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Quantitative effects of drivers and barriers on networking strategies in public construction projects

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Abstract

Past studies have found that network strategies can contribute to better company and project performance. The adoption of network strategies is motivated by a set of factors (i.e., drivers), but also faces numerous challenges (i.e., barriers). The appreciation of the factors motivating and deterring networking strategies is beneficial to the successful implementation of network strategies. In the context of public construction projects, this study aims to examine the quantitative effect of drivers and barriers on three network strategies (i.e., trust, information sharing and joint problem solving). The results of a questionnaire-survey of 104 public projects show that the adoption of network strategies in public construction is mainly cost-driven. The results indicate that four barriers impede network strategies in public projects: (i) a lack of continuity and (ii) ethos of public services are harmful to trust; (iii) institutional constraints hinder information sharing; and (iv) a lack of capability is a hurdle to information sharing and trust. It is also found that one barrier (i.e., ethos of public services) has a positive influence on trust between clients and consultants. Recommendations on enhancing network strategies through the appreciation of drivers and barriers are provided.

Keywords: Drivers; Barriers; Network strategies; Singapore; Public projects

1. Introduction

Since network strategies can assist in managing construction projects more effectively (e.g., Chinowsky et al., 2008; Chowdhury et al., 2011; Ei-Sheikh and Pryke, 2010; Ling and Li, 2012) contracting parties may have the motivation to adopt network strategies. However, the public sector cannot be seen to have close relationships with private parties as it may imply cronyism (Ling and Tran, 2012; Ning and Ling, 2013). The widespread practice of open tenders to procure services and products in public projects puts high priority to bidders' merit, capability and tendering price rather than on previous partnerships (Jones, 2002). With open tenders called for most public projects, public clients generally cannot promise existing private partners future projects. This suggests no guarantee of future relationships, even when partners are embedded within the same network. This potential discontinuity in relationships may cause partners to act in an atomized manner, which may impede their network strategies. Hitherto, it is still not known which drivers and barriers could significantly influence network strategies in public projects. This study aims to examine the quantitative impact of drivers and barriers on network strategies in public construction projects. An appreciation of the factors motivating and deterring networking strategies is beneficial to the successful adoption of network strategies in public projects. A clear understanding of the drivers can help contracting parties to customize their network strategies in order to reap the expected benefits. An awareness of the barriers would enable them to understand the challenges, and thereafter help them to take steps to minimize their negative impacts.

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2. Literature review

2.1. Network strategies

Network embeddedness emphasises the structure of networks and the value of the structural position of parties in the network (Gulati, 1998). The governance mechanism might be reflected by the degree of embedded networks, which depends on the type of relationships it uses to connect to its network parties as well as the type of relationships used by firms in the network (Dacin et al., 1999; Uzzi, 1996). Two types of relationships are typical in networks: arm's length relationships; and embedded relationships. Arm's length relationships are more likely governed by the rational choice theory, showing selfish and profit-seeking (Uzzi, 1997), whereas embedded relationships enable the transaction embedded in social attachments (Uzzi and Lancaster, 2003).

Parties in an embedded network would follow heuristic and qualitative decision rules rather than intensely calculative ones (Uzzi, 1997). These actions and motives are not assumed to be due to purely economic behaviours and conformity to some social norms, but converged on the combination of both, furnishing an alternative mechanism for coordinating adaptation (Uzzi, 1997). Three elements (i.e., trust, information sharing and joint problem solving) are essential in embedded networks (Uzzi, 1997).

Trust is a critical element of embedded relationships (Powell, 1990; Uzzi, 1996, 1997). It acts as the primary governance structure, outperforming other mechanisms, like calculative risk and monitoring systems (Uzzi, 1997). A high level of trust facilitates the exchange of resources and information (Uzzi, 1996) and creates a sense of security during the knowledge sharing process that the knowledge would not be exploited beyond what is intended (Dhanaraj et al., 2004). In addition, it facilitates the extension of benefits to partners and invites the receiving partner to reciprocate when a new situation arises (Uzzi, 1996). Trust is operationalized as mutual trust between each two parties (TR1) (Uzzi, 1997) and level of personal relationships between each two parties (TR2) (Rahman and Kumaraswamy, 2008).

