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Control Perception Differences in IS Offshoring Projects: Conceptualization and Empirical Test of Performance Impact

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ABSTRACT

This paper takes a novel approach to IS project control by studying control perceptions of clients and vendors in IS offshoring projects and the implications of their perceptions for project performance. We present the results of a survey-based analysis of 46 client-vendor dyads involved in IS offshoring projects. A major contribution of this study lies in operationalizing and empirically testing attempted control (control perceived by the client) and realized control (control perceived by the vendor). Based on prior research, we employ a relational governance view to test whether control perception differences decrease IS project performance. Building on transaction cost economics, we then develop and test the rival perspective that control perception differences may improve performance. Our data support the view that perception differences can be beneficial for IS offshoring project performance.

Keywords

IS offshoring, project management/governance, organizational control, control perception differences, transaction cost economics (TCE).

INTRODUCTION

Controlling information systems (IS) projects represents a great challenge because of the inherent complexity and uncertainty of such projects (Nidumolu and Subramani, 2003). Considerable progress has been made on the factors influencing the choice of control modes and the dynamics of control choices in in-house IS development projects (e.g., Kirsch, 1997; Kirsch, 2004). More recently, research on IS project control has also taken important steps towards developing a deeper understanding of control behaviors and strategies in interorganizational IS outsourcing and offshoring contexts (e.g., Choudhury and Sabherwal, 2003; Heiskanen, Newman and Eklin, 2008; Rustagi, King and Kirsch, 2008; Tiwana and Keil, 2009). Despite these important contributions, however, the particular characteristics and challenges of control execution and control impacts in interorganizational contexts remain underexplored (Caglio and Dittillo, 2008), motivating additional research in this area.

Taking a potentially important step in this direction, Tiwana and Keil (2009) recently proposed that there might be differences between attempted and realized control for outsourced projects, and that these differences might explain inconclusive and contradictory evidence on the use and effectiveness of controls in the current literature. This is particularly interesting since many prior studies rely on data reported by one side of the control dyad – the client (controller) (Nidumolu and Subramani, 2003; Tiwana, 2010). Rustagi et al. (2008) were among the first to collect data from both sides, but did not compare client and vendor data. Thus, to the best of our knowledge, there has been no study to date that has focused on attempted control by the client and realized control on the vendor side, and compared these to detect differences in control perceptions.

We thus take a novel approach to studying IS project control by focusing on control perceptions and perception differences in IS offshoring projects as well as their implications for project performance. Our focus is on formal controls, i.e., behavior and outcome controls (Eisenhardt, 1985; Ouchi, 1979), because these control modes seem to be the preferred choice in interorganizational projects (Choudhury and Sabherwal, 2003). The paper presents the

results of a survey-based analysis of 46 client-vendor dyads engaged in IS offshoring projects. We study attempted and realized control by asking both clients and vendors to report on the control mechanisms exercised by the controller (client). Through this, we offer an operationalization of attempted and realized control in IS offshoring projects. Specifically, based on transaction cost economics, we develop and test an alternative perspective to determine whether client-vendor control perception differences should be avoided or embraced. By addressing these questions, we make an important contribution to prior literature on control execution in interorganizational project settings.

THEORETICAL BACKGROUND

Control of IS Offshoring Projects

Prior literature suggests two types of formal controls: behavior and outcome control. Control research shows a growing interest in investigating control issues in IS outsourcing/offshoring projects (Choudhury and Sabherwal, 2003; Goo, Kishore, Rao and Nam, 2009; Gopal and Gosain, 2010; Tiwana and Keil, 2009). An increasing number of these studies view control as an independent variable and focus on the important link between control and performance (Gopal and Gosain, 2010; Liu, Keil, Rai, Zhang and Chen, 2008; Tiwana, 2010; Tiwana and Keil, 2009), answering the call for more research in this area (Kirsch, Sambamurthy, Dong-Gil and Purvis, 2002).

