

The Relationships between Knowledge Transfer, Knowledge Dissemination Capability and Inter-Organizational Dynamics in Public and Private Sectors Organizations

Abstract

This research empirically investigated the relationships between knowledge transfer, knowledge dissemination capability and inter-organizational dynamics in public and private sectors organizations. The research employed a quantitative methodology to investigate the effects of asset specificity, experience, expertise and absorptive capacity on the transfer of knowledge in Private Finance Initiative (PFI) projects, and the moderating effects of collaborative know-how and partnership duration. In addition, the research also studied the relationships among the constructs inside knowledge dissemination capability and the moderating effect of inter-organizational dynamics on it. 602 valid responses were collected by a questionnaire survey amongst private and public sector professional practitioners; which representing a 30% response rate. The findings revealed that the research established its critical role in knowledge transfer by showing its supportive effect on the process and illustrated a weak effect of collaborative know-how and partnership duration on knowledge transfer in PFI projects. With regard to the knowledge dissemination capability itself, there is virtually no relationship between absorptive capacity and intra-organizational transfer capability within the donor and recipient organizations in PFI projects. PFI partners need to carefully balance absorptive capacity and intra-organizational transfer capability, since inter-organization dynamics cannot facilitate knowledge dissemination within donor/recipient organizations.

Keywords: knowledge transfer, knowledge dissemination capability, inter-organizational dynamics, public organizations, private organizations

1. Introduction

Research has shown that organizational knowledge transfer between partners in a strategic alliance, such as joint ventures, has important implications for organizational performance and innovativeness. Organizational knowledge transfer has been associated with higher levels of performance by enabling organizations to develop innovative ideas and products (Powell, Koput and Smith-Doerr, 1996; Tsai, 2001; Wijk, Jansen and Lyles, 2008), stimulating the combination of existing and newly acquired knowledge, and increasing an organization's capacity for making novel linkages and associations (Jansen, Van den Bosch and Volberda, 2005). Khamseh and Jolly (2014) even described that alliances would provide a channel for transfer and exchange of information, experience and knowledge beyond the boundaries of the firm.

Public Private Partnerships (PPPs) are an important strategy for delivering public facilities and services in many countries (Kettl, 1993; Nagle, 1992; Salamon and Elliott, 2002; Young, Chih and Ibbs, 2009). In recent years, a massive growth in engaging private firms for the provision of public services, especially through the development of PPPs, has been witnessed. PPPs have also emerged as one of the major approaches for delivering infrastructure projects

48 in Hong Kong (Hong Kong Efficiency Unit, 2008). Private Finance Initiative (PFI) partners,
49 which, under a public private partnership arrangement, are from both public and private
50 sector organizations. As such, private sectors in PPP and PFI have more to gain competitively
51 due to the nature of the organization (Baum & Ingram, 1998; Darr, Argote, & Epple, 1995;
52 Greve, 1999; Ingram & Simons, 1999; Powell, Koput and Smith-Doerr, 1996). The
53 partnership between public and private organization is known to face difficulties in
54 knowledge transfer from one to other (Carrillo, Robinson, Anumba and Bouchlaghem, 2006;
55 Kamseh and Jolly, 2013). These difficulties are evidently due to the nature of their jobs,
56 bureaucracy and the differences in culture. The private organization may be efficient on
57 transferring essential knowledge internally as they have more to gain in a competitive
58 environment.

59

60 Previous research focused on business partners from private sector organizations while
61 largely neglecting partnerships between public and private sector organizations, such as can
62 be found in PPPs. This research helps to redress the imbalance by examining knowledge
63 transfer between business partners in the context of PPPs. Due to the important role of PPPs
64 in the economy of both developed and developing countries, there is a genuine need for a
65 better understanding of knowledge transfer between public and private sector partners. For
66 strategic alliances or joint venture partners in the private sector, one means to improve
67 performance and strive for excellence is related to the enhancement of organizational
68 knowledge transfer process.

69

70 Some other studies have examined organizational characteristics, such as decentralization and
71 absorptive capacity (Gupta and Govindarajan, 2000), or have primarily focused on attributes
72 that typically operate at the dyad-level or network-level, such as trust and cultural distance
73 (Lane, Salk and Lyles, 2001). To explore the situation of knowledge transfer in PFI projects,
74 this research investigated the relationships between knowledge transfer, knowledge
75 dissemination capability and inter-organizational dynamics in public and private sectors
76 organizations.

