

Mapping Managerial Exchange and Alliance Performance: The Contingent Effects of Firm Size and Managerial Tenure

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Abstract

The managerial relationship process between alliance partners is critical for alliance success and yet is not always well understood. Drawing upon social exchange theory, we employ evidence from the UK construction industry and examine such an exchange process and identify important contextual factors that contribute to alliance success. Using data from 204 building contractor–architect alliances, we: 1) conceptualize affective and cognitive factors—relational capital and technical exchange, respectively—within the managerial relationship process; 2) map antecedent conditions for this process, namely, compatibility and similarity; 3) examine the moderating effect of firm size on the function of compatibility as an antecedent; and 4) identify managerial tenure as a moderator of alliance performance outcomes of the process. The results reveal that relational capital between the alliance partners is conducive to superior technical exchanges. We show that compatibility, but not similarity, is positively linked to relational capital. Further, the association of compatibility with relationship capital is more evident among smaller firms. The performance relevance of technical exchange is elevated in situations where the alliance partners exhibit longer managerial tenure. The study concludes with theoretical implications and recommendations for further research. The practical implications for managers are also examined and generate insights into the importance of compatible managerial approaches, as determined by firm size, and the relative importance of length of tenure in influencing the efficacy of technical exchanges in these alliances.

Key Words

Social Exchange Theory, Managerial Relationship Process, Alliance Performance, Interfirm Exchange, Relational Capital, Technical Exchange

Introduction

Recent decades of empirical research on strategic alliances has provided many and varied insights into factors that drive their success. The performance relevance of governance

approaches (Gulati and Nickerson 2008; Heide *et al* 2013; Lee and Cavusgil, 2006), behavioral complexities of relationships (Paparoidamis *et al* 2017; Robson *et al* 2008), and partner characteristics and reciprocities (Eggert *et al.* 2006; Goerzen, 2007), is well documented. The comprehensive attention to antecedent drivers is mirrored by the under attended area of the relationship process. This pivotal frontier occurs where alliance factors coalesce and provide a platform for managerial relationships to function. Relationships between managers do not exist as one-off interactions but as a series of interactions forming the interface between organizations. Collectively, the interactions shape norms and rules of exchange that represent the managerial tone of the interorganizational agenda (Cropanzano and Mitchell, 2005). Such a managerial relationship process is less than well-articulated in the literature. The current study seeks to address this by looking deeper into the ‘black box of exchange, and unpacking, this relationship process in alliances (Linden *et al* 1997).

A bifurcated approach to alliance research is evidenced in the literature by an emphasis on interfirm rivalry on the one hand, and collaborative exchange on the other (Park and Ungson, 2001; Robson *et al.*, 2008). The downside posed by alliance rivalries is increasingly well documented in previous studies (Musarra *et al.*, 2016). Yet, the inexorable shift toward service dominant economies drives collaborative exchange agendas in practice (Marcos-Cuevas *et al* 2016) amplifying the importance of the managerial exchange process and highlighting the empirical gap in the literature. The organizational context is ever more dynamic with technology bringing expanding possibilities and innovation (Palmatier *et al*, 2013), which in turn rely on effective relational exchange among managers. Meanwhile, time-to-market has become shorter in duration, adding momentum to the collaborative exchange movement. Contemporary organizational behavior may be said to be less about locking out competitors to secure advantage and more about inviting them in to gain (conditional) access to intellectual resources that would be slow to develop in-house (Cadaeux and Ng, 2012). Make or buy is often replaced with make and buy as organizations reach into the pool of

strategic resources shared among collaborating partner firms in order to bring products and services to market more quickly. Such intense dynamism leaves the practitioner balancing complex agendas and more dependent on goodwill and associated relational constituents.

The resulting managerial relationship process is one characterized by a continuous series of related and reciprocal exchanges rather than discrete transactions (Marcos-Cuevas *et al* 2016; Nonaka, 1994). Common among conventional innovative organizational arrangements, this process is presented in sharp relief in project-based collaborative alliances (Toon *et al* 2012). The present study adopts this latter context and examines project-based alliances between architects and building contractors in the UK construction industry. These relationships provide a backdrop of complementarity and dependence and while the industry draws intuitive assumptions of a manufacturing profile, the collaborative generation of solutions within the managerial relationship process has far more in common with service-dominant rather than goods-centered logic. Other assumptions attached to this industrial context include a reputation for litigation and interfirm rivalry. In practice however, the complexity of the projects and the mutual dependence on separate skill sets renders alliances necessarily collaborative. Complexity in the projects limits the efficacy of contingent claims contracts, because eventualities are not known in advance. Consequently, not all pertinent clauses are written into the contract. Instead, trust-based collaborative arrangements address this shortcoming by engendering a joint problem-solving atmosphere in which alliance partners' managers "actively engage in a broader scope of the work flow" bringing innovation and efficiency (Robson *et al.*, 2008, p.650).

Our conceptualization of the managerial relationship process is a novel articulation of the practical exchange process among counterparts. We challenge traditional assumptions of this as a discrete transaction, or series of discrete transactions based on reciprocity alone, and posit instead that this process functions as an interactive series of exchanges generating synergistic outcomes.

Not all firms are able to work together even where the intent exists, and the suitability of partner firms is an important antecedent for successful outcomes. We test a dual-construct antecedent profile for the managerial relationship process. The level of complementarity of the partner firms is informed by shared goals and compatible capabilities on the one hand (Sarkar *et al.*, 2001), and by the similarity in their capabilities on the other (Murray and Kotabe, 2005). These antecedent managerial conditions of compatibility and similarity are redolent of the extant work on coopetition (Bengtsson and Kock 2000), and while larger firms may in fact be working simultaneously on other, competing projects, the emphasis here is on cooperation rather than competition.

Typically, smaller firms have fewer capabilities and require more interdependencies (Lowik *et al* 2012). Solving problems under these conditions requires greater cooperation in order to access additional or supporting capabilities. Such behaviors are familiar territory for smaller firms, whereas larger firms are more inclined toward, and able to achieve, self-sufficiency. Consequently, we anticipate greater functioning of managerial exchange for small (not large) firms. Similarly, since this process is measured at the level of the individual rather than the firm (Huang *et al* 2016), we consider that the qualities of the manager will influence the alliance outcome. More experienced managers are expected to carry a greater stock of accumulated knowledge of, and skills in, making adaptations (or not) over time. We anticipate that managerial tenure will dampen outcomes in collaborative alliances.