However, studies show inconsistent results regarding to what extent control modes influence project performance. For example, Tiwana (2010) suggests that only behavior control, and not outcome control, independently enhances systems development ambidexterity. By contrast, Gopal and Gosain (2010) find only limited support for the positive effect of behavior control on offshore project performance, and explain this finding by difficulties in effectively applying this control mode in distant contexts. Comparing internal and outsourced projects, Tiwana and Keil (2009) find no evidence that control would have an impact on systems development performance in outsourced projects, even though controllers attempt it to a greater degree in these projects relative to internal projects. They conclude that “some observed differences between internal and outsourced projects [...] might simply be an artifact of confounding attempted control with realized control” (p. 17). This seems to be a compelling argument for explaining some of the inconsistent or even conflicting results outlined above. Indeed, the IS control literature generally does neglect the possibility of discrepancies in perception of control between controller and controllee, thus implicitly assuming that controller’s attempted control is perceived the same way by the controllee. However, as already discussed by Ouchi (1978), some forms of formal control get attenuated as they “move” through a hierarchy. This problem is likely to be exacerbated in interfirm settings, particularly in distant offshore settings.

Extending the View of IS Project Control: Control Perception Differences

It is only recently that a distinction between attempted and realized control has been suggested as a relevant topic for research on IS project control (Tiwana and Keil, 2009). Attempted control consists of “the control mechanisms that the controller implements in a given project, independent of whether or how they are exercised”, whereas realized control refers to “the extent to which the controller is able to successfully exercise a given control mechanism” (Tiwana and Keil, 2009). While Tiwana and Keil offer the idea of discrepancies between attempted and realized control as a potential explanation for why controllers use control mechanisms that appear ineffective, their study does not measure such differences or their performance effects. To do so, we need to operationalize the notion of differences between attempted and realized control. We do so by defining attempted control as the controls perceived by controllers (clients) and realized control as the controls perceived by controlees (vendors). We hold the control dyad in question constant, and both parties in the dyad perceive and relate to the same set of control actions, namely those exercised by the client. In this way, we can get a measure of the extent to which the two parties in the control dyad have the same or different views of the control measures being used.

Tiwana and Keil (2009) make the assumption that differences between attempted and realized control should be minimized in order for control to be effective. This could be argued from a relational governance view where low differences in control perceptions can be understood as a sign of mutual understanding and commitment in the relationship, also reducing agency risks (Adler, 2001; Uzzi, 1997). However, the idea that control perception differences should be minimized does not consider several potential disadvantages with perfect alignment of control perceptions. A fundamental assumption of transaction cost economics (TCE) (Coase, 1937; Williamson, 1975; Williamson, 1985) is that control and coordination activities are costly and therefore should not be overused. Arguably, beyond a certain level of mutual understanding of control mechanisms, the controller and the controllee

might be detracting value rather than adding value to the relationship because of the costs incurred by excessive alignment of control perceptions. We will explain these two rival explanations in the next section.

HYPOTHESIS DEVELOPMENT

The Impact of Formal Controls on IS Offshoring Project Performance

In line with prior research on control in IS outsourcing/offshoring projects, we focus on formal behavior and outcome control (e.g., Choudhury and Sabherwal, 2003; Rustagi et al., 2008) for three major reasons: First, formal control modes seem to be the preferred choice in offshore outsourced projects (Choudhury and Sabherwal, 2003) as the perceived threat of opportunism is likely to be greater in outsourcing projects compared to in-house projects (Tiwana and Keil, 2009). Second, informal control modes with their focus on shared values and ideologies are more difficult to implement across organizational boundaries (Rustagi et al., 2008); (Tiwana and Keil, 2009). Reasons include that social requirements for clan and self-control are difficult to fulfill, irrespectively of how much the controller attempts to use these modes. Finally, self-control is regarded as less of a strategic tool for managers (Gopal and Gosain, 2010) as it is rather vendor-driven (Kirsch, 1996; Kirsch et al., 2002).

The Impact of Behavior Control on Performance

When exercising behavior control, the controller prescribes appropriate procedures that the controllee has to follow (Kirsch, 1996; Kirsch, 1997; Tiwana and Keil, 2009). This form of formal control can be effectively used when the procedures leading to successful outcomes are known and work processes are observable and thus easy to monitor (Eisenhardt, 1985; Kirsch, 1996). Under these contingencies, adherence to prescribed procedures is expected to result in higher performance (Gopal and Gosain, 2010).