Another important element of embedded relationships is to provide tacit, fine-grained and holistic information (Mariotti and Delbridge, 2012; Rowley et al., 2000; Uzzi, 1997). The dissemination of tacit information would give rise to a better understanding of partners' actions and thus shape behaviours of contracting parties (Granovetter, 1992). It would also contribute to inter-firm coordination and learning (Uzzi, 1996). By contrast to embedded relationships, arm's length relationships promote the flow of public information (Uzzi, 1999). Information sharing is operationalized as mutual understanding (IS1) (Black et al., 2000); open and effective communication (IS2) (Black et al., 2000); and sharing of project information (IS3) (Rowley et al., 2000).

Embedded networks tend to furnish joint problem-solving arrangements (Uzzi, 1997). Joint problem-solving arrangements could enable contracting parties to coordinate functions and work out problems "on the fly" (Uzzi, 1996, 1997). These arrangements typically consist of routines of negotiations and mutual adjustment that could flexibly resolve problems and effectively promote the learning process (Uzzi, 1997). Joint problem solving is operationalized as flexible/adjustable contracts to address uncertainties (PS1) (Rahman and Kumaraswamy, 2008); commitment level of contracting parties to joint problem solving (PS2) (Rahman and Kumaraswamy, 2002); presence of a conducive learning environment (PS3) (Cheng and Li, 2001); and acceptance of dispute resolution mechanism for the project (PS4) (Rahman and Kumaraswamy, 2008).

As a construction project comprises many contracting parties, it is expected that the degree of the adoption of network strategies by different parties could be uneven. Three constructs are therefore classified into two categories: the behaviours exercised between two parties (i.e., trust and information sharing); and the behaviours practiced among triple parties (i.e., joint problem solving). Accordingly, seven constructs are attained. These are: (i) trust between clients and contractors (TR-CL&CT); (ii) trust between clients and consultants (TR-CL&CS); and (iii) trust between contractors and consultants (TR-CT&CS); (iv) information sharing between contractors and clients (IS-CL&CT); (v) information sharing between clients and consultants (IS-CL&CS); (vi) information sharing between contractors and consultants (IS-CT&CS); and (vii) joint problem resolving (PS).

2.2. Drivers for adopting network strategies

Past studies found that the adoption of network strategies is driven by a set of factors, namely drivers. Three driver-constructs, namely value proposition (VP), business competitiveness (BC) and time and cost performance (TC), are derived from previous studies.

Contracting parties adopt network strategies might be because they hope to improve value propositions. For example, they may feel that the adoption of network strategies would help to achieve better safety performance (VP1) (Chan et al., 2003), improve the design (VP2) (Black et al., 2000) and the quality of project (VP3) (Black et al., 2000), maximize resource utilization (VP9) (Black et al., 2000), provide an integrated solution of efficiency improvement (VP4) (Chan et al., 2003) and respond to public/social/end-users' needs (VP11) (Akintoye and Main, 2007). It may be also possible that contracting parties adopt network strategies in order to facilitate creative and innovative approaches (VP5) (Akintoye and Main, 2007), and respond to technology changes (VP6) (Dyer and Nobeoka, 2000). Another consideration for the appreciation of network strategies is its influence on the reduction of disputes during the project (VP7) (Dubois and Gadde, 2000), collaborative culture in the project (VP8) (Akintoye and Main, 2007) and relationship quality among contracting parties (VP10) (Black et al., 2000).

Networks are also recognized as a source of organizations' business competitive advantages (Rowley et al., 2000; Uzzi, 1996). Contracting parties that tend to build networks may hope that their efforts in networking would improve their business competitiveness. The improvement of business competitiveness is operationalized as seizing new market opportunities (BC1)