77

78 **2. Literature Review**

79

80 **2.1 Knowledge Creation and Transfer**

81 Tenets of knowledge transfer have attracted a vast number of academic and non-academic
82 research. Amongst these are the interest in investigating knowledge characteristics and its
83 influence on the sharing of knowledge (Soberg, 2012). Nonaka and Takeuchi (1995) took the
84 pioneering step of describing knowledge creation as a continuous and self-transcending spiral.
85 Individual influence and intention are found at the micro level, while people interaction under
86 environmental influences is at the macro level. Nonaka and Takeuchi (1995) proposed a
87 four-pattern knowledge creation process consisting of socialization, externalization,
88 combination, and internalization (SECI). The SECI process considers knowledge creation a
89 spiralling process of interaction between explicit and tacit knowledge, which may result in
90 the creation of new knowledge.

91

92 Knowledge transfer is an area of increasing interest to many organizations, particularly those
93 involved in PFI projects. Knowledge sharing is a way to enhance the access to knowledge
94 (Tuan, 2012). Argote, Ingram and Moreland (2000) provided a summary of the various
95 mechanisms available. These include personnel movement, training, communications,
96 observation, technology transfer, and alliances. A number of scholars have also proposed
97 models or frameworks of knowledge transfer (Argote and Ingram, 2000; Szulanski, 2000;

98 Goh, 2002). As such, knowledge sharing levels are indeed not discrete. It is a
99 multidimensional construct that involves a myriad of interactions among members of an
100 organization and partnering organizations.

101

102 Knowledge transfer is a complex phenomenon that in practice is not easy to achieve
103 (Easterby-Smith, Lyles and Tsang, 2008). Even for the relatively simple case of transferring
104 knowledge from one unit to another within the same organization, there are a number of
105 factors that may affect the effectiveness and the outcome of transfer (Szulanski, 1996).
106 Transferring knowledge between organizations brings more complexity because of the
107 multifaceted nature of the boundaries, cultures, and processes involved. It is therefore an
108 interesting domain for further theoretical investigation (Easterby-Smith, Lyles and Tsang,
109 2008).

110

111 **2.2 Knowledge Transfer Problem in PFI Projects**

112 All projects require knowledge transfer, but the need is even more critical for organizations
113 involved or interested in PFI projects, entering into particular areas of the PFI market or
114 expanding their PFI work (Carrillo Robinson, Anumba and Patel, 2009). The main reason for
115 this is that it is a relatively new form of procurement, all parties are new to the process and
116 there is a shortage of expertise in this area. PFI is a costly commitment. Any mistakes made
117 because of lack of current knowledge can be critical for the length of the service period of the
118 contract and induce criticisms. PFI contract form forces the private sector, particularly, the
119 main contractor, to invest more time and capital in the public projects (Zhou, Keivani and
120 Kurul, 2013).

121 Actually in each PFI project, all parties are learning and the PFI process is continuously
122 evolving as seen by the need for professional bodies (Carrillo et al., 2009). Knowledge
123 sharing network in alliances, such as those created to execute PFI projects, raise complex
124 issues such as confidentiality, reliability, copyright, the dissemination of a firm's unique stock
125 of knowledge outside its boundaries, and trade-off between cooperation and competition, or
126 what is referred to as "co-operative" (Levy, Loebbecke and Powell, 2001). The ability to
127 learn is also crucial to effective knowledge transfer, and an organization's absorptive capacity
128 to manage new knowledge depends on prior knowledge and technical capability (Gann,
129 2001). PFI projects designed to operate beyond organizational boundaries could provide a
130 stimulus for knowledge sharing and innovation (Carrillo et al. 2009).

131

132 The considerations on absorptive capacity, know-how, organizational readiness,
133 organizational culture, willingness of sharing knowledge, partner protectiveness, and
134 capability are the specific problems and barriers associated with knowledge transfer activities
135 that are required to be addressed. To have an understanding of knowledge transfer, the
136 analysis for the consequences of organizational knowledge transfer should be on the causal
137 ambiguity and its antecedents including: (1) Tacitness; (2) Asset Specificity; (3) Strategic
138 Similarity; (4) Experience; (5) Expertise; (6) Partner Protectiveness; (7) National Distance; (8)
139 Absorptive Capacity; and (9) Organizational Culture (after Simonin, 1999; Easterby-Smith,
140 Lyles and Tsang, 2008).

141

142 The mutual inter-organizational knowledge transfer between PFI partners has four sets of
143 rational factors proposed by Easterby-Smith, Lyles and Tsang (2008): (1) the resources and
144 capabilities of the donor firm (2) the resources and capabilities of the recipient firm, (3) the
145 nature of knowledge that is being exchanged, and (4) inter-organizational dynamics. This
146 model supplements the uni-dimensional nature of Simonin (1999)'s model by linking up
147 those antecedents with mutual relationship substances.