Tiwana and Keil (2009) find that controllers use higher levels of behavior controls in outsourced IS development projects as compared to internal projects. However, while often found effective in in-house projects (Henderson and Lee, 1992), the effectiveness of behavior control is disputed in IS outsourcing/offshoring projects. Because of the significant client-vendor distance (Dibbern, Winkler and Heinzl, 2008) and the relative absence of preexisting information channels (Choudhury and Sabherwal, 2003), it is highly costly and difficult to observe controllee behaviors in offshore contexts. Such contexts are also associated with high levels of uncertainty, making it hard to establish appropriate behavioral norms and methodologies (Gopal and Gosain, 2010). Furthermore, distance challenges in offshore projects lower the direct influence of controllers over work processes as compared to in-house projects (Choudhury and Sabherwal, 2003). In interorganizational contexts, it is even questionable whether client intervention in vendor processes is beneficial at all, because offshore vendors need to harness economies of scope and have thus often developed best practices and standard processes that are well suited to a range of different project contexts (Levina and Ross, 2003). Hence, forcing the vendor to change these well-established procedures might decrease project performance. Difficulties in effectively applying behavior control in the IS offshoring context have also been reported in prior studies (Gopal and Gosain, 2010; Tiwana, 2010). In line with (e.g., Tiwana and Keil, 2009), we thus suggest:

H1: Greater use of formal behavior control does not influence IS offshoring project performance.

The Impact of Outcome Control on Performance

Outcome controls uses formal control mechanisms to define appropriate output targets (e.g., milestones, budget, expected level of performance), and are concerned with what has been done as opposed to how it is done (Kirsch, 1996; Ouchi, 1979). To effectively implement outcome control, the controller needs to be in the position to define interim and final targets and compare them to actual project outcomes (Kirsch, 1997; Tiwana and Keil, 2009). The controllee is then rewarded (or sanctioned) based on how well she/he meets the pre-specified targets. Therefore, outcome control provides guidance to the controllee for how the controller will evaluate the work that is produced (Tiwana and Keil, 2009). This alignment between the controller's goals and controllee's action will have a positive effect on performance.

Compared with behavior control, controllers' abilities to specify outcome expectations for a project are less dependent on whether the project is embedded in an in-house or offshore context (Kirsch, 1997; Tiwana and Keil, 2009). Furthermore, as discussed above, there is considerable evidence that in particular in the IS offshoring context outcome control has a significant impact on project performance. Particularly for offshore outsourced projects,

outcome control is often seen as the preferred control mode (Choudhury and Sabherwal, 2003), because it does not require visibility of behaviors of the offshore team by the distant onshore client (Zhang, Chand and David, 2007). It has also been found that vendor incentives related to both quality and efficiency outcomes impact IS offshoring project success (Gopal and Gosain, 2010). Thus:

H2: Greater use of formal outcome control increases IS offshoring project performance.

To gain new insight into the relationship between formal control and project performance, Hypotheses 1 and 2 will be tested for the performance effect of both attempted control (as perceived by the client) and realized control (as perceived by the vendor). This distinction addresses a key shortcoming in previous studies on IS project control, and is expected to provide us with a more detailed understanding and more robust results regarding the effectiveness of formal controls.

We now turn to the impacts of formal control perception differences on IS offshoring project performance. While prior literature argues that control perception differences between controller and controllee are detrimental to project performance (e.g., Tiwana and Keil 2009), we develop an alternative perspective that such differences are beneficial for performance. In the style of Poppo and Zenger (2002), we therefore propose and test two alternative hypotheses covering both perspectives.

The Case for Control Perception Differences

According to TCE, one of the most widely used theoretical frameworks for understanding IS outsourcing/offshoring governance (Gonzalez, Gasco and Llopis, 2006), firms that decide to use market ('buy') rather than in-house ('make') mechanisms do so on the basis of an assessment of the necessary control and coordination mechanisms for fulfillment to be sufficient through the market (Coase, 1937; Williamson, 1991). Had the complexity been very high, TCE would suggest hierarchical control to be preferable. Consequently, the client firm will ensure that sufficient (market) control mechanisms are in place but will simultaneously strive to limit the resources spent on control and coordination.

As a consequence of clients' desire to minimize transaction costs, including costs for coordination and control, the client will be likely to manage the supplier as efficiently as possible, i.e., at arms' length rather than through a close relationship. This in turn implies a clear separation of roles in the control dyad, with control being exercised "unilaterally" by the controller (reference withheld), limited communication and coordination, and consequently with control perception differences likely to arise between client and vendor. From a TCE perspective, this type of unilateral control is predicted to positively affect offshoring project performance because of fewer 'extra costs' for coordinating and communicating control actions with the vendor (Dibbern et al., 2008).