Collectively these conditions in which the managerial exchange process is housed form the backdrop for the exchange process and may be considered as contextual drivers for the successful process of exchange. While social exchange theory is often employed as an explanation of the rules of reciprocity on the one hand and of negotiated rules of transaction on the other, little work has been done to address “the possibility that multiple rules are employed simultaneously” (Liden *et al* 2005). We seek to open this black box and give a

clearer account of the managerial exchange process, the multiplicity of exchange rules and the contextual drivers within which this process functions.

Understanding of contextual drivers of alliance performance abound in the literature (Krishnan *et al* 2016; Lee *et al* 2017), while the exchange process is typically dealt with in the abstract. In this study, we address this gap in the literature by mapping the contextual conditions for exchange and articulating the exchange process within this. Drawing on social exchange theory, we 1) conceptualize the managerial relationship process; 2) map antecedent conditions for this process; 3) examine the moderating effect of firm size on the function of compatibility as an antecedent condition; and 4) identify managerial tenure as a moderator of alliance performance outcomes of the process.

The paper outlines the theoretical framework and hypotheses in the next section. The methodology section follows and details the structural equation approach used to test hypothesized paths between latent constructs in this investigation. Results from the analysis are reported, interpreted and discussed. Finally, study limitations and recommendations for practitioners and researchers are outlined in detail.

Theoretical Framework and Hypotheses

The nature of business-to-business relationships is evolving rapidly and presents academics and practitioners with challenges in identifying the most effective arrangement of these relationships. Central to these challenges is the development of new accounts of collaborative interaction. The evolution in practice is routinely attributed to generic drivers including globalization and developments in information technology (Palmatier *et al*, 2013). These drivers have been cited for some years and yet they remain central and are helpful in conveying a sense of dynamism and an atmosphere of significant change. Such change requires rapidity in organizational adaptation and innovation, something typically associated with light structures and collaborative atmospheres.

Collaborative interaction is not captured well by traditional explanatory perspectives, such as transaction costs analysis (TCA). TCA relies on *ex ante* governance mechanisms in the form of contingent claims contracts to address negative behaviors. Limitedly rational decision makers (Williamson, 1975) lack advance detail of the terms of many alliance arrangements, making contingent claims contracts a limited tool for the governance of all but the most general aspects of the relationship (Hammervol, 2009). Contingent claims contracts are summative mechanisms and lack efficacy in the governance of real-time collaborative behaviors that constantly change in response to innovation and the reformulation of expectations. The TCA focus on moderating negative conduct provides a good safety net in the event that things go wrong, but such cynicism in interorganizational relationships can also damage trust in the working relationship (Lui and Ngo, 2004). Finally, insufficient effort has been made in extant empirical work to address the paradox of the diminishing function of contracts under uncertainty. Used as a safety net to guard against malfeasance, the contract is less able to provide for opportunist behaviors as uncertainty increases since fewer of these can be known *ex ante* (Cadaeux and Ng, 2012). This represents a key limitation of TCA and fresh approaches are needed to account more fully for effective relationship arrangements.

Collaborative alliances under dynamic conditions require agility in decision making. In this context, the contingent claims contract typically forms a backdrop for the relationship and sets out useful parameters, complementing the function of relational governance from a distance (Arranz and Arroyabe, 2012). As the collaboration gains traction it moves beyond this and adopts relational, norm-based governance. Intensity is an important aspect in both open-ended and fixed-duration relationships (Ness and Haugland, 2005) as it facilitates good access to resources (Uzzi, 1997). Further, the potential negative signalling effects of the use of a contract may be offset where close relational interaction is the norm (Lui and Ngo, 2004). Intense collaborative relationships allow counterparts to effectively reach into one another's

stock of complementary resources, which enables quick decision making on development and implementation questions.

While a lower level of explicit *ex ante* terms to the relationship may initially increase role uncertainty, this can be viewed as leaving space for creative engagement rather than functioning as a risk factor presaging partner opportunism (Crespin-Mazet and Ghauri, 2007). Collaborative alliances establish themselves with fewer discrete outcome objectives and may instead employ metrics that are measurable along the way as part of the collaborative process. This is typically the case in a service context. Such measures of success are distinct from summative outcome measures since they are available in real time and are used to inform and adapt on-going behavior (Gronroos, 2011). Measures include soft factors such as information, adaptation of activities (Sobrero and Schrader, 1998), or the solving of a problem in co-development scenarios (Crespin-Mazet and Ghauri, 2007). Subsets of operational objectives are developed, implemented, and changed throughout the collaborative process. As a result, discrete outcome measures, where they exist, are a crude proxy for the assessment of these relationships. Reciprocal exchange of these factors by partner firms will reinforce relational norms thus advancing a collaborative agenda (Wincent, *et al* 2010).

The managerial relationship process is somewhat akin to a quality assurance tool such as total quality management. Expectations are established, delivered against, redefined and then delivered against the redefined criteria. Poor performance is not passed along the value chain but is instead addressed and corrected through adaptation. When running smoothly the managerial relationship process described here will deliver satisfactory performance outcomes since behaviors that are effectively *out of specification* are corrected in line with expectations. There is an element of tautology in this account, with outcomes redefined to align with activities. This occurs because we assume a social exchange arrangement heavily reliant on social norms within the relationship. These are subjective in nature and emergent in form. As a result an appropriate measure of success is performance satisfaction, which can be

modelled to include both satisfaction and some objective criteria such as completion time or profitability.

In attaining performance satisfaction, the managerial relationship process must present both integrity in conduct and value in outcomes. Integrity is derived from adherence to the normative behaviors common among counterparts. For successful exchange to occur, counterparts must be willing to give within the relationship with expectations of, but no guarantee of, reciprocation. Duration of the periods passing between reciprocal actions are important, as are the relative value of these actions. Failure to deliver a timely response of a comparable magnitude may damage goodwill and reduce stocks of relational capital. Value of outcomes is a product of the synergistic combination of complementary resources. Such valuable outcomes will be represented by innovative solutions to problems and measures as performance satisfaction. Our conceptual model (Fig. 1.) captures the flow of antecedent factors, the managerial relationship process and the predicted outcome articulated above.

