

Using outcome-oriented contracts to foster performance improvements in logistics outsourcing relationships

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This is a Working Paper

Why this paper might be of interest to Alliance Partners:

Outcome-oriented contracts are used for an increasing range of private and public services. In view of the importance to involve service providers in continuous improvement efforts, this paper helps managers to better understand how outcome-oriented contracts should be designed and managed to instigate proactive improvement. Following a quantitative research approach, empirical data was collected on logistics outsourcing relationships in Germany. Results reveal the potential of outcome-oriented contracts to improve the provider's performance. Specifically, bonus payments foster the efforts of the service provider to achieve above-standard performance levels while penalties do not instigate proactive improvement efforts. Furthermore, practitioners should be aware that linking the compensation of the service provider management to the achievement of customer goals (i.e., the remuneration obtained by the customer) fosters proactive improvements. Lastly, customers and service providers are advised to allow frequent adjustments of the performance metric system (i.e., changing the target values and/or introducing new KPIs), for example, to reflect lessons learned during the contract management phase, in order to maximize the contract's potential to stipulate proactive improvement efforts. In sum, outcome-oriented contracts can increase proactive improvement behavior by the service providers when they are designed and implemented effectively for which this paper provides a guideline.

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1 Introduction

Companies are constantly striving for improvement to increase profitability and remain competitive (Drucker, 2007) in an increasingly global, uncertain and complex world (Christopher & Holweg, 2017). In today's specialized economy, a large part of manufacturing and service delivery processes is outsourced to dedicated service providers (Handley, 2012). Thus, in order to foster continuous improvement effort comprehensively, it is highly important for companies to involve their service providers in related activities (Zybell, 2013).

Logistics outsourcing is the established practice of contracting a specialized logistics service provider (LSP) to perform activities previously performed in-house by the buying company (Selviaridis & Spring, 2007; Marasco, 2008). Continuous improvement is particularly important in the highly competitive logistics industry (Deepen et al., 2008; Langley & Capgemini, 2015) and requires proactive improvement behavior by the LSP (Wallenburg, 2009; Wagner & Sutter, 2012; Cichosz et al., 2017). Such behavior results in a number of advantages primarily related to reduced costs and increased service performance (Wallenburg et al., 2010b). At the same time, LSPs are generally not particularly innovative, mostly focusing on incremental process refinements (Busse, 2010; Wallenburg et al., 2010a; Bellingkrodt & Wallenburg, 2013).

Outcome-oriented contracts are intended to align interests and foster performance improvements by the service providers (Hypko, Tilebein, & Gleich, 2010b; Randall, Nowicki, & Hawkins, 2011; Selviaridis & Wynstra, 2015). Here, providers are financially incentivized to make improvement suggestions and change processes to better meet customer needs (Selviaridis & Norrman, 2015; Sumo et al., 2016). Yet, while scholars have generally advocated the positive effects of outcome-oriented contracts on innovation (Martin, 2002; Kim, Cohen, & Netessine, 2007; Ng & Nudurupati, 2010), empirical evidence shows mixed results (Wang, Yeung, & Zhang, 2011; Selviaridis & Norrman, 2015; Sumo et al., 2016). The importance of this discussion has been highlighted by a number of researchers, suggesting to analyze effects of outcome-oriented contracts on supplier-led innovation (Selviaridis & Wynstra, 2015), and, in particular, using survey instruments to study such effects for large sample sizes (Sumo et al., 2016). The present study contributes to closing this research gap and specifically addresses the challenges outlined by Selviaridis and Norrman (2015) concerning the design of effective incentives and related LSP-internal structures to foster proactive improvement efforts. We set out to answer the following three research guiding questions, the unit of analysis being the relationship between the LSP and the customer:

RQ 1: *How do inter-company bonus and penalty payments influence proactive improvement by the LSP?*

RQ 2: *How does linking LSP manager and operations staff compensation to customer remuneration (i.e., achieving defined customer goals) influence proactive improvement?*

RQ 3: *How does the incentive basis for performance evaluation (i.e., the number of KPIs and the frequency of adjusting the KPIs) influence proactive improvement?*

Our study contributes to the existing research in several ways. We add to the limited number of studies empirically examining the use and effectiveness of outcome-oriented contracts (Martin, 2002; Hypko, Tilebein, & Gleich, 2010a). More broadly, our results advance the academic discourse on the implications of contracts on performance (Schepker et al., 2014) and, in particular, on innovation (Sumo et al., 2016). Furthermore, this paper helps to guide practitioners from both buying companies and service providers to design and manage outcome-oriented contracts effectively.

The remainder of this paper is organized as follows. First, we review the relevant literature and develop the conceptual foundation of the study. Next, we test our hypotheses with empirical data and describe the methodological approach before we present the results of our study. Finally, we conclude the paper with a discussion of the results and contributions, as well as limitations of the study, and present promising avenues of future research.

2 Conceptual framework

We posit that proactive improvement behavior by the LSP is influenced by inter-company financial incentives, the personal incentives of managers and employees that are linked to customer remuneration, and the incentive basis, namely, the number of KPIs used and the frequency of adjusting the KPIs. Figure 1 shows the conceptual framework of the study. In the following, the role of proactive behavior in logistics outsourcing and the related effects of outcome-oriented contracts are discussed before the hypotheses underlying the conceptual framework are developed in detail.