A certain discrepancy in client-vendor control perceptions is thus tolerable and even favorable. Seeking for perfect alignment of control perceptions could even suggest that the relationship is troubled and in constant need of fixing, that task execution is off track and therefore requires close monitoring, or that the parties overinvest in coordination and control, resulting in higher cost and perhaps even a diversion of focus from core tasks to control and coordination activities. In other words, once a set of control measures has been established, minor differences between attempted and realized control might indicate that the client is not constantly in touch with the vendor with the aim to recalibrate control activities. Consequently, we hypothesize:

H3: Client-vendor perception differences with regard to formal (a) behavior and (b) outcome control have a positive impact on IS offshoring project performance.

The Case against Control Perception Differences

Relational governance has become a well-established alternative perspective of how economic exchange relationships are best governed to achieve project performance. This perspective rests upon the assumption that the governance of client-vendor relationships involves more than crafting and enforcing a formal written contract. The relational governance view also builds upon the social embeddedness perspective which emphasizes the social aspects that are inherent and deeply embedded in any economic exchange (Granovetter, 1985). Here, performance is generated by establishing mutual trust, stimulating information transfer, and solving problems jointly (Uzzi, 1997). Another benefit of relationship governance is that it helps reduce exchange hazards and the costs that they entail

(Adler, 2001; Bradach and Eccles, 1989). One of the key mechanisms that helps to achieve these performance benefits is trust (Granovetter, 1985), a key driver of performance in IS outsourcing and offshoring arrangements (Rustagi et al., 2008; Sabherwal, 1999).

Thus, offshore clients will seek to emphasize relational governance mechanisms that develop trust in the relationship. They will also try to avoid the potential negative impact of formal controls on trust (Das and Teng, 1998; Rustagi et al., 2008). This will also imply using relational mechanisms (e.g., information transfer) that help to create a shared understanding, including mutual agreement upon, and joint coordination of, formal control mechanisms. An underlying assumption is that control mechanisms will be more effective if they are accepted by the controllee and if there is a shared understanding of control between the parties. The positive performance effect on mutually coordinating control actions in the client-vendor relationship in terms of bilateral controls is also supported by a recent study (reference withheld). As a rival hypothesis to H3, we thus state:

H4: Client-vendor perception differences with regard to formal (a) behavior and (b) outcome control have a negative impact on IS offshoring project performance.

METHODOLOGY

Data Collection

We developed matched-pair survey instruments to test our hypotheses. Clients (controllers) were asked about their exercise of control modes within the examined projects and evaluated project performance. Thus, in our study, the controller is seen as the assessor of project outcomes. This is because the controller is the party who accepts and approves the result of a project. The controller is also closer to the context where the delivered artifact is used and therefore in a better position to assess project goal fulfillment (Tiwana and Keil, 2009). Vendors (controllees) were surveyed on their counterpart's use of control. Clients and vendors supplied information about their professional background. Moreover, project sponsors provided us with general project characteristics. This multi-informant approach reduces the threat of common rater bias, a major source of common method biases (Podsakoff, MacKenzie, Lee and Podsakoff, 2003). To host the survey instruments, a website was launched. We also prepared paper-based questionnaires to eliminate coverage error (Schaefer and Dillman, 1998).

To ensure the quality of the survey data, projects and respondents had to satisfy three criteria for inclusion in the sample: First, IS offshoring projects either had to be completed for not more than twelve months; or had to be underway for at least three months and already reached one critical milestone. Second, projects had to allow access to both a client representative and her/his vendor counterpart. Third, client and vendor members of a dyad must have had operated in their roles for at least two months. These criteria ensured that included projects had progressed to a reasonable maturity and increased the reliability of the participants' perceptions.

Of the 18 executives who were initially requested to participate in our study, 14 agreed, giving a response rate of 78 %. Follow-up communications with the four non-participating executives did not reveal any trends or reasons that would point toward a non-response bias. The 14 participating executives invited a total of 96 client and vendor project team members to fill in the questionnaire. In all, 94 respondents (46 clients and 48 vendors) participated in our study, resulting in a response rate of 98 %. In order to form one data record for each matched pair, the matching client and vendor data records were joined based on a unique ID. Two non-paired data records were dropped from the analysis, resulting in a sample size of 46 matched pairs.