- Figure 1. about here –

Compatibility, relational capital, and firm size

We define compatibility as the congruence of organizational cultures and technical competencies among partner firms. Where such congruence occurs, it foreshadows relational and technical interactions. This blend of factors, from values and norms to goals and provision of project-specific resources represents a can-do atmosphere in which the starting point is an expectation that project goals will be addressed (Bercovitz *et al* 2006). It follows that without compatibility the project will quickly grind to a halt with attention and resources diverted to fixing the gaps in ability of the partner firms to work together before any project

tasks can be achieved. Compatibility is a basic requirement of ordinary interorganizational relationships and, as such, we argue is an antecedent condition for the managerial relationship process.

Compatibility receives attention across a broad literature including cultural compatibility in international studies, and resource and status similarity in strategy (Zhiang *et al.*, 2009). As a general concept, it is at times used interchangeably with complementarity and similarity. While there is the potential for some conceptual overlap, this can be addressed by clear reference to the context. In the present study, we confine attention to the compatibility of the managerial and technical approaches of the partner firms. Part of the identification of these ontological parameters includes the clarification of what compatibility *is not*. Similarity is a construct in this area serving such a purpose. While a sense of *we-ness* among partner firms may increase the propensity to collaborate (Beugelsdijk *et al.*, 2009), it does not address the *can* in our conceptualization of compatibility. Willingness is distinct from ability. Shared attitudinal goals and philosophies (Wong *et al.*, 2005) are important to the *can* in compatibility along with the clear alignment of resources including compatible technical competencies and knowledge (Corsaro and Snehota, 2011).

We define relational capital here as the expectation of positive behavioral norms among partner firms based on closeness, mutual respect, and friendship (Bradach and Eccles 1989; Kale *et al* 2000). Fundamentally, where managerial philosophies and technical capabilities in partner firms complement one another, this leaves the way clear for interpersonal development and cohesion that drives relational capital. The absence of uncertainty in expectations of conduct extends the congruence to that of the counterparts within the firms. H_{1a}: Compatibility between the alliance partners is positively related to relational capital.

Within the present study we use financial turnover as a proxy indicator of firm size. Small firms, typically, are more flexible and less systems-led. Additionally, small (versus large)

firms are likely to have issues with their level of self-sufficiency and make greater efforts to maintain each of their alliances. The resulting effort can manifest in a willingness to adapt to the partner's working practices and so build on pre-existing compatibility to a greater extent than would be the case for the larger firm. While small firms may have a number of gaps in their skill sets, revealing associated areas of low compatibility (Crespin-Mazet and Ghauri, 2007), we consider that their propensity to adapt overrides these potential shortcomings.

We further consider that larger firms with a more systems-driven approach to their working practices—for example, with a preference for framework agreements (Simoes and Mason, 2012)—may demonstrate high initial compatibility but lower development compatibility; thus stunting the development of relational capital. As such, we observe characteristic differences between large and small firms.

Smaller firms typically feature fewer qualified professionals and so field fewer potential counterparts to the alliance. The result is a funneling of exchange not just at the individual level, but through fewer such individuals. Additional expertise such as quantity surveyors are less common among smaller firms providing additional need for smaller firms to collaborate more widely to attain the necessary skills resources. Larger firms on the other hand do not exhibit such a dichotomy in characteristics.

Larger firms invest resources across a greater number of relationships and develop standardized systems of management. Such standardized approaches can have the effect of reducing the need for contact between counterparts at the level that might be expected in the absence of a framework agreement. The (unintended) outcome of this system of work is to reduce the frequency, and in some cases depth, of interaction among counterparts reducing the sense of normative understanding that is often felt in cohesive alliance relationships (Beugelsdijk *et al.*, 2009). Compatibility in smaller firms is established through greater adaptation, a process in which greater frequency and depth of involvement between counterparts becomes necessary.

H_{1b}: Firm size has a negative moderating impact on the link between compatibility and relational capital, such that the positive relationship weakens as size increases.

Similarity and relational capital

We define similarity as the comparability of resource profiles among partner firms. Similarity of the resource profile and status of two partner firms reduces the dominance of either one of them, and is therefore a prerequisite for relational conduct. Evenness in the potential contributions of partner firms serves to ensure a positive, future pattern of reciprocity that supports continued activity in the project. While contractual obligations would have some say in roles taken by the firms, dissimilarity in their resource profiles increases the prospect of malfeasance in contractual obligations on the part of the larger firm. The relatively low impact of any penalties resulting from breach of contract, combined with the limited ability of the smaller partner firm to pursue these (owing to both lower resources and a higher need for continuity of the association), may encourage opportunistic behavior on the part of the larger firm. The atmosphere among partners with dissimilar resource profiles will contain an inherent understanding of the threat and may impact on negotiations throughout the project. Such conditions of duress, felt by the less well-endowed firm, are also likely to reduce the prospects of trust-based relationalism. The effect of resource dissimilarity among partner firms may need to pass a threshold in the magnitude of the resource dissimilarity before such negative impacts can be observed. We thus reason that:

H₂: Similarity between the alliance partners is positively related to relational capital.

Relational capital and technical exchange

Relational capital comprises expected norms of behavior among counterparts in partner firms. Different levels of these behavioral norms are discernible with societal norms providing a normative baseline. Our notion of relational capital, also referred to as social

capital in the literature, is a concept that is used to represent factors including tie strength, trust, and values; in short almost anything relating to ties between people (Nooteboom, 2007). Within the service context, relational capital is based on a narrow suite of factors including competence trust (established by reputation), values (assuming broad cultural homogeneity), and assumptions relating to standard industry conduct that others build over time (Palmatier *et al.*, 2007). Classification of social capital varies in the wider literature to include structural social capital, relational social capital and cognitive social capital (Lee, 2009). Here, we narrow the focus further to relational social capital, which we term relational capital.

At the outset of an exchange relation, relational capital may pre-exist at lower levels and is evidenced by reputation (competence trust), affiliation to industrial bodies or associations (industry standards), and cultural homogeneity (shared values). Importantly, relational capital increases where experiences accumulate on the basis of interactions among counterparts. In particular, tie strength could be expected to build in response to successful interactions between partners. Social capital represents an embedded resource within the alliance (Lin, 2000), and closer integration between partner firms (Cooke, 2007).

Relational capital does not exist in the organization but is a facet of the individual, and resides in a single business relationship (Kohtamaki *et al.*, 2012) comprising mutual trust, respect, and friendship (Kale *et al.*, 2000). Because individuals do not exist in isolation and have prior social experiences, they bring with them an expectation of their counterpart's behavior (Blois and Ivens, 2006). All other things being equal, and in the absence of contrary information, these expectations will be positive and reflect the characteristics above.

