses. We conclude with implications for research and management.

2. Conceptual framework

2.1 Customer loyalty

Customer loyalty has become an increasingly prevalent construct in marketing and other relationship-focussed research. While the body of knowledge on customer loyalty in general has vastly increased, the measurement of customer loyalty remains surprisingly heterogenic: a consensus has not even been reached regarding the dimensions that should be incorporated (Rundle-Thiele and Mackay, 2001; Söderlund, 2006). So far, most empirical studies take a one-dimensional view on loyalty, even though researchers have been acknowledging loyalty's multidimensionality for years (Söderlund, 2006).

Consistent with the latter position, we follow the view of Meyer and Oevermann (1995), who conceptualised three distinct dimensions of loyalty by separating loyalty into referrals, i.e. positive word-of-mouth (Söderlund, 2006), and two purchase-related dimensions, labelled retention and extension. In logistics outsourcing relationships, retention refers to renewing existing contracts when they expire, while extension relates to expanding the volume or scope of an existing relationship by cross-selling and providing additional services to existing customers. By using this three-dimensional concept of loyalty, we capture the three components of customer lifetime value that relate to customer behaviour: base potential, growth potential and networking potential (Stahl *et al.*, 2003). This concept of loyalty also provides a picture that shows to what degree proactive improvements – our researched "inputs" – can foster an existing relationship and to what extent such improvements may be leveraged outside toward other customers.

2.2 Proactive improvement

Rogers (1995, p. 11) defines innovation, which can occur within services, processes, or any social system (Schumpeter, 1934), as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption". For an LSP, an innovation may have different areas of effect; it may be directed towards multiple customers or even the whole customer base, or it may be focused solely on a single customer. Research on proactive improvement is directed towards individual customers and refers to an individual LSP that proactively enhances the service provided to a specific customer. Having a strategic nature, logistics outsourcing relationships are based on utilising the competencies of the LSP to enhance the competitive positioning of the customer (Bhatnagar and Viswanathan, 2000). For an LSP's customer, this relationship includes using the innovative capabilities of the LSP to create and implement an adequate logistics solution and to strive for continuous improvements in order to further enhance that solution. In several case studies with LSPs, Flint *et al.* (2005) found anecdotal evidence that customers expect their LSPs to drive service innovation continuously and thereby to increase the value provided to their customers. While Flint *et al.* (2005) also recognise that innovation in general is critical to the success of LSPs, LSP-driven relationship-specific improvements have received only limited attention in the outsourcing discussion. So far, Cahill (2006) and Deepen *et al.* (2008), alone have shown their importance in logistics outsourcing relationships, and the different areas of proactive improvement have not been distinguished at all.

Successful innovative customer solutions rely on knowledge of what customers are likely to value (Flint et al., 2008; Flint *et al.*, 2005; Woodruff and Gardial, 1996). Our

objective is to differentiate overall proactive improvement further in order to pro-vide a more refined understanding of this domain. Drawing upon the reasoning of Mentzer and Konrad (1991) and Stainer (1997), we conclude that any change to a logistics system may be a value-providing improvement for the customer because it either increases the efficiency or the effectiveness of the customer's system. While efficiency relates to the cost dimension and necessary inputs, effectiveness relates to the output of the system and, in this sense, to its performance. This conclusion corresponds to Porter (1985), who highlights the fact that LSP customers achieve a differentiation advantage through the value provided to their customers, while a productivity advantage is reflected in the cost incurred to their customers. Further, Christopher (2005) emphasises that organizations may use logistics to gain competitive advantage both through "cost and service leadership". Based on these assertions, our approach is to distinguish proactive improvements made by an LSP within an ongoing relationship according to the two possible areas of effect: cost improvement and performance improvement. Cost improvement relates to both the price paid to the LSP and other costs incurred to the customer's logistics and production system, while performance improvement refers to improved performance of the customer's logistics system through enhancement by the LSP. Both aspects are vital for the efficiency (costs) and effectiveness (performance) of logistics systems and, thus, to any outsourcing relationship.