Construct Measures

All latent variables were measured reflectively with multiple items. All items were operationalized at the unit of analysis, the client-vendor dyad, and rated on five-point Likert scales. To measure the two formal modes of control, we adopted Kirsch et al.'s (2002) items for behavior and outcome control. In line with prior research (Tiwana and Keil, 2009), project performance was measured reflectively using four items referring to the extent to which a project met user requirements, was delivered on time and budget, and adhered to IS standards (Banker and Kemerer, 1992; Kirsch, 1996; Kumar and Bjorn-Andersen, 1990). Results were robust in an alternative formative specification of project performance.

Construct measures were pretested. In addition, we carried out a pilot study with eight client and three vendor respondents working in a long-term IS offshoring arrangement between a multinational client and an Indian vendor. The pilot resulted in minor adaptations in the wording of some measures. Respondents in the pilot study were not included in the main sample. An overview of the operationalization of the basic constructs is shown in the appendix.

Items for behavior and outcome control perception differences were generated by calculating the absolute difference between the corresponding item ratings for each matched pair and transforming this value to a standard five-point Likert scale, where '1' indicates no difference in client-vendor control perceptions and '5' indicates the maximum difference in perceptions.

To test the hypothesized relationships, we used three structural models, one for the project performance effect of formal control perceived, or attempted, by the client (model A), one for the effect of the client's exercise of formal control perceived, or realized, by the vendor (model B), and one for the effect of formal control perception differences between client and vendor (model C). For all three models, we used the PLS path weighting scheme to assess the reliability and validity of the respective measurement models. These models exhibited item reliability verified through an analysis of item loadings. All items loaded above Nunnally's (1978) recommended threshold of 0.6, except for one behavior control item in Model A. This item was retained to maintain the theoretical coverage of its original measure (Tiwana, 2010). The models also showed adequate construct reliability, which is indicated by composite reliability measures ranging from 0.61 (behavior control) to 0.88 (project performance) (Fornell and Larcker, 1981). In addition, each construct shares more variance with its assigned items than with any other construct and cross-loadings are lower than within-construct loadings, establishing discriminant validity for all scales (Hulland, 1999). Pairwise correlations among the constructs did not reveal any exceptionally correlated variables (Bagozzi, Yi and Phillips, 1991), indicating a low risk of common method bias.

Two control variables theoretically related to project performance were included in our research model to account for alternative explanations: project size (Pressman, 2001) and prior interactions (Ethiraj, Kale, Krishnan and Singh, 2005). Both variables were estimated by asking project sponsors to classify the volume of the offshore project (proxy for project size) and the client firm's experience with the offshore vendor (proxy for prior interactions) on three-point Likert scales.

Descriptive Statistics

Over a five-month period, we collected data from 46 offshore projects and independent sub-projects of large-scale offshore arrangements in 16 client firms. These firms represented multiple industries (e.g., aerospace, energy, healthcare, and manufacturing), and operated from German-speaking countries (12, 3, and 1 from Germany, Switzerland, and Austria, respectively). 14 firms were large for-profit organizations. The sample also includes two small or medium-sized enterprises.

Project focus	# of projects	Project size ^a	# of projects	Vendor type	# of projects
Applications development/testing	38	Fewer than 59 PM	15	Independent	28
Applications management	5	60-599 PM	21	Subsidiary	17
IT infrastructure management	3	More than 599 PM	10	Joint venture	1
TOTAL	46		46		46
^a In person months (PM)					

Table 1. Project Characteristics

The examined projects varied in terms of focus, size, and vendor (see Table 1). More than 90 percent of the projects involved Indian vendors, while only one vendor was located in a nearshore country (Slovakia). About two-thirds of client representatives stated that their firm had more than five years of experience with the vendor. Both client and vendor respondents reported having significant IS (offshoring) experience.

ANALYSES AND RESULTS

Model A, B, and C were transformed into structural equation models, using the software SmartPLS 2.0 with a bootstrap size of 1,000. Partial least squares (PLS) is an appropriate choice in situations where the sample size is small (Ko, Kirsch and King, 2005). The results of the hypotheses tests are presented in Table 2 and Table 3.