We define technical exchange as the exchange of technical information necessary to conduct the exchange process and facilitate the transfer of technical capabilities. Relational capital provides individuals with a predisposition to cooperate; it facilitates the exchange of technical information (Lee, 2009). Inherent in this is an assumption that the counterpart is

capable of, and willing to, make return technical knowledge transfers (Lee and Cavusgil, 2006) in a process approaching mutual benevolence (Lee et al., 2008). We reason that:

H₃: Relational capital between alliance partners is positively related to technical exchange.

Technical exchange, alliance performance satisfaction, and managerial tenure

Exchange takes place throughout the duration of the relationship and is characterized by a multitude of individual exchange episodes. We note that technical exchange includes higher-level information, facilitating the use or transfer of technical capabilities either as individual exchange episodes or cumulatively (Kotabe, Martin, & Domoto, 2003).

For exchange to generate satisfaction it must incorporate appropriate normative conduct. Value does not reside exclusively in the information to be exchanged but is also in the process of exchange, which includes joint problem-solving and even knowledge co-creation. Episodes of exchange are not simultaneous and rely on expectations of reciprocal conduct. These unspecified obligations are understood by partner firms and represent a lubricant in the exchange process (Blau, 1964). This is less an act of benevolence and more an adherence to the unwritten laws of an enforced system of obligation (Cook and Emerson, 1978). Such effective systems of governance are rarely resented since they form a silent background to all social conduct and are widely understood. Specific rules or social structure (Portes, 1998) created in this arrangement form a type of governance *bubble* in which the uncertain, open, and incomplete arrangements (Ring and Van de Ven, 1992) can be safely housed. Transgression of these rules, or norms of behavior, may invite nonmaterial, or social sanctions, such as the loss of legitimacy in the relationship (Nooteboom, 2007). The efficacy of this sanction as a governance mechanism is therefore higher in this collaborative context than it might be in a commodity-based or one-off spot market transaction. The pressure of these norms facilitates informality, permitting exchange with the absence of formal contracts (Lee, 2009).

The relationship atmosphere inside this bubble must go further than simple forbearance if collaborative and synergistic outcomes are to be realized. Additional efforts may include acting in the partner's interest even when not obligated to do so (Luo, 2002). Extant literature suggests that such conditions of 'noneconomic satisfaction' may be both fulfilling and gratifying for partner firms (Geyskens *et al.*, 2006) and can also facilitate conflict resolution (Medlin *et al.*, 2005). This represents a fundamental difference from a transaction costs scenario based on self-interest seeking and cost monitoring behaviors (Williamson, 1983), toward one in which goodwill is generated and costs associated with monitoring partner behavior cease to represent a major factor.

These descriptions of heightened collaboration and the near absence of malfeasance begin to sound utopian. The collaboration agenda may be abandoned in quick measure, however, if either party's agenda ceases to be served well. Exit barriers are low with a preponderance of non-equity arrangements and less detailed contractual obligations and lower levels of material sanctions to malfeasance. Similarly, transgression of the social norms of obligation will evoke suspicion and may damage affective trust among partners, causing the reciprocal process to unravel (Silkose, 2013).

Successful exchange is characterized as a process comprising incremental exchange episodes rather than a single discrete transaction. Flexibility exists in the agendas of interacting partners and allows adaptation in reciprocal arrangements. Risk is mitigated through the inherent flexibility in expected outcomes and the relatively low level of consequence attached to each incremental exchange episode (Toon *et al.*, 2012). Additionally the ongoing nature of the relationship is cognitively distinct from a discrete transaction and employs judgment and norm-based behaviors (Macintosh and Gentry, 1995). The motivation in this exchange process scenario is in achieving plural outcomes from the collective reciprocal exchanges.

Alliance performance satisfaction captures the extent to which expected outcomes were achieved and is defined here as satisfaction with the goals, standards and long term legacy of the project. While single item, or multi-item formative measures may be used to grade performance against *ex ante* agreed outcomes, for example ‘project was completed on time’, these measures overlook *ex poste* changes and so will miss elements of project performance that reflect valuable adaptations along the way. Goals, standards, and long term legacy better reflect satisfaction with the emergent collaborative project.

Such measures of satisfaction are more resilient summative assessments of project performance (Lee *et al.* 2017). Exploratory and joint problem solving behaviors in these relationships carry a higher likelihood of interim failure where proposed solutions to individual adjustments may not bear fruit. Other outcomes from such trial and error activities such as increased relationism and greater experiential capital bring their own rewards and reflexive assessment across the dimensions of our concept of alliance performance satisfaction will reflect both the positive and negative outcomes of these efforts. This brings richer and more comprehensive conceptual insight.

We consider that:

H_{4a}: Technical exchange is positively related to alliance performance satisfaction.

Managerial tenure is measured here as the number of years the focal managerial decision-maker has worked for the firm. We consider that there is a characteristic difference in the way in which a manager interacts with their counterparts across high tenure and low tenure groups. While firm size may be associated with more formalized processes and standardized organizational behaviors, managerial tenure brings with it experience and greater understanding of behavioral norms associated with interpersonal conduct between firms (Lee 2009). While longer serving managers will still exhibit collaborative behavior, adhering to unspecified obligations and social norms among counterparts, they bring with them a greater

intuitive sense of the boundaries of their benevolence. An experienced manager will better judge the balance of obligations—social, personal, and organizational—over time, and come more quickly to a decision on when to adapt to suit the counterpart and when to draw back. As a consequence, fewer superfluous exchange episodes occur. At the level of the individual project this may result in fewer, potentially fruitful, exploratory avenues of collaboration. The shift in emphasis towards calculative behavior may also detract from the exchange process. This can be reconciled by the manager as appropriate resource allocation behavior that brings efficient results most of the time. For the individual project such behavior among managers with longer tenure may be negative while representing an acceptable opportunity cost more generally. We reason that:

H_{4b}: Managerial tenure has a negative impact on the link between technical exchange and alliance performance satisfaction, such that the positive relationship weakens as tenure increases.