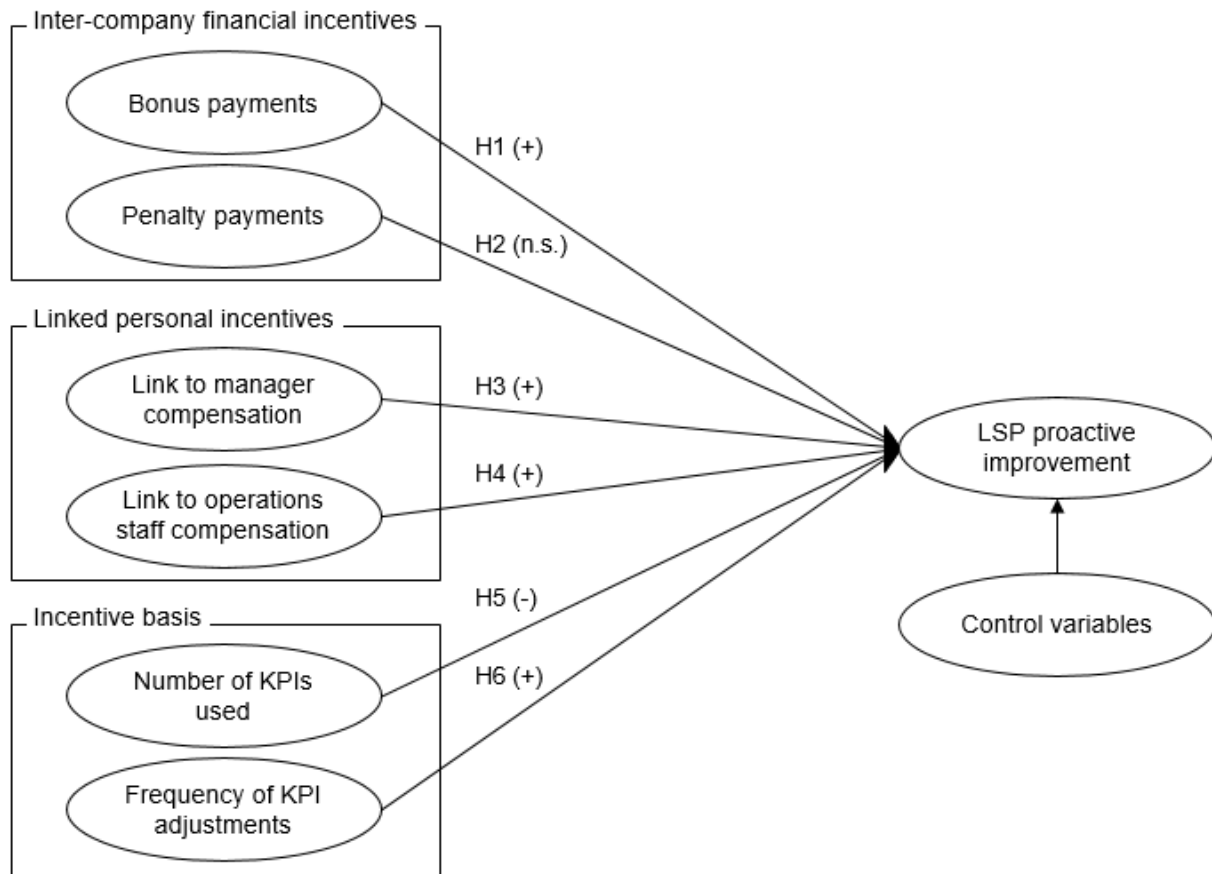


Figure 1: Conceptual framework

2.1 Proactive improvement in logistics outsourcing

Logistics innovation pertains primarily to incremental changes in daily operational activities (Wagner, 2008) in the area of cost or performance improvements (Wallenburg & Lukassen, 2011). More radical innovations in service outsourcing, for example, relating to the overall service concept, are less common (Sumo et al., 2016). Bellingkrodt and Wallenburg (2013) find that logistics innovation is a strong driver of LSP performance, which is also supported by Deepen et al. (2008), showing that, specifically, proactive improvement efforts increase outsourcing performance.

From the perspective of the customers, the proactive improvement behavior of their providers is extremely valuable (Wallenburg, 2009; Wallenburg et al., 2010b) for two main reasons. First, as a result of their own limited expertise, customers might not be able to identify and request their optimal logistics solution at the beginning of the outsourcing relationship. Second, specific knowledge related to operational processes is often gradually transferred from the customer to the service provider throughout the relationship (Handley, 2012). Thus, in order to set up and continuously improve their logistics operation, customers must rely on the expertise of their LSPs (Marasco, 2008).

At the same time, LSPs are not particularly innovative (Bellingkrodt & Wallenburg, 2013) and often lack resources, defined processes and strategies to effectively promote innovation efforts (Wagner, 2008). Several factors described by Busse and Wallenburg (2011) explain the difficulties that LSPs face in generating and effectively disseminating ideas: most staff

are decentralized over multiple branches, the average worker qualification is low and a general down-to-earth mentality of workers restrains innovation efforts.

In sum, while innovation and proactive improvement behavior are positively related to logistics outsourcing performance and expected by customers (Wallenburg, 2009; Wallenburg et al., 2010b), the level of innovativeness at LSPs is relatively low (Busse & Wallenburg, 2011). A means to foster innovation in outsourced service delivery is the application of outcome-oriented contracts that relate financial incentives to service provider efforts (Sumo et al., 2016).