2.3 Positive effect of proactive improvement on customer loyalty

The positive effect of relationship-specific improvements on customer loyalty can be derived from social exchange theory in conjunction with the customer value approach. According to social exchange theory (Blau, 1964; Homans, 1958; Thibaut and Kelley, 1959), any relationship yields benefits and costs, as well as economic and social outcomes. Customers will choose to uphold and extend a relationship as long as the cost-benefit ratio, which represents the value they realise in the current relationship, is satisfactory (Lambe *et al.*, 2001). The actual cost-benefit ratio is compared to the value they expect to receive such that, the more the actual value exceeds these expectations, the more likely the customer is to maintain or expand the relationship (Thibaut and Kelley, 1959).

For how customers combine different attributes of the service into an overall assessment of its value, we resort to customer value theory, which is a relatively new marketing approach. According to Woodruff and Flint (2003), customers receive value from both the functional and the relationship aspects of the service. Any customer-oriented improvement made by an LSP in an outsourcing relationship yields functional value to the customer because efficiency or effectiveness is improved; thus, costs incurred by the customer are reduced or the benefits received are increased. In logistics outsourcing relationships it is not possible to contractually specify all aspects and details of the transaction ex ante. Consequently, there is uncertainty about the future behaviour of the LSP; the customer does not know for sure whether the LSP will act in the customer's best interest (which would mean adapting the service offering whenever doing so would be beneficial to the customer) or behave opportunistically when given the chance. Here is where proactive improvements initiated by the LSP come into play since the proactivity shows commitment by the LSP and fully utilises the LSP's specific competencies, which go beyond those of the customer. As proactive

improvement usually does not result directly in higher revenues but yields a major part of its benefits for the LSP only at a later stage, it is a costly signal for an LSP with opportunistic intensions (Kydd, 2000). An LSP that acts proactively shows that it cares about the customer and does not intend opportunism. Combined with an improved relational interaction, this approach reduces the customer's uncertainty and adds to his relationship value by reducing customer risk and increasing the trustworthiness of the LSP. Thus, proactive improvement by an LSP increases both the functional value and the relationship value for the customer. These value increases apply for both cost improvements, which reduce the cost element of customer value, and performance improvements, which increase the benefit element of customer value.

According to social exchange theory, any increase in the value received by the customer will raise the likelihood that he or she will maintain and expand the relationship with the LSP (Thibaut and Kelley, 1959). Therefore, we propose two hypotheses:

H1. Proactive cost improvement within an outsourcing relationship has a positive effect on (a) retention, (b) extension, and (c) referral by the respective customer.

H2. Proactive performance improvement within an outsourcing relationship has a positive effect on (a) retention, (b) extension, and (c) referral by the respective customer.

2.4 Proactive improvement and dynamism
Customers expect improvements that make the logistics system more efficient or effective in any context, but especially in contexts characterised by changes in the environment in which the services are embedded. Here improvements include changing or fine-tuning the system to cater to the customer's changing operating environment. Such changes may be induced by the dynamics in a customer's context, especially from the market in which the customer operates. As the context changes, so will the needs and requirements of the customers, which results in constant calls for ongoing improvements as well as adaptations of the specific services provided by the LSP. Thus, the need for change and, along with it, the potential for improvements made by the LSP can be assumed to be bigger in a dynamic customer environment than in a stable one. It follows, then, that the value provided to the customer by proactive improvement has the potential to be bigger when the customer's environment is dynamic, as does its impact on customer loyalty.

This insight is underscored by the customer value approach. Flint *et al.* (2002) emphasise that the attributes customers will value are changed by tension, which is likely to be created by external pressure such as changes in the customer's markets (e.g., changes in the demands of the customer's customers or action taken by the customer's competitors). Particularly within logistics outsourcing, the dynamics of the customers' markets are the main source of change in what the customers demand and value (Flint *et al.*, 2005). Therefore, we hypothesise that the absolute importance of both areas of proactive improvement – cost and performance – will become more important when the market is highly dynamic:

H3. The importance of proactive cost improvement for (a) retention, (b) extension, and (c) referral by the respective customer increases with the dynamism of the customer's market.