Methodology

Sample and data collection

The UK construction industry provided a suitable context for the investigation of the managerial relationship process and associated antecedent conditions. A spectrum of alliance arrangements exists within this industry from which a suitable configuration is selected. The traditional procurement route was selected for investigation in this study both because the nature of the relationship process reflects the context under investigation here and because of its ubiquitous employment across firm types and sizes, assisting in generalizability and maximizing value of the study for practitioners.

The sample was taken from the membership list of the Royal Institute of British Architects (RIBA) using the systematic random sampling technique. RIBA is a professional association,

the membership list is comprehensive and contains the vast majority of qualified architects and architectural practices in the UK. Additionally, both the architect and the practice are included, which facilitated cross checking with company websites for an assessment of the reliability of the contact information. In order to test our assumptions on the reliability of the contact information, a random subsample of architects was selected from the sample and the practices were contacted by phone to confirm the contact information for the relevant architect was correct.

Respondents were selected according to position within the practice, with senior architects chosen as most likely to be active project managers. Respondents were instructed to comment on a completed project for which they had acted as project manager. The project manager is the company representative who has clear working knowledge of the project at an operational level and interacts with the building contractor (Lui and Ngo, 2004). This precluded some junior staff and some senior directors who were responsible for business administration, but not individual project management.

Scale Development and Pre-Test

Multi-item, reflective measures were used for all constructs except the moderators, firm size and managerial tenure. The reliability of measures cannot be assumed to be replicated in new temporal contexts or population profiles and a process of measure development was undertaken within the pre-test phase. Content validity was assessed through consultation with a panel consisting of senior executives and academic experts in the field. Members of the panel completed the survey instrument in a mock distribution in which circumstances such as postal delivery, method of address, and accompanying instructions were the same as those planned for in the full-survey administration. Next, panel members were interviewed and the degree to which the measures captured the construct domain assessed. Findings from these interviews were incorporated in a final modification of the survey instrument.

Our technical exchange items were taken from Sarkar *et al.* (2001) and the relational capital ones from Kale *et al.* (2000). Compatibility items were taken from Sarkar *et al.* (2001), while similarity was modified from Murray and Kotabe (2005). To measure firm size, we used financial turnover of the architectural firm. Managerial tenure was measured as the number of years a manager had worked in the firm. Conceptually, we identify characteristic differences in small and large architectural practices and this facilitated a split in the group. The smaller architectural firms had a lower number of qualified architects, typically one, and little in the way of additional related firm competencies. Similarly, we anticipate characteristic behavioral differences among managers with longer and shorter tenure.

Survey Administration

The survey administration involved twelve hundred surveys sent out in one wave and followed a process similar to that outlined in Dillman *et al.*'s (2014) *Tailored Design Method*. Common to this method, a pre-notification letter, survey pack, first reminder, and final reminder with a replacement survey pack, were distributed to the sample. Elementary measures adopted to avoid low response included the use of the full name and title of the respondent at each firm. Incentives were included to assist in limiting response attenuation. A summary of the study findings was sent to those respondents who elected to provide their contact details with the returned survey.

Of the surveys sent out a total of 257 were returned and of these 200 were deemed usable. This response rate of 16% was considered satisfactory. Additional steps were taken to increase the robustness of our approach and provide greater confidence in the approach. A *post hoc* check was employed to ensure the competency of respondents. Respondents were asked to rate their knowledge of the project, degree of involvement, and confidence in answering the survey questions. A seven point, Likert scale was used (1 = "strongly disagree" and 7 = "strongly agree"). We dropped 5 respondents scoring 4.0 or below on one or more of

these statements. As a result, the mean rating across these measures was 6.59 and the final useable number of surveys was 195.

Thus we employed a two-step approach to establishing respondent competence: a general measure of organizational position, and direct reporting of respondent competence through survey items (Slater and Atuahene-Gima, 2004).

In order to address common method bias and because we acknowledge that common method bias can be a problem with self-report measures, we included several measures that did not tap behavioral concepts. These included duration of project and experience of architect. We also included reverse coded items at points throughout the survey.

Analysis and Findings

We test for the possible effects of non-response bias using the Armstrong and Overton (1977) technique which is represented in pertinent antecedent empirical studies (Fryxell *et al.*, 2002; White and Lui, 2005). We analyzed our sample comparing late and non-responders, based on our RIBA-provided understanding of characteristics (i.e., firm size) of firms in the population. A t-test revealed no significant differences between the two groups. The data was analyzed for normality to ensure that it met the assumptions for maximum likelihood analysis. The data did not carry any problems of normality.

We adopt the established two-step approach to analysis of the model. We first tested the confirmatory model to assess the fit of our data to the conceptual model. Second, we assessed the fit of the hypothesized paths in the structural model (Anderson and Gerbing, 1998). The measurement model was analyzed using confirmatory factor analysis in AMOS 23 software, based on maximum likelihood estimation. We assessed for reliability using construct reliability and Cronbach's coefficient alpha with both measures giving values above .70 for our multi-item scales (Nunnally, 1978). Convergent validity is demonstrated through confirmatory factor loadings $> .50$ for each item on its respective construct with the lowest

loading at 0.57, and average variance extracted values for each construct above .50 (Fornell and Larcker, 1981). The confirmatory factor analysis showed that the proposed factor model had an acceptable fit to the data (Byrne, 2010; Hair *et al* 2006; Slater and Atuahene-Gima, 2004): $\chi^2_{(224)} = 409.660$, $p=0.000$, CFI=0.94, NNFI=0.94, RMSEA=0.07.

We established discriminant validity through the Chi square difference test. Testing each pair of constructs in turn, two models were estimated: an unconstrained two-factor model and a second model with the path constrained to one. The resulting model fit statistics reveal better results for the unconstrained model ($p < .05$) for each model (Hair *et al.*, 2006). Further, we assessed discriminant validity using the Fornell and Larcker (1981) approach comparing the average variance extracted (AVE) with the squared standardized coefficients. The results show that the AVE scores are greater than their respective squared standardized correlations demonstrating discriminant validity. Table 1 shows the Cronbach alphas, means, standard deviations and construct reliability/AVE scores.

- Table 1 about here -

To test for common method variance (CMV) we used the Harman Single Factor test. A total of 16 factors were identified and the first factor accounted for 31% of the variance satisfying the criteria for establishing an absence of method bias (Chang *et al.*, 2010; Slater and Atuahene-Gima, 2004). While established and well known, (Malhotra *et al.*, 2006), the Harman Single Factor test is not without limitations. In particular it is sensitivity to small CMV effects (Podsakoff *et al.*, 2003). We employ a further check of CMV to check our single method design. Using the Lindell and Whitney (2001) marker-variable technique we set contractual formality as our theoretically unrelated construct. This is a multi-item scale taken from Wuyts and Geyskens (2005). The resulting CMV-adjusted correlations show no change in significance indicating an absence of CMV effects.