2.2 Outcome-oriented contracts and proactive improvement

Formal contracts serve as a central governance mechanism of customer–service provider exchange relations (Cao & Lumineau, 2015). In addition to safeguarding against provider opportunism, contracts perform a number of functions (Scheper et al., 2014), also related to innovation and performance improvements (Wang et al., 2011). In particular, outcome-oriented contracts, the contractual approach of tying service provider payment at least in part to performance achievement (Selviaridis & Wynstra, 2015; Essig et al., 2016), are suggested to foster innovation activities (Ng & Nudurupati, 2010; Kim & Netessine, 2013). Sumo et al. (2016) identify two main aspects of outcome-oriented contracts as innovation enablers: the service provider’s autonomy that allows sufficient freedom to innovate the daily operational activities, and the rewards system that can result in increased profits. Specifically, the latter aspect, which constitutes a key characteristic of outcome-oriented contracts (Selviaridis & Wynstra, 2015), facilitates innovation efforts as performance improvements are remunerated via contractually defined incentives (Sumo et al., 2016). Another reason why outcome-oriented contracts increase proactive improvement behavior evolves around the monitoring, alignment, and co-production characteristics of such contracts. Since outcome-oriented contracting is a more intensive form of collaboration (compared to traditional time-and-material contracts) (Hypko et al., 2010a), the LSP is more inclined to devote resources and proactively improve the service delivery for the specific customer relationship.

However, Behn and Kant (1999) highlight pitfalls of outcome-oriented contracts, which impede proactive improvements. First, since the service provider has autonomy with regards to how it delivers the agreed outcomes (Sumo et al., 2016), once processes are in place to satisfy customer expectations, the provider might stop experimenting with alternative approaches (Behn & Kant, 1999). Second, outcome-oriented contracts may stifle overachievement once the provider reaches the maximum potential customer remuneration (Behn & Kant, 1999), possibly leading to deadlocks regarding performance improvements (Selviaridis & Norrman, 2015). Finally, depending on the specific contractual terms, outcome-oriented contracts might focus provider activities on cutting costs rather than improving services (Behn & Kant, 1999), and thereby restrain a continuous improvement mentality (Ssengooba, McPake, & Palmer, 2012; Zybell & Wallenburg, 2017). Empirical studies echo the difficulty of achieving the theorized benefits of outcome-oriented contracts regarding proactive improvements. Selviaridis and Norrman (2015) discuss fostering provider proactivity as key challenges in their case-study research on outcome-oriented contracts for advanced logistics services. In a recent study, Sumo et al. (2016) emphasize that limited autonomy in outcome-oriented contracts impedes innovation attempts. Moreover, other studies discuss that outcome-oriented contracts can even

provoke negative consequences when the provider perceives incentives as unfair (Zybell, 2013; Selviaridis & Wynstra, 2015).

In sum, while outcome-oriented contracts seem to provide potential to foster proactive improvement efforts, prior research has drawn mixed conclusions calling for a more detailed analysis of how different types of incentives (i.e., bonuses and penalties), as well as factors related to the implementation of outcome-oriented contracts, affect provider proactivity.

2.3 Inter-company financial incentives influencing proactive improvement

The core concept of outcome-oriented contracts evolves around financial incentives that are tied to the achievement of specified outcomes (Selviaridis & Wynstra, 2015). The design of financial inter-company incentives primarily relates to the magnitude of bonus and/or penalty payments and the reachability of defined target values (Selviaridis & Norrman, 2015; Selviaridis & Wynstra, 2015). In addition to a baseline remuneration for standard performance levels, which are typically derived from historical or competitive data (Sols, Nowick, & Verma, 2007) and encompass a certain performance range, the provider is entitled to bonus payments for exceeding the standard performance and is similarly subject to penalties for respective under-performance (Sols et al., 2007; Datta & Roy, 2011). The magnitude of financial inter-company incentives impacts service provider behavior and directs efforts toward performance achievement (Hünerberg & Hüttmann, 2003; Selviaridis & Wynstra, 2015). This effect is amplified by relatively low margins in the logistics industry (Selviaridis & Norrman, 2015), in which bonus and penalty payments of a few per cent of the total remuneration can turn a normal customer relationship into a highly profitable or unprofitable one for the service provider.

Bonus payments incentivize providers to improve their performance (Kim et al., 2007). More specifically, LSPs receive an additional payment for exceeding the threshold of standard performance, which typically requires expanding related efforts and activities. Thus, initiating and pursuing improvements is necessary for the LSP in order to achieve higher bonus payments. The service provider will be motivated to pursue performance improvements depending on the magnitude of the incentives and related financial benefits, with higher incentives leading to more motivation and expended effort (Sumo et al., 2016). Furthermore, high potential bonus payments may focus the provider's attention on that specific customer relationship rather than on activities for other customers (Gibbons, 2005). Consequently, the higher the potential bonus payments, the more likely is the LSP to exhibit proactive improvement behavior, and, thus, we hypothesize:

H1: The extent of potential bonus payments has a positive effect on LSP proactive improvement behavior.

Typically, outcome-oriented contracts also entail *penalty payments* (Kim et al., 2007; Sols et al., 2007; Selviaridis & Norrman, 2015; Sumo et al., 2016) that are designed to ensure provider performance and move potential risks of under-performance to the provider (Datta & Roy, 2011; Selviaridis & Norrman, 2014). The LSP can avoid penalty payments by delivering services in the expected quality regarding the dimensions agreed with the customer (i.e., by providing standard performance). Consequently, the service provider will direct its efforts toward reaching standard performance. Yet, for such standard performance, innovative

improvements are mostly not required; instead, it is sufficient for the provider to avoid mistakes, for example, by establishing operational routines and training employees to execute defined operating procedures. In other words, to avoid penalties the LSP will focus on consistently maintaining the defined standard performance baseline, without deviations, and organizes its processes respectively. In contrast, any type of proactive improvement effort is unnecessary for avoiding penalties and even counterproductive for the LSP's profitability, as additional costs are incurred and changes in the established processes can be sources of new, additional mistakes. We therefore posit that penalties help to achieve standard performance levels, but will not induce proactive improvement. Selviaridis and Norrman (2015) draw a similar picture in their case-study research, outlining that hefty financial penalties caused the LSP to improve its below-standard performance. Based on the above, we hypothesize:

H2: *The extent of potential penalty payments has no effect on LSP proactive improvement behavior.*

2.4 Personal incentives influencing proactive improvement

The management of outcome-oriented contracts often requires organizational changes regarding processes and resource allocation. The LSPs have to find ways to promote performance improvements and, thus, link defined customer goals to the objectives of their managers and operations staff (Selviaridis & Norrman, 2015). At the same time, outcome-oriented contracts make it easier to relate personal incentives to performance, as data for performance measurement and respective analysis capabilities are readily available in such a context (Selviaridis & Norrman, 2015).