H4. The importance of proactive performance improvement for (a) retention, (b) extension, and (c) referral by the respective customer increases with the dynamism of the customer's market.

These hypotheses still leave the question unanswered, whether a change in the relative importance of cost improvement and performance improvement will occur when the dynamism of the customers' market changes. Here the customer value approach provides no further insight, so we have to base our hypothesis on established logistics and SCM knowledge.

The objective of every logistics system within a company is, foremost, to be effective, i.e. to facilitate the other functions of the company in the best possible way and to assist the process of value creation (Mentzer *et al.*, 2004). Because a misaligned logistics system hampers the company's value creation, only after the logistics system is determined to be effective can efforts to increase its efficiency make sense. Therefore, customers operating in dynamic markets will most value the LSP's adaptation and improvement efforts that keep the system aligned to the requirements of the context and guarantee effectiveness. Only once effectiveness is given, customers will value efficiency increasing cost improvements. Thus we hypothesise:

H5. The relative importance of proactive performance improvement compared to proactive cost improvement for a) retention, b) extension, and c) referral by the respective customer increases with the dynamism of the customer's market.

3. Research methodology
3.1 Sample design
The empirical analysis examines logistics outsourcing relationships based on responses from the customer perspective. Because of the diverse ways in which different parts of large corporations use LSPs, the unit of analysis is the strategic business unit (SBU) and the relationship of this SBU with a LSP self-selected by the SBU. This focus allows us to isolate and identify the effects in question, which would not be possible if firms were asked to assess their relationships with all of their LSPs in general. Existing research has shown that the relationships that are most important to the customers are commonly long-term relationships and that they account for about half of the total volume of outsourced logistics activities (Deepen *et al.*, 2008). Both characteristics also apply to the responses in our study. The average duration of the analysed relationships is slightly over eight years, a time period considerably longer than the average contract duration for LSPs of 36 months (Langley *et al.*, 2007). Hence, the studied relationships can be characterised as being strategic rather than tactical in nature.

Most of the relationships we analyse include basic transportation services: 38 percent are traditional transportation-only relationships, which include transportation operations and management; 30 percent are transportation services combined with warehousing-related services; 19 percent are comprehensive logistics service-bundles encompassing transportation, warehousing, and value-added services; and 12 percent focus either on warehousing-only or value-added services.

The data were collected via a web-based survey, consistent with guidelines set forth by Griffis *et al.* (2003). Since all measurements were based on established scales, the focus of pre-testing was on face validity. To ensure that all questions were understandable to

the respondents, the survey was pre-tested with ten logistics researchers and nine logistics practitioners who were familiar with logistics outsourcing.

The sample used in this study consisted of 2,380 logistics managers from manufacturing and trading companies in Germany and was drawn from the company database of the logistics research centre involved with this project. (Full details regarding the research centre will be disclosed after the review process.) In May 2007, we sent all potential participants a pre-notification e-mail outlining the goals and motivation of the study (Mehta and Sivadas, 1995). After deleting non-viable email addresses and people who informed us that they were not responsible for logistics outsourcing decisions, 1,784 valid contacts remained. These contacts received a link to the web-based survey and were asked to complete it online. We followed the recommendations of Larson and Poist (2004) regarding using incentives and two friendly reminder e-mails to increase the response rate.

3.2 Respondents

A total of 311 managers participated in the study, which translates to an overall response rate of 17.4 percent. When declining response rates over the last decade are considered, this response rate can be regarded as adequate (Cycyota and Harrison, 2006). Thirteen questionnaires had to be deleted because of missing data, leaving 298 usable responses for the analysis. Minor bits of missing data (0.2 percent of total items) were estimated using the expectation-maximisation-algorithm (Dempster *et al.*, 1977; Cohen *et al.*, 2003).