148

149 **2.3 Knowledge Dissemination Capability of the Donor and the Recipient**

150 There is a degree of symmetry between the characteristics of the donor organization and the
151 recipient organization for two reasons: (1) knowledge transfer takes place in both directions
152 as roles and relationships change through alliances, partners and customer/supplier networks;
153 and (2) the best teachers are often the best learners (Easterby-Smith, Lyles and Tsang, 2008).
154 A key factor in both cases is absorptive capacity, which is the ability to recognize the value of
155 new knowledge and to assimilate and use that knowledge (Cohen and Levinthal, 1990). The
156 recipient firm's absorptive capacity is influenced by its past experiences, expertise and
157 knowledge retention capabilities (Lane and Lubatkin, 1998). Past studies also show that
158 absorptive capacity of both transferring organization and receiving organization depends on
159 their past experience, external knowledge complementarity, diversity and characteristics of
160 external knowledge sources (Zahra & George, 2002; Todorova & Durisin, 2007; Volberda,
161 Foss and Lyles, 2010). Thus, it is insufficient to initiate protocols and standard operating
162 procedures if the sincerity in transferring and receiving the knowledge is inherently lacking in
163 the organization.

164

165 Absorptive capacity and intra-organizational transfer capability are interrelated in the sense
166 that an organization which is good at absorbing external knowledge should also be well
167 equipped for disseminating the knowledge within its own boundaries (Easterby-Smith, Lyles
168 and Tsang, 2008). Even there is an implicit conjecture about the significance of disseminative
169 capacity (Reagan & McEvily, 2003), most researchers have separated absorptive capacity and
170 dissemination capacity in conducting knowledge transfer research, and thus research is silent
171 on the connections and relationships between dissemination capacity and absorptive capacity
172 (Mu, Tang and MacLachlan, 2010). This separation limits the full understanding of
173 knowledge transfer processes and a full appreciation of the roles of knowledge holders in
174 knowledge transfer processes. The relationships among donors' dissemination capacity,
175 receivers' absorptive capacity and network structures when knowledge is transferred in
176 intra-organization networks should be considered as a whole. As such, the term "Knowledge
177 Dissemination Capability" within either the donor or recipient organization is used in this
178 study. Both donor and recipient organization are thus grouped under this category.

179

180 2.3.1 Absorptive Capacity

181 Originally introduced by Cohen and Levinthal (1990), absorptive capacity has emerged as
182 one of the most prominent themes in the literature on organizational knowledge transfer
183 (Easterby-Smith, Lyles and Tsang, 2008). Partners may vary in their absorptive capacity,
184 which is their ability to exploit outside sources of knowledge. The significance of absorptive
185 capacity in the propensity to transfer knowledge across organizational boundaries should be
186 well recognised (Easterby-Smith, Lyles and Tsang, 2008). Efficient knowledge transfer
187 calling for a comprehensive understanding the absorptive capabilities of knowledge recipients
188 and dissemination capabilities of knowledge donors, and other knowledge transfer facilitating
189 and constraining factors (Mu, Tang and MacLachlan, 2010).

190

191 2.3.2 Intra-Organizational Transfer Capability

192 Intra-Organizational Transfer Capability comprises three elements: (1) Asset Specificity, (2)
193 Expertise and (3) Experience, which are related to resources and capabilities of the donor and
194 recipient organizations respectively.

195

196 *Asset specificity* is the extent to which the resources and investments contributed to support a
197 particular transaction, rather than redeployed for the other purposes (McGuinness, 1994).

198 Obviously, such transaction should be of higher value and the units are willing to "tie in" in a
199 two-way or multiple-way relationship. As such, it serves as a test of knowledge retention
200 capabilities within own boundary, which is an important determinant of governance choice
201 (Klein, 1989; Anderson and Coughlam, 1987) that can be acquired over time by
202 learning-by-doing. In the conceptual model of this research, asset specificity is thus
203 considered as a factor to indicate the intra-organizational knowledge transferability relating to
204 the knowledge hoarding against imitation or knowledge internationalisation.

205

206 *Prior experience and expertise* with a given asset or knowledge base for a person acquiring
207 knowledge predetermines the level of familiarity and comfort with both information content
208 and context, and thus favours the transferability of knowledge (Simonin, 1999). Experience
209 and expertise are gained through learning, practising and ultimately becomes an asset. In the
210 context of knowledge transfer between partners, it is assumed that the greater the level of
211 prior experience and expertise of the knowledge seeker with the underlying knowledge
212 domain, the more chance to grasp the asset of the partner in the knowledge transfer process.