Personal incentives are commonly used to reward and recognize employee performance (Bareket-Bojmel, Hochman, & Ariely, 2017), a practice that is supported by several economic and psychological theories (for a review, see Gerhart & Rynes, 2003). The central assumption is that performance relates to motivation and motivation can be increased by personal incentives (Ambrose & Kulik, 1999; Griffin & Moorhead, 2011).

We posit that linking *manager compensation* to the achievement of defined performance goals has a positive influence on proactive improvement behavior for three reasons. First, managers are willing to put in extra effort when this is financially rewarded (Gneezy, Meier, & Rey-Biel, 2011). Second, managers are able to, and will, prioritize activities in line with their respective incentives (Gibbons, 2005) and thus focus efforts on improvements within the focal business relationship rather than on other activities or business relationships. Third, managers direct their subordinate operations staff to increase effort (Gilbert, 2013) and foster improvements in line with the manager's incentives. In other words, managers can create a work environment that increases the likelihood of employees providing improvement suggestions, for example, offering relevant training and providing structures to recognize internal improvement proposals (Selviaridis & Norrman, 2015). In sum, higher personal incentives lead managers to put in extra effort, focus their attention and direct their employees to foster proactive improvements for a specific customer relationship. We therefore hypothesize:

H3: *Linking manager compensation to the remuneration by the customer has a positive effect on LSP proactive improvement behavior.*

Operations staff is either instructed by management (Gilbert, 2013) or incentivized directly with financial rewards (Bareket-Bojmel et al., 2017). In both cases, the staff will prioritize activities toward the respective business relationship. This is particularly relevant, as the operations staff is the main source for suggesting improvements regarding the inefficiencies of their workplace and related procedures (Kao et al., 2015). The higher the incentives for the operations staff, the more they will seek to improve performance proactively. In addition, incentives also help to signal the importance of improvement efforts, which is particularly relevant in the logistics industry in which employees often exhibit a down-to-earth mentality that leads to reactive rather than proactive behavior (Busse & Wallenburg, 2011). For the reasons provided above, we hypothesize:

H4: *Linking operations staff compensation to remuneration by the customer has a positive effect on LSP proactive improvement behavior, which is smaller than that of manager compensation.*

2.5 Incentive basis influencing proactive improvement

Contractual performance goals are reflected in a performance metric system comprising KPIs, target values and, typically, a weighting to assess the overall performance (Sols et al., 2007; Selviaridis & Norrman, 2015). Setting up a performance metric system for outcome-oriented contracts entails challenges regarding the reflection of strategic goals of the buying companies and the definition and measurement of performance levels (Doerr, Lewis, & Eaton, 2005; Selviaridis & Norrman, 2015). The latter point is particularly relevant given that performance measurement involves high transaction and administrative costs (Behn & Kant, 1999; Selviaridis & Wynstra, 2015). The respective KPIs must be selected, the data collected, and reporting, as well as evaluation routines, established (Selviaridis & Wynstra, 2015).

The *incentive basis* of outcome-oriented contracts affects the proactive performance improvements of the logistics provider (Selviaridis & Norrman, 2015). Agreed and specific KPIs and target values are vital to instigate proactive improvement efforts of the service provider that are aligned with customer goals (Cichosz et al., 2017). Typically, customers have multiple performance dimensions that are relevant, and respective KPIs reflecting their goals (Behn & Kant, 1999). However, from the perspective of the LSP, a large number of KPIs might be disadvantageous in terms of proactive improvement efforts, for a number of reasons. First, KPIs in multiple dimensions (e.g., product damages, response times, cost savings, and safety) might lead to conflicting goals (Leung et al., 2013). Achieving the objectives in one dimension might be in opposition to objectives in another dimension. Moreover, it is more difficult to find improvements that advance the performance assessment on multiple dimensions at the same time. Related to that, a large number of KPIs might be overwhelming and discourage the LSP to start improvement efforts or lead to diluted efforts. This challenge was underscored in a recent case study by Selviaridis and Norrman (2015) showing that the customer wanted the LSP to focus proactive improvement efforts on a limited number of KPIs. Finally, a large number of KPIs restrict the service provider's autonomy (Sumo et al., 2016), thus limiting its scope for innovation. In line with the above, we hypothesize that more KPIs will lead to less proactive improvement:

H5: *The number of KPIs contractually specified for performance evaluation has a negative effect on LSP proactive improvement behavior.*

The development of a performance metric system is a stepwise process, with KPIs, target values, and the evaluation methodology changing as learning accumulates (Jacobson & Neumann, 2009; Selviaridis & Wynstra, 2015). This ongoing contract management is important for successful outsourcing relationships, and agreements should be flexible enough to allow for changes (Ishizaka & Blakiston, 2012). In outcome-oriented contracts, KPI adjustments (i.e., changing KPIs, adding new ones, or adjusting target values) have three main drivers. First, performance metric systems require changes, as customers are often unable to define all their requirements upfront and both sides learn throughout the contractual relationship (Behn & Kant, 1999; Lumineau, Fréchet, & Puthod, 2011; Selviaridis & Norrman, 2015). Related to this, sometimes KPI definitions and the intensity of bonus/penalty payments are revisited when providers or customers perceive them as unfair throughout the relationship (Selviaridis & Norrman, 2015). Second, external changes (e.g., technological advancements) regularly require the adaptation of the service provision (Datta & Roy, 2011) and the corresponding KPIs. Third, some contracts entail predetermined changes in KPI target levels such as annual cost reductions or customers revising the performance baseline upwards (Selviaridis & Norrman, 2015).