The structural model results indicate a satisfactory fit to the data: $\chi^2_{(231)} = 556.484$, $p=0.000$, CFI=0.90, NNFI=0.90, RMSEA=0.09. A control variable was added to the model to test for robustness; using prior relationship we checked for its influence on alliance performance satisfaction. The resulting estimate was non-significant, hence, indicating the absence of this theoretically credible alternative explanation.

H1a suggests a positive relationship between compatibility and relational capital, and our findings support this path ($\beta = 0.71$, $p < 0.01$). To test the moderating effect of firm size on this path between compatibility and relational capital we employed a split group analysis. We used a median split for turnover and ran a two-group analysis to test for significance between the two models. The low turnover group gave a path coefficient of .73, $p < 0.01$, while the high turnover group gave a path coefficient of .53, $p < 0.01$. The chi square difference between these two groups was significant at 6.965. Thus, this moderator effect and H1b are supported. H2 proposes a positive relationship between similarity and relational capital. The path coefficient is low (0.08) and non-significant (at $p = .05$). Hence, this hypothesis is not supported. H3 proposes that relational capital has a positive relationship with technical exchange. This hypothesis is supported ($\beta = 0.58$, $p < 0.01$).

- Table 2 about here -

H4a suggests a positive association between technical exchange and alliance performance satisfaction. The analysis supports this hypothesis with an estimate of $\beta = 0.58$, significant at $p < 0.01$. H4b extends insight into this relationship by testing for the moderating effects of managerial tenure. Using a split group analysis (median split), we ran a split group analysis of the data and tested for the difference between the groups. The Chi square difference is 29.748 and significant. We therefore find a negative moderating effect of managerial tenure on the relationship between technical exchange and performance satisfaction as per the hypothesis.

Discussion and Conclusions

This study addresses a gap in the literature by empirically testing the managerial relationship process and revealing the workings inside the black box of exchange. We conceptualize the managerial relationship process and describe the contextual drivers facilitating this. We further identify the moderating effects of firm size and managerial tenure. The dynamics of the managerial relationship process are central to the process of collaborative exchange (Eggert *et al* 2006). Efficacy in this zone of interorganizational interaction facilitates both the exchange of non-strategic resources but also those strategic resources that are a component of competitive value creation (Kotabe *et al* 2003). Sharing of strategic assets is not without risk and so exchange at this higher level is facilitated by the presence of relationship capital. Relational capital brings trust and more calculable levels of risk and relies on social exchange principles (Nooteboom 2007). Normative behaviors are established within the managerial relationship process and govern day to day actions (Kohtamaki *et al* 2012). This governance form is distinct from contractual governance and functions separately. Importantly, these normative behaviors stretch across social exchange theory explanations to include a multiplicity of rules, or norms of behavior. These include Blau's (1964) personal obligations such as gratitude and trust that form the essence of our relational capital concept and combine with rules of reciprocity in the exchange of higher level technical knowledge. Such aspects of the managerial relationship process give a clearer social exchange account of what is taking place and also set it apart from explanations transactional encounters more common in the TCA literature.

The focus on higher-level exchange requires greater intensity in the relationship and relational capital facilitates this, bringing greater certainty about normative behaviors and the ability of partner firms to rely upon these. Negative signaling effects of the contingent claims contract are pushed to the background as actors become cognizant of an atmosphere

characterized by collaborative rather than competitive agendas and they adopt an attitudinal position in which they are willing to be vulnerable (Lui and Ngo, 2004). The resulting shared behaviors allow access to all resources. This is the *reaching into the pot of resources* described earlier.

Within our study we model relational capital having a positive relationship with technical exchange. We reason that mutual trust, respect, and friendship are facets of the individual relationship and that where these exist they generate higher levels of relational capital. This relational capital supports normative behavior of exchange and so drives volitional exchange behaviors in the project. We find support for this hypothesis demonstrating the configuration of the managerial relationship process and supporting the rationale outlined here.

Antecedent conditions for managerial exchange may at first glance seem numerous. In this study we concentrate on those conditions that predispose partner firms to enter collaborative arrangements governed by shared norms and expectations of forbearance. We identify compatibility as a much-cited concept in the literature and define it here in closer terms. Compatibility, we argue, is the congruence of organizational cultures and technical competencies among partner firms. It follows that where compatibility is high, relational capital will follow. We test this hypothesis (H1a) and find that compatibility does have a positive effect on relational capital. We observe characteristic differences among firms in our study. In particular, smaller firms have few resources both in magnitude and scope. Larger firms for example are more likely to have additional technical competencies in house. These might include quantity surveyors and specialists in certain types of construction. Smaller firms are more reliant on partner firms to supply such technical competencies and so we reason that compatibility may be higher among smaller firms. Similarly, larger firms are more likely to be systems led and present a standardized offering to partnering firms. This is less evident in smaller firms and so the second part of compatibility, cultural congruence among

partner firms will be less evident for larger firms. Collectively we reason that firm size will negatively moderate the path between compatibility and relational capital. This means that compatibility will drive relational capital to a lesser extent in larger firms when compared to smaller firms. Our two groups analysis supports this hypothesis (H1b) and reveals a finer level of detail in the antecedent conditions for managerial exchange among collaborative firms.

Similarity among partner firms in respect of their resource profile is a second antecedent condition that we include in our conceptualization of drivers of the managerial exchange process. We reason that differences among the weight of resources that each firm brings will predispose one to have power over another. While this logic is more akin to transaction costs logic than social exchange theory we considered that this dynamic would manifest at a low level, facilitating coercion in regular decision making scenarios rather than full exploitation. This *muted opportunism* would, we reason, have a deleterious effect on goodwill and so on relational capital. We therefore proposed that similarity would lead to relational capital (H2). Yet, our results unveiled no relationship between similarity and relational capital. *Prima facie*, the coercive behavior we anticipated among dissimilar firms is not present in our data. Among the possible explanations, we favor two. First, the presence of a contingent claims contract in the background of the exchange was sufficient to remove all attempts at malfeasance. Second, the collaborative atmosphere in which firms find themselves carries effective normative governance that prevents this behavior. Social sanctions alone will act to dissuade self-interest seeking. Of these two possible explanations, we find the second one to be better aligned with the logic of our study and also the more convincing explanation. This said, further empirical work is needed to examine the underlying factors here.