213

214 Once knowledge comes into an organization from some external source, the recipient needs
215 to rely on its intra-organizational knowledge transferability to disseminate the knowledge
216 within the organization so that it can be assimilated and utilized. Theoretical analysis and
217 simulation results convince us that absorptive capacity and disseminative capacity either
218 interactively or separately determine how knowledge flows or is transferred effectively and
219 efficiently between members of intra-organization networks (Mu, Tang and MacLachlan,
220 2010). At the same time the donor needs absorptive capacity to appreciate the potential value
221 of knowledge for passing to the recipient, and needs intra-organizational transfer capability if
222 the information is to be made available to the recipient in an efficient manner
223 (Easterby-Smith, Lyles and Tsang, 2008). The absorptive capability and intra-organizational
224 transfer capability of a donor or recipient organization as a whole regard as the knowledge
225 dissemination capability.

226

227 Mu, Tang and MacLachlan (2010) found no formal operationalized research on dissemination
228 capacity that essentially had captured the interactive nature of knowledge transfer. Current
229 research is concentrated on knowledge recipients' absorptive capacity only, whereas
230 knowledge dissemination capacity should also be investigated comprehensively (Mu, Tang
231 and MacLachlan, 2010).

232

233 **2.4 Inter-Organizational Dynamics**

234 As inter-organizational knowledge transfer involves at least two organizations, it is necessary
235 to understand the interactive dynamics between organizations. Four set of rational factors
236 were identified by Easterby-Smith, Lyles and Tsang (2008): power relations, trust and risk,
237 structures and mechanisms, and social ties.

238

239 **2.4.1 Power Relations**

240 Power relations refer to the extent to which people pay attention to the distribution of power
241 or hierarchical positions, and accept the unequal distribution of power (Boh, Nguyen and Xu,
242 2012). The donor and the recipient are often in a situation of power asymmetry, with the
243 donor being in a superior position. In PFI projects, public and private sector organizations are
244 in partnership. Unlike the other strategic alliances in the commercial world, the situation of
245 power asymmetry between the donor and the recipient for PFI partners may be even more
246 complicated. Even though the public sector partner may appear to be in a superior position in
247 each PFI project, there is no proof of this.

248

249 2.4.2 Trust and Risk

250 The donor often perceives a risk of unintended transfer of knowledge that may lead to the
251 erosion of its competitive advantage (Norman, 2002). While the relationship between trust
252 and knowledge transfer has been acknowledged by a number of researchers and is well
253 documented, still there is scant literature that connects it with other knowledge management
254 processes (Sankowska, 2013). Though some researchers see trust as “a global evaluation of
255 an organization’s trustworthiness” (Krot and Lewicka, 2011), Sankowska (2013) regards that
256 the central in the notion of trust is the premise that it leads people to engage in risk taking
257 behaviors such as delegating and knowledge sharing and it causes acceptance of vulnerability
258 linked with them. Generally, knowledge sharing is seen as an activity involving risk
259 connected for knowledge provider with possibility of losing a competitive advantage over
260 other by uncovering valuable knowledge and for knowledge recipient with absorbing
261 knowledge of poor quality potentially conveyed with bad intentions (Sankowska, 2013).

262

263 2.4.3 Structures & Mechanisms

264 The structure of the inter-organizational relationship refers to the context in which knowledge
265 transfer takes place, and the transfer mechanisms which are established within that context.
266 More often than not, organizations have to be in some form of strategic alliance before there
267 is any significant knowledge flow from one to another (Easterby-Smith, Lyles and Tsang,
268 2008). As strategic alliances can be in various forms, ranging from non-equity to equity
269 arrangements, they affect how organizations interact and how knowledge is transferred
270 (Hagedoorn and Narula, 1996).

271

272 Learning organizational culture from others occurs over time and through active participation
273 and interaction in the organization (Leonard and Sensiper, 1998). Actually, organizational
274 culture incompatibilities are the source of distortion in inter-firm learning (Edwards & Kidd,
275 2001; Hofstede, Hofstede and Minkov, 2010). Prior research has found that openness to
276 diversity, an aspect of organizational culture, is an important dimension of organizational
277 culture that affects knowledge sharing and cooperation within the firm (Hartel and Fujimoto,
278 2000; Hobman, Bordia and Gallois, 2004; Mitchell, Nicholas and Boyle, 2009).