Changes in the performance metric system have a bearing on the proactive improvement behavior of the LSP (Selviaridis & Norrman, 2015). Sometimes changes are introduced specifically to induce improvements, while in other cases changes only trigger proactive improvements as a side effect. Changes to the performance metric system can relate to two different aspects: changes in the target values and changes of KPIs. Changes in target values (i.e., which specific level should be reached) offer new stimuli for the service provider (González-Díaz & Montoro-Sánchez, 2011) and can be made when the provider is getting close to, or exceeds, a previously agreed target level. In such situations, the service provider already demonstrates good performance in the respective dimension and a new stimulus prompts the provider to improve its performance even further, rather than relying on previous achievements. Changes of KPIs also provides additional stimuli for performance improvements. In particular, new KPIs increase the scope for improvements by opening up new dimensions for the LSP to develop improvement ideas. In addition, frequent changes in the performance metric system reveal that the customer and the LSP actively manage the contract and invest time in (re-)aligning goals (Selviaridis & Norrman, 2015). This signals the importance of, and commitment to, the business relationship and therefore increases the willingness of the provider to expand efforts into proactive improvement. In line with the arguments provided above, we hypothesize:

H6: *Frequently adjusting the performance metric system (target values and KPIs) has a positive effect on LSP proactive improvement behavior.*

3 Methodology

3.1 Sampling and data collection

Primary data on logistics outsourcing relationships were collected in mid-2015 by means of a web-based survey that was sent to 2,203 LSP managers from a university database. Each

respondent answered the survey for one customer relationship that was selected based on three restrictions: the respondent had profound knowledge of the relationship, the customer was relevant to the respondent's company, and, if possible, the contract was outcome-oriented. In total 231 surveys were submitted, leading to a satisfactory response rate of 10.49 per cent (Harman, 1976; Wagner & Kemmerling, 2010; Ralston et al., 2015). We discarded 18 questionnaires as a result of missing data and applied a filter variable to exclude 99 contracts that did not qualify as outcome-oriented. The remaining 114 complete surveys were analyzed for this study. Appendix 1 displays descriptive data for the respondents and their companies.

To assess nonresponse bias, we compared early versus late responses via t-testing (Armstrong & Overton, 1977; Wagner & Kemmerling, 2010). We found no statistically significant difference at $p < 0.05$, suggesting that nonresponse bias was not of concern for this study (Lambert & Harrington, 1990; Wagner & Kemmerling, 2010).

Since we followed a single informant approach, common method bias could have been a concern for our study (Ketokivi & Schroeder, 2004). Therefore, we applied preventative measures during data collection, ensuring the respondents' anonymity, and explained that no wrong answers existed (Podsakoff et al., 2003). Furthermore, after data collection we tested for the presence of common method bias following two approaches. First, Harman's single-factor test revealed that only 18.9 per cent of the variance could be explained by a single factor and, thus, did not provide evidence of a common method bias (Harman, 1976). Second, we followed Lindell and Whitney (2001) and tested a marker variable ("involvement of the purchasing department during contract negotiations"), which was not significantly correlated at $p < 0.1$ with the other variables in our model. The results show, both individually and collectively, that common method bias was not of concern for our study.

3.2 Measurements

To ensure content validity, we reviewed the relevant literature and involved subject-matter experts during the development of the survey instrument (Dunn, Seaker, & Waller, 1994). Furthermore, the survey was pilot-tested with 18 persons (logistics researchers and logistics managers) to ensure face validity, and iteratively revised until no more changes were proposed. Appendix 2 shows a list of all corresponding survey questions.

Proactive improvement. We based our measurement on a scale developed by Wallenburg et al. (2010b) specifically for the context of the logistics industry. One item was added to measure the degree to which LSPs continuously work toward reducing costs or improving performance. Yet, this additional item was later eliminated during the scale refinement process. All items were measured as 7-point Likert scale statements (scale points labeled "1 = strongly disagree" and "7 = strongly agree").

Bonus payments. We measured the maximum potential bonus as percentage of the total revenue of the business relationship during the same period. The item was measured using an input field restricted to numbers.

Penalty payments. We measured the maximum potential penalty as percentage of the total revenue of the business relationship during the same period, again, using an input field restricted to numbers.

Link to manager compensation. For this measure, we asked to what extent the realized customer remuneration had a strong influence on the compensation of the managers responsible for the business relationship. The item was measured on a 7-point Likert-type confirmation scale (scale points labeled “1 = not at all”, “2 = very limited” and “7 = very strongly”).

Link to operations staff compensation. To measure this item, we asked to what extent the realized customer remuneration had a strong influence on the compensation of the operations staff working in the business relationship, and applied a 7-point Likert-type confirmation scale (scale points labeled “1 = not at all”, “2 = very limited” and “7 = very strongly”).

Number of KPIs used. This measurement captured how many KPIs were relevant to determine the total customer remuneration. We used an input field restricted to numbers.

Frequency of KPI adjustments. This item measured how often adjustments were made to the KPIs since contract closing (e.g., changes of KPIs or target values) by forced choice, with the answer options “monthly”, “quarterly”, “semi-annual”, “annual”, “less often”, and “never”.

Controls. We included the following control variables in the model: LSP size based on the number of employees; customer size relative to the LSP; familiarity of the LSP with the requirements of the customer; outsourcing experience of the customer; and innovation alignment between the customer and the service provider.