The sample contains a broad representation of small, medium, and large companies and of all relevant manufacturing and trading industries (see Appendix Table AI). Over 82 percent of the respondents were at the executive level and 17.5 percent of the respondents were non-executive managers. The competence level of the respondents was assessed on the basis of their personal information (Kumar *et al.*, 1993); on average, the informants had been in their current positions for eight years, with none holding their positions for less than one year. In order to control for a potential non-response bias (Lohr, 1999), we followed the assumption of Armstrong and Overton (1977) and split our sample into three equal parts based on the time of submission. Comparing the means of 31 items (the 23 variables used for this study and an additional 8 demographic variables) using *t*-tests, we found that only one item exhibited a significant difference at the 10-percent level. Although there is no commonly stated threshold value in the literature and because, even with random data, some differences are expected to be incidentally significant, this result can be viewed as satisfactory support for the absence of a non-response bias.

3.3 Measurement scales

A review of the existing literature provided the measurement scales used in this study (see Appendix Table AI). The measurement models of proactive cost improvement and proactive performance improvement are both based on the proactive improvement scale by Deepen *et al.* (2008), differing from that scale only in that the items of the Deepen et al. scale refer to improvements in general, while our cost scale makes specific reference to improvements to increase cost efficiency and to reduce costs, and our performance scale makes specific reference to improvements to increase effectiveness and enhance the performance of the customer's logistics system. The measurement of retention and extension as the first two customer loyalty dimensions is based on the

scales of Homburg *et al.* (2003) and Cahill (2006). The retention indicators measure the customers' attitudes towards their LSPs with regard to repeat purchase intentions. For extension, the scale captures the intention to extend the scope of the relationship by buying additional services from the LSP. The measurement of referrals is based on a scale by Price and Arnould (1999) and Cahill (2006) that captures the frequency with which an LSP is recommended. Market dynamism is measured using a scale based on the work of Maltz and Kohli (1996).

3.4 Measurement model assessment

To assess measure reliability and validity of our constructs, we first calculate the Cronbach alphas and received values of 0.79 and more, all well above recommended thresholds (Bagozzi and Yi, 1988). Subsequently, we used AMOS to run a confirmatory factor analysis for all scales, as proposed by Anderson and Gerbing (1988). The overall fit measures indicate good fit for the measurement models. The normed chi-square value of 2.17 is regarded to be good (Carmines and McIver, 1981; Wisner, 2003). The comparative fit index (CFI) has a value of 0.97, the goodness-of-fit index (GFI) a value of 0.90, the Tucker-Lewis index (TLI) a value of 0.96, and the root mean square error of approximation (RMSEA) a value of 0.06, thus exhibiting highly satisfactory adaptation measures (Bagozzi and Yi, 1988; Hu and Bentler, 1995; Hair *et al.*, 1995).

In addition, all factor loadings are significant at the 0.001 level, supporting convergent validity for the constructs (Anderson *et al.*, 1987; Bagozzi *et al.*, 1991). Furthermore, for all but one item, reliabilities are well above the recommended value of 0.40 (Bagozzi and Baumgartner, 1994). According to Bagozzi and Yi (1988), the average extracted variance (AVE) of a construct should usually exceed 0.50, and this requirement is fulfilled in our model since the AVEs range from 0.60 for market dynamism to 0.84 for referrals (see Appendix Table AI). Discriminant validity is also evident, following the procedure proposed by Garver and Mentzer (1999); for all pairs of constructs, the chi-square difference test showed the constructs to be discriminant even at the 0.1-percent level. In addition, the confidence intervals around each correlation estimate never include the value 1 (Anderson and Gerbing, 1988).

3.5 Hypotheses test results

The first two hypotheses established in the conceptual model were tested simultaneously using SEM. As recommended in the literature, multiple criteria were considered to assess model fit (Hu and Bentler, 1995). Again, appropriate model fit is suggested by the fit indices (normed chi–square = 2.49, CFI = 0.97, GFI = 0.91, TLI = 0.96, and RMSEA = 0.07).