	Model A: Client perception (attempted control)		Model B: Vendor perception (realized control)		Model C: Client-vendor control perception differences	
	β	t	β	t	β	t
Prior interactions	-0.12	0.90	-0.27	1.63	-0.21	1.64
Project size	-0.13	0.82	-0.20	1.25	-0.23 ^(*)	1.98
Behavior control	0.00	0.01	-0.09	0.34	0.08	0.38
Outcome control	0.43**	3.54	0.32 ^(*)	1.90	0.45***	4.17
R2 (%)	24.7		15.5		27.4	
Notes: Significant effects in boldface. ^(*) p < 0.1, * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed test).						

Table 2. Effects on Project Performance

Hypotheses 1 and 2 pertain to the client's use of formal controls as perceived by the client (Model A) and the vendor (Model B). As predicted by Hypothesis 1, neither attempted behavior control (path coefficient = 0.00, ns) nor realized behavior control (path coefficient = -0.09, ns) affects the performance of IS offshoring projects. By contrast, the effect of attempted control on project performance is significant (path coefficient = 0.43, p-value < 0.01) and the effect of realized outcome control is marginally significant (path coefficient = 0.32, p-value < 0.1), supporting Hypothesis 2. Hypotheses 3 and 4 examine the impact of formal control perception differences between client and vendor on offshore project performance (Model C) from two competing theoretical perspectives. As shown in Table 2, outcome control perception differences have a highly significant, positive relationship with project performance. However, the analysis results do not show any significant effects regarding behavior control perception differences. Thus, Hypothesis 3 is supported for outcome control (path coefficient = 0.45, p-value < 0.001) but not for behavior control (path coefficient = 0.08, ns), whereas the rival Hypothesis 4 is not supported for either control form.

Hypothesis	Result	Comment
H1: Greater use of formal behavior control does <i>not</i> influence IS offshoring project performance.	Supported	Effect of attempted and realized behavior control not significant.
H2: Greater use of formal outcome control <i>increases</i> IS offshoring project performance	Supported	Effect of attempted and realized outcome control (marginal) significant at p < 0.01 and p < 0.1, respectively.
H3a: Client-vendor perception differences with regard to formal behavior control have a <i>positive</i> impact on IS offshoring project performance.	Not supported	Effect of behavior control in general not significant (see H1).
H3b: Client-vendor perception differences with regard to formal outcome control have a <i>positive</i> impact on IS offshoring project performance.	Supported	Significant at p < 0.001.
H4a/b: Client-vendor perception differences with regard to formal behavior and outcome control have a <i>negative</i> impact on IS offshoring project performance.	Not supported	Rival hypothesis to H3.

Table 3. Hypotheses Results

Model A, B, and C explain approximately 25 % ($R^2 = 0.247$), 16 % ($R^2 = 0.155$), and 27 % ($R^2 = 0.274$) of the variance in IS offshoring project performance, respectively. With regard to the predictive power of the models, we are aware that there are several additional factors that impact offshore IS project success (see recent study by Rai et al. (2009)). However, the focus of our study was not on explaining variance in project performance but rather whether and how control perception differences influence performance. To assess the strength of the significant main effects, we calculated the effect size f^2 as $[R^2_{\text{included}} - R^2_{\text{excluded}}] / [1 - R^2_{\text{included}}]$ (Cohen, 1988). Effect sizes from 0.02, 0.15, and 0.35 are regarded as weak, moderate, and strong (Chin, Marcolin and Newsted, 1996). With f^2 -values of 0.21 and 0.26, both attempted outcome control (model A) and outcome control perception

differences (model C) have a moderate effect on project performance, while the impact of realized outcome control (model B) constitutes only a weak performance effect ($f^2 = 0.08$). All of these effects show standardized path coefficients greater than 0.3, clearly exceeding the suggested minimum value of significance at 0.2 (Chin, 1998). One control variable (project size) was significant in Model C. This variable explained 7.6 % of the variance in offshore project performance.

To analyze the direction of the observed control perception differences between client and vendor, we transformed the originally generated five-point Likert scale into a nine-point scale¹⁰ with the mean '5' indicating no perception difference and both anchors indicating the maximum perception difference. The analysis results indicate that the frequency of outcome control perception differences is equally distributed between the two possible directions. Furthermore, differences seem to be rather moderate. Thus, our data set and our results provide a basis for concluding that low to moderate perception differences are beneficial for IS offshoring project performance, while we no solid basis for claiming that large discrepancies in control perception would have the same effect.