3.3 Reliability and validity

We calculated Cronbach’ alpha (Cronbach, 1951; Nunnally, 1978) and composite reliability (Bagozzi & Yi, 1988) values for the purified proactive improvement scale at 0.787 and 0.792 respectively, which indicated high measurement reliability. The mean value of the proactive improvement scale was 5.064 with a standard deviation of 1.135.

We assessed the convergent validity and discriminant validity of our measurement model by means of a covariance-based confirmatory factor analysis (CFA). Model fit indices indicated acceptable fit: $\chi^2 = 13.73$, $\chi^2/df = 1.14$, comparative fit index (CFI) = 0.989, root mean square error of approximation (RMSEA) = 0.036, and standardized root mean square residual (SRMR) = 0.030. For our latent proactive improvement scale, all standardized factor loadings were highly significant and above 0.5, as recommended by Hair et al. (2010), and the average variance extracted (AVE) was at 0.56 and, thus, above the generally assumed threshold (Fornell & Larcker, 1981). **Error! Reference source not found.** indicates discriminant validity between the variables based on Pearson’s correlation coefficients.

The maximum variance inflation factor of 1.06 was far below the recommended threshold, suggesting that multicollinearity issues were unlikely to be of concern for this study (Cohen et al., 2003).

	1	2	3	4	5	6	7	8	9	10	11
1 Proactive improvement	1.000										
2 Bonus payments	0.193	1.000									
3 Malus payments	-0.033	0.043	1.000								
4 Link to mgmt. compensation	0.249	0.161	0.279	1.000							
5 Link to operations staff compensation	0.152	0.103	0.031	0.521	1.000						
6 Number of KPIs	-0.050	0.002	-0.082	0.059	0.087	1.000					
7 KPI adjustments	0.191	0.011	0.178	0.325	0.245	0.106	1.000				
8 LSP size	-0.038	-0.209	0.151	0.154	-0.075	-0.079	0.010	1.000			
9 Customer size (relative)	0.113	0.038	0.012	0.085	0.033	0.042	-0.044	-0.335	1.000		
10 Prior experience	0.013	0.002	0.073	0.019	0.040	0.003	-0.165	-0.049	0.180	1.000	
11 Customer outs. experience	0.042	0.053	0.118	0.139	0.055	0.085	-0.093	-0.012	0.457	0.203	1.000
12 Innovation alignment	0.235	-0.041	-0.136	0.055	0.130	0.024	-0.111	0.041	0.110	0.042	0.121

Table 1: Variable correlations

4 Results

We used SPSS 24 to test our hypotheses, with ordinary least square regression analysis estimating the linear equation system in two hierarchical steps (Cohen et al., 2003). First, only the control variables were entered as one block, before the main effects were added to the model in a second step, which significantly increased the variance explained by the model from 0.06 to 0.19. Hypotheses test results are reported in Table 2.

Our results fully support four of the six hypotheses developed in the conceptual framework, namely, hypotheses H1–3 and H6. We found that linking operations staff compensation to customer remuneration has no significant effect on LSP proactive improvement behavior and is thus, as expected, weaker than the effect of linking manager compensation to customer remuneration, providing partial support for hypothesis H4. Furthermore, we found no statistical support for hypothesis H5 on the number of KPIs influencing proactive improvement behavior. The control variables show no significant effect on proactive improvement, except for innovation alignment, measuring the degree to which process improvement efforts are closely aligned with customer expectations. The results demonstrate that our conceptualized and tested model explains, with $R^2 = 19$ per cent, a considerable part of the proactive improvement behavior.

Dependent variable: proactive improvement

Hypothesis	Independent variables	Standardized path coefficients	p-values
H1 (+)	Bonus payments	0.173*	0.068
H2 (n.s.)	Malus payments	-0.102	0.297
H3 (+)	Link to manager compensation	0.197*	0.099
H4 (+ and < H3)	Link to operations staff compensation	-0.039	0.720
H5 (-)	Number of KPIs	-0.095	0.300
H6 (+)	KPI adjustments	0.196*	0.052
<i>Controls</i>			
	LSP size	-0.011	0.918
	Customer size (relative to LSP)	0.081	0.462
	Familiarity with the customer	0.031	0.742
	Customer outsourcing experience	-0.027	0.801
	Innovation alignment	0.240**	0.011
	R ²	0.19	
	R ² with controls only	0.06	

* p < 0.1 ** p < 0.05

Table 2: Hypotheses test results

5 Discussion

5.1 Results interpretation

This study set out to analyze the effectiveness of different elements of outcome-oriented contracts concerning their potential to stimulate proactive improvement behavior in logistics outsourcing relationships. Specifically, we assessed inter-company bonus and penalty payments, the personal incentives of LSP managers and operations staff, and the role of the incentives basis (i.e., the number of KPIs used and the frequency of adjustments to the performance metric system). Although prior research suggested that outcome-oriented contracts foster innovation (Kim et al., 2007; Ng & Nudurupati, 2010; Sumo et al., 2016), hitherto, very little empirical evidence has supported this claim and studies showed mixed results in this regard (Wang et al., 2011; Selviaridis & Norrman, 2015). Our research builds on two exploratory case studies on the motives for adapting outcome-oriented contracts (conducted by Selviaridis & Norrman, 2015) and the consequences on service provider innovation efforts (conducted by Sumo et al., 2016). We provide confirmation through a large-scale study that outcome-oriented contracts foster proactive improvement behavior of service providers; however, while some frequently used elements in such contracts stipulate provider proactivity, others proved ineffective.