The model results, presented in Figure 1, indicate that proactive cost improvement and proactive performance improvement together are strong predictors of all three loyalty dimensions. Combined, they produce an *R*-square value of 24.7 percent for retention, 31.4 percent for extension and 27.6 percent for referrals, indicating that a substantial proportion of the variance in customer loyalty is explained by LSPs' proactive improvement.

H1a to *H1c*, which posit a positive influence of proactive cost improvement on all three loyalty dimensions, are fully supported by the results; all three effects of proactive cost improvement are positive (+0.27 on retention, +0.35 on extension, and +0.23 on referral) and significant. Hypotheses *H2a-H2c*, which suggest that proactive
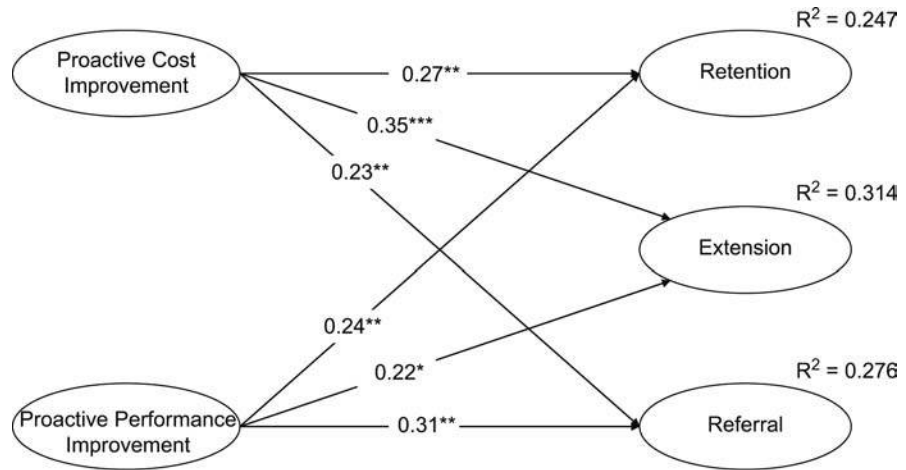
Figure 1.
Empirical model

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

performance improvement has a positive effect on all three loyalty dimensions, are also supported by the results; all three effects of proactive performance improvement are positive and significant ($+0.24$ on retention, $+0.22$ on extension, and $+0.31$ on referral). The results regarding *H1* and *H2* show that both proactive cost improvement and proactive performance improvement are important with respect to customer loyalty; across our complete sample, the influence of both factors on customer loyalty is about equal[2]. In addition, the influence of both proactive improvement dimensions does not vary significantly across the three loyalty dimensions (tested via chi-square-difference tests), so proactive improvement is not a pronounced driver of one loyalty dimension in particular, but of all three dimensions alike.

Moderating analyses. Moderating analyses were conducted to test hypotheses *H3*, *H4* and *H5* using the multi-group analysis function of AMOS in order to examine invariance between two samples (Steenkamp and Baumgartner, 1998). As Durvasula *et al.* (1993) and Homburg *et al.* (2003) suggested, we conducted a median split to divide the sample into two groups, one with high and one with low market dynamism. Next, we calculated a free model in which all parameters were estimated separately for the two samples and then compared this model to a model in which one of the structural paths was constrained to be equal in both samples (Thelen and Honeycutt, 2004). Any restriction found to cause a significant increase in the chi-square value meant that the respective path is significantly different for high and low levels of market dynamism.

The analysis shows that the explanatory power of the conceptual model rises as market dynamism increases. In relatively stable customer markets, we find an *R*-squared value of 0.284 for retention, compared to 0.314 for a market with high dynamism, for an increase of about 10 percent. For extension, the value rises from 0.222 for stable markets up to 0.441 for highly dynamic markets, an increase of almost 100 percent. Finally, for referrals, the value increases by about 40 percent, from 0.248 for stable markets to 0.348 for highly dynamic ones. This finding indicates that proactive improvement, even in stable markets, is a substantial predictor of customer

loyalty, but that it is even more likely to produce loyalty when the dynamism of the customers' markets is high.