DISCUSSION AND CONCLUSIONS

A major contribution of this study lies in distinguishing between, conceptualizing, and empirically testing attempted and realized control. Thereby, we extend past studies that have looked at both sides of the dyad in client-vendor relationships (Rustagi et al., 2008), but that have not systematically compared client and vendor perspectives. In this paper, we first examined how formal controls as perceived by the client (attempted control) and the vendor (realized control) are related to offshoring project performance. Second, we analyzed the impact of perception differences on project performance from two competing theoretical lenses—relational governance and TCE.

Our results indicate that behavior control does not have any impact on project performance, whether reported by the client or vendor. This supports the argument that it is difficult to effectively exercise behavior control in outsourced projects (e.g., Tiwana and Keil, 2009). Our findings also support prior studies that have found outcome control to increase project performance (e.g., Tiwana, 2008; Zhang et al., 2007). Our results further show that outcome control as perceived by the client and by the vendor are both positively related to performance. This suggests that control perceptions, while differing, are not worlds apart, and that attempted control can provide a good enough proxy for realized control.

Our results also provide indication that, at least to some extent, control perception differences may be beneficial for the success of offshore projects. This finding extends prior literature. However, further research is needed to explore more extensively why this is the case. One possibility, on the basis of transaction cost economics (Coase, 1937; Williamson, 1975; Williamson, 1985), is that absence of “overinvestment” in communication, coordination and control not only reduces transaction costs, but also indicates that the project is on track, that the control system functions adequately, and that activities are focused on task fulfillment rather than recalibration of control activities. Correspondingly, perfect alignment of control perceptions might even suggest that the project is troubled and needs close monitoring, or that the parties overinvest in coordination and control, resulting in higher costs (Dibbern et al., 2008).

Our findings imply that managers should not overinvest in calibrating control perceptions, since some differences in control perceptions are even beneficial. This is not to say that it is unimportant what controls the vendor perceives, or that clients and vendors can afford to live in separate worlds when it comes to project control. In fact, perception differences for control dyads in our data set were rather moderate. We can thus only say that such differences are better than no differences. Once a set of control measures has been established, some differences in control perceptions might not only be tolerable, but also be a sign that the relationship focuses on the ‘right’ things, and that the vendor is allowed to retain some amount of autonomy.

The finding that control perception differences positively affect performance in IS offshoring projects provides interesting paths for future research. Questions that immediately arise include: Under what conditions can perception differences be beneficial for project performance? What specific control mechanisms may become more effective through perception differences? To what extent are differences in perception beneficial (given that only few dyads in our sample reported very large differences)? We hope that by providing the first empirical evidence of the existence

¹⁰ Due to the non-linear character of the nine-point Likert scale we were not able to use this scale for the purpose of PLS analysis.

and importance of control perception differences, we can help initiate a scholarly discussion that might bring theory development on IS project control into new territory.

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APPENDIX

Constructs and Items

Table 4 presents the constructs and items of the client measurement instrument. The formulation of the behavior and outcome control items slightly differed in the vendor instrument (in brackets) as we asked the vendor respondents to rate the client's use of control modes. All instrument items are based on five-point Likert scales using "strongly agree" and "strongly disagree" anchors.

Construct	Label	Item	Reference(s)
Behavior control	BC1	I expected the vendor (<i>The client expected me</i>) to follow an agreed written sequence of steps toward the accomplishment of project goals	Kirsch et al. (2002)
	BC2	I (<i>The client</i>) assessed the extent to which existing written procedures and practices were followed during the development process	
Outcome control	OC1	I (<i>The client</i>) placed significant weight upon project completion to my (his) satisfaction	Kirsch et al. (2002)
	OC2	I (<i>The client</i>) used pre-established targets as benchmarks for the vendor's (<i>my</i>) performance evaluations	
	OC3	I (<i>The client</i>) placed significant weight upon project completion within budgeted costs	
	OC4	I (<i>The client</i>) evaluated the vendor's (<i>my</i>) performance by the extent to which project goals were accomplished, regardless of how the goals were accomplished	
	OC5	I (<i>The client</i>) placed significant weight upon timely project completion	
Project performance	PP1	The project deliverables met the requirements	Banker and Kemerer (1992), Kirsch (1996), Kumar and Bjorn-Andersen (1990)
	PP2	The project deliverables were completed on time	
	PP3	The project deliverables adhered to IS standards	
	PP4	The project deliverables were completed within budgeted costs	

Table 4. Operationalization of Variables