We found that in terms of inter-company financial incentives, only bonuses have a positive effect on the proactive improvement behavior of LSPs. In line with our argumentation, the LSPs undertake additional efforts and initiate improvements to achieve above-standard performance levels and obtain the bonuses. We expected that penalties would show no significant effect on proactive improvement behavior as they only actuate LSPs to achieve standard performance levels. While we did not explicitly account for the level of standard performance in our survey, the findings support our argumentation and corroborate insights from previous empirical studies (Zybell, 2013; Selviaridis & Norrman, 2015). The

ineffectiveness of penalties to instigate performance improvements is particularly noteworthy, given that we found potential penalty payments being on average double the size of potential bonus payments in our sample.

While linking manager compensation to customer remuneration has a positive effect on proactive improvement behavior, we found that linking operations staff compensation in the same way has no significant effect. This can be explained by the more relevant role of managers, who do not only focus their own efforts and attention but also direct their operations staff toward improving service provision for a specific customer. We acknowledge that the operations staff is a vital source of improvement suggestions (Kao et al., 2015), however, managers can modify their staff's behavior, relying on a number of extrinsic and intrinsic motivations (Gneezy et al., 2011), other than linking staff compensation to the relationship performance with the customer. Another explanation might revolve around the limited authority of the operations staff to change processes, particularly when the management is not committed to these.

We found that the number of KPIs used to determine LSP performance has no significant effect on proactive improvement activities. This contradicts recent studies (e.g., Leung et al., 2013) and our argumentation that fewer KPIs limit the scope of conflicting goals, reduce the risk of diluted efforts (Selviaridis & Norrman, 2015), and raise service provider autonomy (Sumo et al., 2016), presumably increasing proactive improvement. While this may explain why increasing the number of KPIs does not have a significant effect, a potential explanation for why reducing the number of KPIs has no significant effect provides the argument that more KPIs – and thus dimensions for improvement – allow more scope for proactive behavior of the LSP.

In line with our expectations, changes in the performance metric system (i.e., changes in target values or KPIs) positively influence LSP proactive behavior. As such, our study underlines the relevance of the contract management phase, beyond the contract design phase (Argyres & Mayer, 2007), and proves the importance of contractual flexibility to adjust the performance metric system. While we found that such changes have a positive bearing on proactivity, other research showed that a large number of interventions could alleviate the provider's independence and hence reduce its entrepreneurial spirit (Zybell, 2013).

More broadly, our results contribute to the discourse on how best to promote provider performance. Terpend and Krause (2015) propose categorizing incentives into two groups, namely, competitive and cooperative incentives. They classify outcome-oriented contracts as cooperative incentives, focusing their discussion on mutual benefits related to performance improvements. We suggest that outcome-oriented contracts also entail a competitive element, as service providers are rewarded based on their performance relative to historic and competitive data (Sols et al., 2007). Thus, outcome-oriented contracts combine both incentive groups, cooperative because of the aspect of co-production with the customer, and competitive as benchmarks are used to determine performance levels. In this sense, competition relates not to one side winning over the other, but rather to providers benefiting from high performance.

The majority of studies on outcome-oriented contracts are primarily descriptive and case-based (Martin, 2002; Hypko et al., 2010b; Sumo et al., 2016). We contribute to this literature by applying a large-scale survey instrument investigating the use and effects of different elements of outcome-oriented contracts on proactive provider behavior. Our findings underline the potential of outcome-oriented contracting and support a functional view of

contracts that moves beyond the traditional view of them serving as a safeguarding mechanism against opportunism (Schepker et al., 2014).

5.2 Managerial implications

Outcome-oriented contracts are used for an increasing range of private and public services (Selviaridis & Wynstra, 2015). In view of the importance to involve service providers in continuous improvement efforts (Zybell, 2013), our results help managers to better understand how outcome-oriented contracts should be designed and managed to instigate proactive improvement. Primarily, customers should recognize that outcome-oriented contracts provide the potential to improve the service provider's performance. Specifically, bonus payments foster the efforts of the service providers to achieve above-standard performance levels. Furthermore, our results show that penalties do not instigate proactive improvement behavior; however, we expect penalties to ensure that providers achieve standard performance levels. In light of the fact that only bonus payments yield the desired results of increased proactivity, it is interesting to see findings from customers of logistics services in the automotive industry that show reluctance to pay bonuses (Zybell, 2013; Selviaridis & Norrman, 2015).

Practitioners should be aware that linking the compensation of LSP management to the achievement of customer goals (i.e., the remuneration obtained by the customer) fosters proactive improvement. Furthermore, our findings reveal that customers and LSPs should refrain from performance-related compensation of the operations staff, if the objective is to increase proactive improvement behavior.

When designing the performance metric system, customers should ensure that their goals are well reflected in the KPIs. At the same time, customers and service providers are advised to allow frequent adjustments of the performance metric system (i.e., changing the target values and/or introducing new KPIs), for example, to reflect lessons learned during the contract management phase (Selviaridis & Norrman, 2015), in order to maximize the contract's potential to stipulate proactive improvement efforts.

In sum, from a practitioner's standpoint, outcome-oriented contracts can increase proactive improvement behavior by the service providers when they are designed and implemented effectively.

5.3 Limitations and further research

Our findings should be considered in the context of the limitations of the study. Although our study is based on LSP data, we believe the results can be applied to a wide range of companies buying and offering outcome-based services. However, data was collected in Germany and, thus, the results are not necessarily representative of other countries with different contextual factors playing a role. In particular, the German logistics industry generally exhibits a power imbalance to the advantage of the customers. We therefore expect similar findings only in comparable contexts. We used a single-informant approach targeting LSP managers that are knowledgeable of the contractual dynamics and internal efforts related to proactive improvements. However, dyadic data, including the customer perspective, in particular, related to the effectiveness of proactive improvement efforts, would increase the validity of our findings. Finally, limitations revolve around the

measurements used in our study. The item “frequency of KPI adjustments” included both changes of KPI target values and the introduction of new KPIs. Thus, our data does not allow us to differentiate between potentially different effects. More broadly, we measured antecedent factors influencing proactive improvement behavior with single-item scales and assumed measurement validity given the simple nature of the variables (Rossiter, 2016).