H3 and *H4* postulate that both cost- and performance-related proactive improvement will increase in importance as the dynamism of the customer's market rises. These hypotheses are not supported by our empirical findings (Table I and Figure 2). While all effects of proactive cost improvements increase with rising market dynamism, the opposite is true for proactive performance improvement, where all effects shrink. This finding suggests that market dynamism is a considerable moderator of all effects – with the exception of the link from proactive performance improvement to extension, where we only observe a change from 0.22 only down to 0.21. Despite the substantial size of the changes in effect for five paths, only two differences show to be significant: those related to *H3a* and *H4a*, that is, the effects on

Link	Standardised path coefficient		Difference of path coefficients significant
	With low market dynamism	With high market dynamism	
H3a. Proactive cost improvement → Retention	0.03		$p = 0.045$
H3b. Proactive cost improvement → Extension	0.27	*0.47*	ns
H3c. Proactive cost improvement → Referral	0.07	*0.50*	ns
H4a. Proactive performance improvement → Retention	*0.51*	−0.03	$p = 0.069$
H4b. Proactive performance improvement → Extension	*0.22*	0.21	ns
H4c. Proactive performance improvement → Referral	*0.44*	0.10	ns

Note: The values displayed in italics denote the context under which the effect for the respective link is strongest

Table I.
Results from moderation analysis
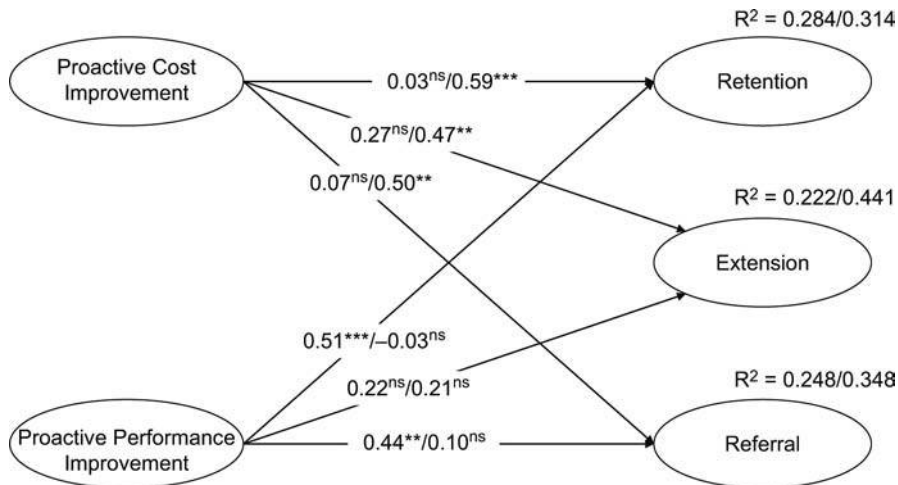
Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Figure 2.
Moderated empirical model with values for low/high market dynamism

retention. The findings lend strong support to hypothesis *H3a* and weak support to hypotheses *H3b* and *H3c*. *H4a-H4c* have to be rejected. *H5* also is be rejected, since proactive performance improvement loses substantially in importance compared with cost improvements as dynamism increases.

4. Discussion

4.1 Results interpretation

The study shows that proactive improvement of LSPs explains a substantial amount of differences in customer loyalty. In stable customer markets, it is a strong driver of customer loyalty, but even more so in markets that are highly dynamic. These findings are consistent with social exchange and customer value theory, which serve as the conceptual basis for this paper. The results also support Flint *et al.* (2005), who claim that LSPs need to be more innovative when their customers are confronted with increasingly dynamic markets.

We found no support for the notion that proactive improvements related to enhanced performance become more important as market dynamism rises. Instead – and contrary to our hypotheses – cost improvements by the LSP become relatively more important to the customer. Apparently, when the environment changes quickly, customers turn to gains in cost efficiency rather than focussing on improving effectiveness. However, the question of how this might be explained remains.