Alliance performance satisfaction is our outcome measure of success in the managerial exchange process. We conceptualize this form of satisfaction over summative and discrete measures of performance for two reasons. First, satisfaction captures the general

feeling towards the process rather than the specific outcome. Second, the collaborative relationships we have chosen facilitate solutions *during* the process rather than set them out in detail *ex ante*. Where the technical exchange process is successful, partner firms will observe satisfactory outcomes. We therefore propose that technical exchange will have a positive impact on alliance performance satisfaction (H4a) and our analysis supports this hypothesized path.

Within our sample we observe some differences among managers according to their tenure. Those managers who are at an early point in their career may carry a lower stock of experience. They may also be keen to pursue opportunities wherever they arise. Collectively these factors predispose the manager with lower tenure towards more readily collaborating. Managers equipped with greater levels of tenure may reflect associated greater stocks of experience. Such experience may incline such managers to take a more systematic approach to their collaborative efforts based on a combination of what has worked well in the past, and what has not. The more discerning, long-tenure manager is also better placed to identify fruitless collaboration and may be inclined to withdraw efforts relating to technical exchange in a more timely manner than their less experienced counterparts. Consequently, we reason that managerial tenure has a negative moderating effect on the propensity of technical exchange to drive alliance performance satisfaction. Our analysis bears this out and we find support for our moderating effect (H4b).

Much extant work carries assumptions about interorganizational interactions that may not reflect the reality. Specifically, a dominant legacy of transaction costs thinking in management leads many academics to view such interactions as transactional in nature (Robson *et al* 2008). Where value solutions are sought that require comparable input from both companies, as is the case in most alliances, these assumptions lack explanatory insight and may impede understanding. In this study we have taken a social exchange perspective to explain the managerial exchange process. We have tested our conceptual model of behaviors

and provided empirical support for the explanations that we give. The role of similarity is the only exception to this and here we identify possible causes for this unexpected outcome together with suggestions for further investigation.

Limitations and Recommendations

Limitations

The study carries several notable limitations. The responses are single respondent which offers the potential for common method bias. While not an ideal design our context compensates somewhat by giving us good insight into firm behaviors. We also test thoroughly for the potential effects of common method bias and find that it is not evident. The study was comprehensive within the industrial sector and draws on a comprehensive list of the population from which random sampling was possible. However within the industry we note other procurement practices that are not considered by this study. We therefore limit generalizability to this sector, and to the (substantial) subsection of this sector that employs the traditional procurement route in construction projects.

Recommendations

Theoretical

Process perspectives on interorganizational interactions is an under researched area in the alliance literature. While the alliance field is mature, transactional perspectives hold. This study seeks to shine a light into this conceptual blind spot. Further research is needed to better articulate measurement of exchange processes. Methodologically we typically take a snapshot in time and reflect this as a longitudinal story. Longitudinal perspectives and dynamic data are needed to better understand how the series of iterative exchange episode articulated in this work and common to collaborative exchange emerge. Until these methodological challenges are addressed, research in this area is likely to be underpowered.

Similar effects to those noted among smaller firms and managers with lower levels of tenure may be observed in larger firms with innovation sections. The firms in our study did not include this type and so these effects were not tested here. Replicating the managerial exchange process mapped out here, within very large organizations may offer insight into managerial processes in innovation.

Managerial

Managers are better informed about the nature of normative behavior as a governance mechanism as a result of this study. Assumptions surrounding the use of the contingent claims contract to ensure adherence to collaborative agendas are dispelled in this study. Instead a clearer picture of the specific outcomes of relational behaviors, specifically higher level technical exchange, are demonstrated. Joint aims and problem solving activities facilitate an atmosphere of trust and low, more calculable risk. The cost efficiencies of not monitoring are self-evident and indeed should be avoided to limit negative signalling effects.

Compatible cultures and technical capabilities are found to be key ingredients for the function of a successful managerial process. Small firm approaches including flexibility and low resource scope also facilitate effective managerial exchange. While inherent in the small firm, such characteristics may also be replicated in sections within larger firms or in isolated projects and so the findings of this study could be applied in these contexts. Finally, managerial tenure has a deleterious impact on the relationship between technical exchange and alliance performance satisfaction. This reveals different behaviors among managers according to tenure and so, to experience. Managers with lower tenure may have a series of motivations for driving exchange including greater early career motivation and less refined perception of poor cost benefit in pursuing a project. Never the less this may be of benefit to the manager in generating valuable experience and to the firm in seeing less likely projects pushed through to completion. In the case of managers with longer tenure, projects carrying

risk may be exited from at an earlier point offering a better risk management profile for the firm.

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Figure 1. Conceptual Model and Hypotheses