On the basis of our findings, we suggest several avenues for future research. As we found that bonuses have a positive effect on proactive improvement behavior, we suggest research on the optimal range of bonuses dependent on different contextual factors. This is in line with other studies emphasizing the importance to define the right intensity of incentives (Hooper, 2008; Selviaridis & Norrman, 2015). Since penalties are not beneficial to stimulating performance improvements, we encourage further research to analyze the role of penalties in outcome-oriented contracting and relationship governance in general. Related to our finding that the number of KPIs does not influence proactive improvement efforts, we recommend investigating whether some KPI categories stimulate provider proactivity better than others (e.g., cost- versus performance-focused KPIs), as lean performance metric systems would still reduce the transaction and administrative costs of outcome-oriented contracts (Behn & Kant, 1999; Doerr et al., 2005). We also suggest further research that focuses on the alignment of innovation efforts with customer’s expectations – a relationship for which we controlled in our research model and found a highly significant effect that was, however, not a focal aspect of this study.

In conclusion, research on innovation efforts in service provider–customer relationships has not given outcome-oriented contracts the necessary level of attention in light of their potential to support continuous improvement efforts. We show that outcome-oriented contracts provide a useful tool for companies to integrate their providers in ongoing efforts to remain competitive and continuously improve performance and suggest future research to build on these promising results.

Appendices

Appendix 1: Sample demographics

Logistics service provider size

Number of employees	Count	Percentage
01–49	22	19.3
50–99	12	10.5
100–249	28	24.6
250–999	12	10.5
1,000–4,999	17	14.9
5,000 and more	23	20.2

Main customer industries

	Count	Percentage
Consumer goods and food products	27	23.7
Automobile and aviation	27	23.7
Chemicals, pharmaceuticals, and health care	22	19.3
Industrial goods, machinery, and plant engineering	18	15.8
Wholesale and retail trade (excluding food products)	10	8.8
Electronics and telecommunications	5	4.4
Logistics and transportation	5	4.4

Respondent position

	Count	Percentage
CEO/member of the board	71	62.3
Business unit manager	16	14.0
Branch manager	22	19.3
Other	5	4.5

Appendix 2: Measurement scales and descriptive statistics

#	Construct/Item	ME	SD
	Proactive improvement * (Wallenburg et al., 2010b) CR = 0.79, CA = 0.79, AVE = 0.56		
1	We continuously provide the customer with suggestions for improvements of activities, even those outside our direct responsibility.	4.92	1.440
2	<i>When the situation changes, we by ourselves modify the logistics activities and processes, if this is useful and necessary.</i> **	5.54	1.138
3	<i>We constantly work towards reducing the costs of our logistics services and/or increasing our performance.</i> **	6.01	1.093
4	We show initiative by approaching this customer with suggestions for improvement.	5.25	1.245
5	We are generally highly innovative with regards to cost savings and/or performance improvements for this customer.	5.03	1.373
	Inter-company financial incentives		
1	Bonus payments What is the maximum achievable bonus in percentage of the total revenue of this business relationship (within the same period)? (Input field restricted to numbers)	3.96	5.476
2	Penalty payments What is the maximum penalty in percentage of the total revenue of this business relationship (within the same period)? (Input field restricted to numbers)	7.18	13.704
	Personal incentives		
1	Link to manager compensation The total customer remuneration has a strong influence on the compensation of the managers responsible for the business relationship. (Scale: 7-point, 3 anchors: not at all, very little, very strong)	2.84	1.832
2	Link to operations staff compensation The total customer remuneration has a strong influence on the compensation of the operations staff working in the business relationship (e.g., warehousing staff and truck drivers). (Scale: 7-point, 3 anchors: not at all, very little, very strong)	2.29	1.633
	Incentive basis		
1	Number of KPIs used How many KPIs are relevant to determine the total remuneration? (Input field restricted to numbers)	6.76	11.373
2	Frequency of KPI adjustments How often were adjustments made to the KPIs since the contract closing (e.g., changes of KPIs or target values) (Answer options: monthly, quarterly, semi-annual, annual, less often, never)	2.68	1.582
	Controls		
1	<u>Logistics service provider size</u> How many employees did your company employ on average in 2014 (including possible subcontracted workers)? (Grouped into 7 categories: 1–9; 10–49; 50–99; 100–249; 250–999; 1,000–4,999; 5,000+)	4.51	1.791
2	<u>Customer size</u> (relative to logistics service provider) Please assess the customer's size based on total revenue compared to your company. (Scale: 5-point, 3 anchors: much smaller, about the same, much larger)	4.33	1.142
3	<u>Familiarity with the customer</u> How familiar was your company at the beginning of the contract with the specific requirements of this customer (e.g., due to a prior business relationship)? (Scale: 7-point, 2 anchors: not familiar at all, very familiar)	5.20	1.689
4	<u>Customer outsourcing experience</u> * This customer is very experienced with outsourcing.	5.53	1.440
5	<u>Innovation alignment</u> * Our efforts to improve processes are very well aligned with the customer's expectations.	4.84	1.341

* Items are measured on a 7-point Likert-scale, with 1 = strongly disagree and 7 = strongly agree.

Note: ME = mean, SD = standard deviation; ** Items dropped during scale refinement; CR = composite reliability, CA = Cronbach's Alpha, AVE = average variance extracted

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