If the services provided by the LSPs are more than sufficient on average, dynamism will not cause performance to drop below the minimum requirements of the customer, an occurrence that would endanger the market position of the customer. Thus, even in a dynamic environment, proactive performance improvements are not necessary to ensure that the logistics systems are continuously functioning and sufficiently effective. If the performance does not fall below defined thresholds and no immediate operational bottlenecks arise, it is up to the customer to determine how to evaluate the different aspects of proactive performance. In this case, cost improvements apparently gain the character of a hygiene factor; whenever the customer's environment exhibits substantial dynamism and change, the customer's first focus is on costs and restoring cost-efficiency via appropriate changes in the services the LSP provides. This kind of customer focus corresponds to the high importance of cost-efficiency within logistics outsourcing relationships (Lieb and Bentz, 2004). Only after cost-efficiency is restored and the parties are operating in a more stable environment does the customer's focus shift to improving effectiveness. Once resources and personnel are no longer tied up with ongoing changes, there is room for improving the performance of the logistics system.

4.2 Managerial implications

Both proactive cost improvement and performance improvement provide substantial value to the customer and so may be used to boost customer loyalty. This potential is not limited to any one dimension of customer loyalty but applies to retention, extension and referrals alike. Thus, an LSP may use relationship-specific innovation to stabilise a relationship as well as to improve the chances of extending the volume or scope of business with the customer. As such, proactive improvement should become an active element of customer relationship management. However, the potential for relationship building and extension has not been realised by LSPs; with mean values across all LSPs of 3.64 for cost improvement and 3.72 for performance improvement (measured

on a scale ranging from 1 to 7)[3], effort levels are low. Thus, LSPs still have ample room to enhance their efforts directed towards proactive improvements and, in this way, to differentiate themselves from their competitors.

With respect to the customers' markets, we find that LSPs intensify their proactive improvement in logistics outsourcing relationships where their customers encounter high market dynamics, but only slightly. Proactive cost improvement increases from an average of 3.49 at low dynamism to 3.79 ($+0.30$) with high market dynamism. Similarly, proactive performance improvement increases from 3.56 up to 3.89 ($+0.33$). Still, even under conditions of high dynamism, these values are low.

While the behaviour of intensifying proactive improvement in general is consistent with our hypotheses, it does not fit with our empirical derivations. Our findings underscore that, under highly dynamic market conditions, only cost improvements gain in importance to the customer, while performance improvements lose importance. Instead of putting equal or even more emphasis on performance improvements, as it is currently done when dynamism increases, the focus of LSPs should shift to enhancing proactive cost improvements.

We assume that the currently observable deficits of LSPs in the field of proactive improvement can be attributed to two main reasons. First, the importance and potential of proactive improvement have not been fully realised by managers of LSPs. Second, innovation management at LSPs lacks in professionalism; based on practical experience it has to be assumed that the resources are too few and the competencies of the personnel involved in the operations of the individual outsourcing relationship too low to generate and implement appropriate ideas for improvement. Instead, with most LSPs, a reactive approach prevails in which innovation is the result of customer requests and suggestions (Flint *et al.*, 2005). Therefore, we advise managers of LSPs to focus more on being proactive and driving innovations, instead of being driven by the customers.

4.3 Limitations and future research

One limitation of this study is that it does not fully investigate the process of value attribution. While we differentiate positive (performance) and negative (costs) value components, the results do not allow us to distinguish whether and to what extent the customer value of proactive improvements is driven by its functional or relationship value. Future research should examine whether proactive improvement enhances customer loyalty mainly through the functional value of better services or already by reducing uncertainty through social capital and trust.

Another limitation is the sampling frame since the study results are based on logistics outsourcing relationships of German companies. Potential cultural differences may influence how companies and their managers attribute value to proactive improvements by their LSPs. Therefore, an extension of the study could examine how logistics relationships in other countries either support or challenge our findings.