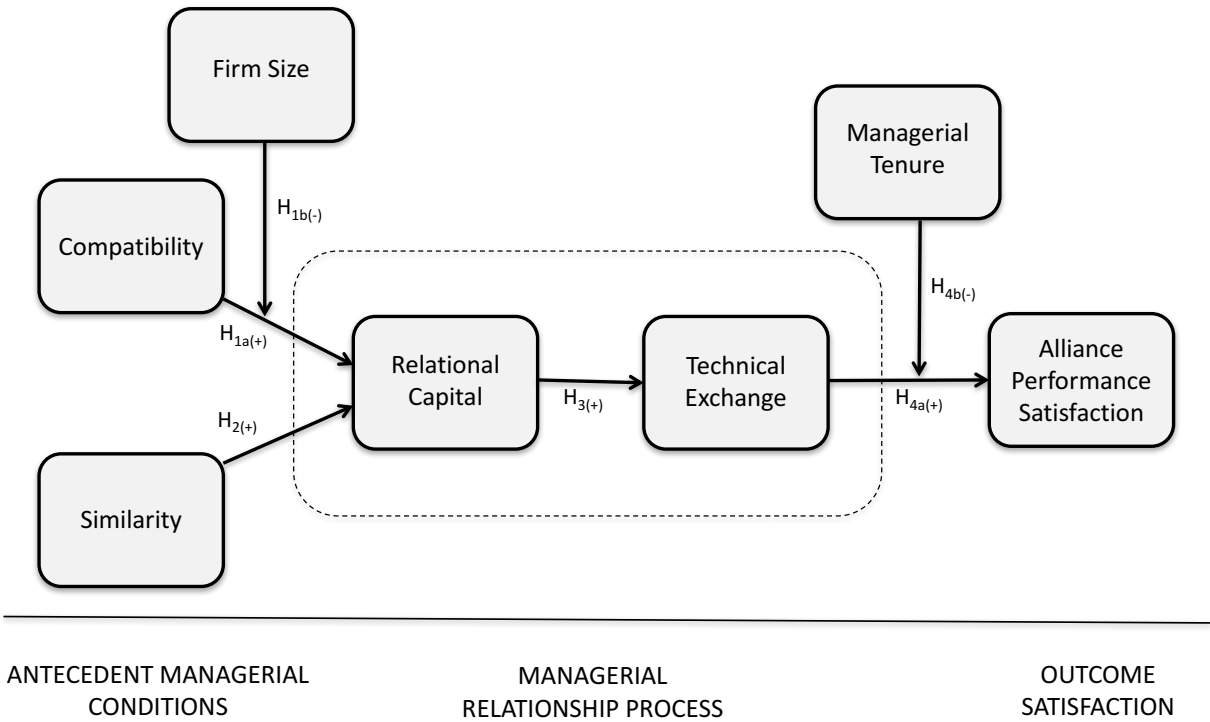


Table 1. Means, Standard Deviations, and Correlations

Measures	Cronbach's alpha	Mean	S.D.	1	2	3	4	5	6	7	8
1 Similarity	.70	3.8	1.5	.92/.80							
2 Compatibility	.90	4.7	1.3	0.01	.98/.89						
3 Relational Capital	.91	4.7	1.4	0.11	0.81**	.98/.92					
4 Technical Exchange	.84	4.6	4.7	0.02	0.52**	0.51**	.97/.88				
5 Alliance Performance Satisfaction	.93	5.3	1.8	0.09	0.76**	0.68**	0.50**	.98/.91			
6 Firm Size	n/a	9.95 x 10 ⁵	1.7x10 ⁶	-	-	-	-	-	-		
7 Managerial Tenure	n/a	17.0	10.1	-	-	-	-	-	-	-	
8 Prior Relationship	n/a	9.6	4.7	0.82**	0.49**	0.98**	0.78**	0.89**	-	-	-

** p<0.01

Notes: CR/average variance extracted shown on diagonal

Table 2. Structural Model Results and Split Group Moderator Results

H	Path	Standardized estimate	t-value
H _{1a} ⁽⁺⁾	Compatibility → Relational Capital	0.71**	9.008**
H ₂ ⁽⁺⁾	Similarity → Relational Capital	0.08	1.194
H ₃ ⁽⁺⁾	Relational Capital → Technical Exchange	0.58**	7.343**
H _{4a} ⁽⁺⁾	Technical Exchange → Alliance Performance Satisfaction	0.58**	7.315**
Fit indices: $\chi^2_{(231)}=556.484$, $p=0.000$, CFI=0.90, NNFI=0.90, RMSEA=0.09			
H _{1b} ⁽⁻⁾	Firm size among alliance partners has a negative impact on the relationship between compatibility and relational capital		
	Split group moderator tests		
	<i>Low Turnover group</i>		
	Compatibility → Relational Capital	0.73	4.289**
	<i>High Turnover group</i>		
	Compatibility → Relational Capital	0.53	7.534**

Non-restricted model

$\chi^2_{(461)}=781.921$, $p=0.000$, CFI=0.89, NNFI=0.89, RMSEA=0.07

Restricted Model

$\chi^2_{(463)}=788.886$, $p=0.000$, CFI=0.89, NNFI=0.89, RMSEA=0.07

$\Delta\chi^2=6.965^{**}$

H_{4b}⁽⁻⁾ managerial tenure has a negative impact on the relationship between technical exchange and alliance performance satisfaction

Split group moderator tests

Low tenure group

Technical Exchange → Alliance Performance Satisfaction

0.68

5.874**

High tenure group

Technical Exchange → Alliance Performance Satisfaction

0.42

3.774**

Non-restricted model

$\chi^2_{(461)}=894.136$, $p=0.000$, CFI=0.86, NNFI=0.86, RMSEA=0.07

Restricted Model

$\chi^2_{(463)}=923.884$, $p=0.000$, CFI=0.85, NNFI=0.85, RMSEA=0.07

$\Delta\chi^2=29.748^{**}$

** $p<0.01$

Appendix A. Constructs and Scales

Construct	Scales
Compatibility	<ul style="list-style-type: none"> • The organizational values and social norms prevalent in the two firms were congruent • The goals and objectives of both firms were compatible with each other • Technical capabilities of the two firms were compatible with each other • Employees of both firms had a comparable level of professional or trade skills • Resources brought to the project by each firm were very valuable for the other
Firm Size	<ul style="list-style-type: none"> • What is the approximate turnover of your firm (your office, not group) for all activities?
Similarity	<ul style="list-style-type: none"> • Overall, your firm and the building contractor had similar resource capabilities • Overall, your firm and the building contractor had similar management capabilities • Overall, your firm and the building contractor had dissimilar asset size
Relational Capital	<ul style="list-style-type: none"> • The relationship between you and your counterpart was characterised by a close, personal interaction • The relationship between you and your counterpart was characterised by mutual respect • The relationship between you and your counterpart was characterised by mutual trust • The relationship between you and your counterpart was characterised by high reciprocity
Technical exchange	<ul style="list-style-type: none"> • You had a close relationship with the engineers and technical staff of the building contractor • In the development process, direction of communication was bilateral rather than unilateral • Frequent contact between us and the building contractor's engineers was important • Through informal discussion, the building contractor often communicated important engineering information to us
Managerial Tenure	<ul style="list-style-type: none"> • How long have you worked for this firm?
Alliance Performance Satisfaction	<ul style="list-style-type: none"> • Both your firm and the building contractor overall, were satisfied with this project • Both your firm and the building contractor considered that the goals of this project were achieved • Both your firm and the building contractor considered that this project added to the long-term success of your firms • Both your firm and the building contractor are proud of the project

- Both your firm and the building contractor consider that overall the project was efficiently carried out
- Both your firm and the building contractor consider that the venture was profitable for your firms