In addition, the scope of the research could be widened from the present logistics-services focus to include other business-to-business services, since, while one may assume that proactive improvements will also be of vital importance with other services, the assumption remains unproven. To date, literature has investigated the role of proactive employee behaviour only in single service episodes (e.g. de Jong and de Ruyter, 2004) and has not focussed on the aggregate level of service provision, where customers may attribute value differently.

Further, this study investigates market dynamism only as a moderator of proactive improvement. The understanding regarding proactive improvement would benefit from future research that explores the potential impact of other contextual variables on the effect of proactive improvement on customer loyalty.

The scope of this study precluded further analysis of how proactive improvement can be fostered. Deepen *et al.* (2008) showed that proactive improvements are driven by cooperation and increase as the relationship becomes closer, but future research should investigate more specifically which elements of interaction are important to proactive improvements. Moreover, theory and practice would benefit from understanding how LSPs can best facilitate and foster their own proactive improvements and how customers can enable and encourage proactive improvements. One possible approach to customers' ability to encourage improvements may lie in the very structure of the underlying remuneration; by including variable outcome-based compensation components into contracts, customers can encourage LSPs to increase their improvement efforts.

Notes

1. The other 42 percent of process innovations either focused on both cost and quality or on neither of the two.

2. When we tested the size of the effects for the two factors using the chi-square-difference tests, we detected no significant difference between the effect sizes of the two factors.

3. In comparison, retention has an average of 5.50, extension of 4.25 and referral of 4.58.

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Appendix

Industry	%
Retailing	20.0
Chemicals and Healthcare	14.0
Electronics and Telecommunication	13.7
Automotive	11.5
Consumer goods	8.5
Industrial equipment	8.1
Others	24.2
SBU annual revenue (in million Euro)	
<100	35.3
100-249	21.1
250-499	14.2
500-999	7.8
≥1,000	21.6

Table AI.
Sample description

Item	Mean	SD
Proactive cost improvement (Cronbach alpha = 0.91, AVE = 0.73)		
The LSP continuously makes suggestions for making activities more cost-efficient, even those outside its direct responsibility	3.39	1.61
When the situation changes, the LSP by itself modifies the logistics activities and processes, if this is useful and necessary to reduce costs	3.97	1.63
The LSP shows initiative by approaching us with suggestions to reduce costs	3.67	1.72
The LSP shows a high level of innovation with respect to cost reductions	3.52	1.63
Proactive performance improvement (Cronbach alpha = 0.91, AVE = 0.72)		
The LSP continuously makes suggestions for making activities more effective, even those outside its direct responsibility	3.23	1.59
When the situation changes, the LSP by itself modifies the logistics activities and processes, if this is useful and necessary to enhance the performance.	3.91	1.67
The LSP shows initiative by approaching us with suggestions to enhance the performance	3.75	1.63
The LSP shows a high level of innovation with respect to performance improvements	3.98	1.59
Retention (Cronbach alpha = 0.93, AVE = 0.82)		
We will continue using this LSP in the future	5.53	1.38
Right now, we intend to extend existing contracts with this LSP when they expire	5.38	1.53
If we had known then what we know now, we would again select this LSP	5.60	1.41
Extension (Cronbach alpha = 0.83, AVE = 0.63)		
In the future, the LSP will have a higher share of our logistics volume	4.22	1.68
When we bid out other services than those we outsource today, we will consider this LSP preferentially	4.39	1.81
In the future, we will use this LSP more than we do now	4.15	1.65
Referral (Cronbach alpha = 0.94, AVE = 0.84)		
I often mention this LSP to my co-workers in a positive way	4.80	1.61
I often recommend this LSP to persons outside my company	4.54	1.71
We often recommend this LSP	4.41	1.69
Market dynamism (Cronbach alpha = 0.79, AVE = 0.60)		
In our market …		
… products of our competitor change very quickly	3.98	1.76
… customers' preferences or product features change very quickly	4.43	1.71
… there is perceptible uncertainty due to our or our clients' competitive environment	3.74	1.62

Table AII.
Measurement scales

Notes: All items are measured using a seven-point Likert-scale, where 1 = strongly disagree, 7 = strongly agree

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