279

280 2.4.4 Social Ties

281 Regardless of the structure of the inter-organizational relationship, research suggests that
282 informal or social ties between members of the same organization (Hansen and Lovas, 2004)
283 or different organizations (Bell and Zaheer, 2007) are superior conduits for knowledge flow
284 between geographically distant locations (Easterby-Smith, Lyles and Tsang, 2008). Such ties
285 probably also help to alleviate the cultural differences, whether national or organizational,
286 which may exist between organizations. National distance usually refers to cultural distance.
287 The possibly damaging effects due to the various facets of collaboration including
288 communication barriers, work routines, managerial approaches, and cultural differences have
289 been well documented in the literature (Simonin, 1999; Mjoen and Tallman, 1997; Parkhe,
290 1991). Furthermore, upon the inception of the alliance, the partner’s national cultures have
291 the potential to affect in depth all aspects of collaboration, including the process of
292 knowledge management (Tiemessen, Lane, Crossan and Inkpen, 1997). Less cultural distance
293 can help managers to communicate well, to manage conflict effectively and to avoid mutual
294 misunderstandings (Khamseh and Jolly, 2014). Reducing cultural distance can improve
295 inter-firm communication and unity of alliance direction (Khamseh and Jolly, 2014).

296

297 **2.5 Moderating Effects in Knowledge Transfer**

298 A moderating variable is a factor that is positioned between the independent variable and
 299 dependent variable. The previously hypothesised relationships between the donor
 300 organization and the recipient organization are likely to be moderated by two variables: (1)
 301 collaborative know-how, and (2) partnership duration.

302

303 2.5.1 Collaborative Know-How and Knowledge Transfer

304 Simonin (1997) empirically demonstrated that past experience leads to the emergence of a
 305 distinct form of collaborative know-how that helps achieve greater benefits in subsequent
 306 alliances. In a significant way, this collaborative know-how affects the ability of firms to
 307 understand and adopt proper procedures for information gathering, interpretation, and
 308 diffusion (Simonin, 1999). Such understanding favours knowledge transfer and absorption by
 309 eliminating many of the unnecessary tasks and disruptive noise of cooperation. Lack of
 310 collaborative experience may lead to alliance problems and failures (Lei and Slocum, 1992).

311

312 2.5.2 Partnership Duration and Knowledge Transfer

313 As the partnership sustains itself over the years, trust intensifies and attachment between
 314 partners develops (Inkpen and Beamish, 1997). Trust facilitates frequency and quality of
 315 communication between parties (Sankowska, 2013). With higher level of trust, an individual
 316 is more likely to mobilize informational resources and perform better (De Jong and Elfring,
 317 2010) with respect to generating new knowledge. It is thus expected to moderate the
 318 relationship hypothesized in the model. The partners become more familiar with each other's
 319 expertise and idiosyncrasies as time goes by (Simonin, 1999).

320

321 2.6 Hypotheses Development

322 The conceptual model for this research was derived from models developed by: Simonin
 323 (1999), Grant (1996), Argote, McEvily and Reagans (2003), and Easterby-Smith, Lyles and
 324 Tsang (2008). The hypotheses were consequently derived as follows.

325

326 **Hypothesis H1 Absorptive Capacity is positively related to Intra-Organizational 327 Transfer.**

328 Partners may vary in their absorptive capacity, which are their ability to exploit outside
 329 sources of knowledge. *Intra-Organizational Transfer Capability*, which is "Asset Specificity",
 330 "Expertise" and "Experience". Asset Specificity is the extent to which investments support a
 331 particular transaction, rather than redeployed for other purposes (McGuinness, 1994). Such
 332 transactions should be of high value and the units willing to tie into a two-way or
 333 multiple-way relationship. Expertise and Experience are gained through learning, and
 334 practicing; richer experience can facilitate knowledge transfer.

335

336 **Hypothesis H2 The relationship between Absorptive Capacity and 337 Intra-Organizational Transfer Capability is moderated by 338 Inter-Organizational Dynamics.**

339 This hypothesis reveals whether higher inter-organizational dynamics can facilitate
 340 knowledge absorption and dissemination within donor and recipient organizations.

341

342 **Hypothesis H3 Knowledge Dissemination Capability is positively related to 343 Knowledge Transfer.**

344 *Knowledge Dissemination Capability* has the four dimensions of "Absorptive Capacity",
 345 "Asset Specificity", "Expertise" and "Experience", in which "Asset Specificity", "Expertise"
 346 and "Experience" refer to "Intra-Organizational Transfer Capability".

347

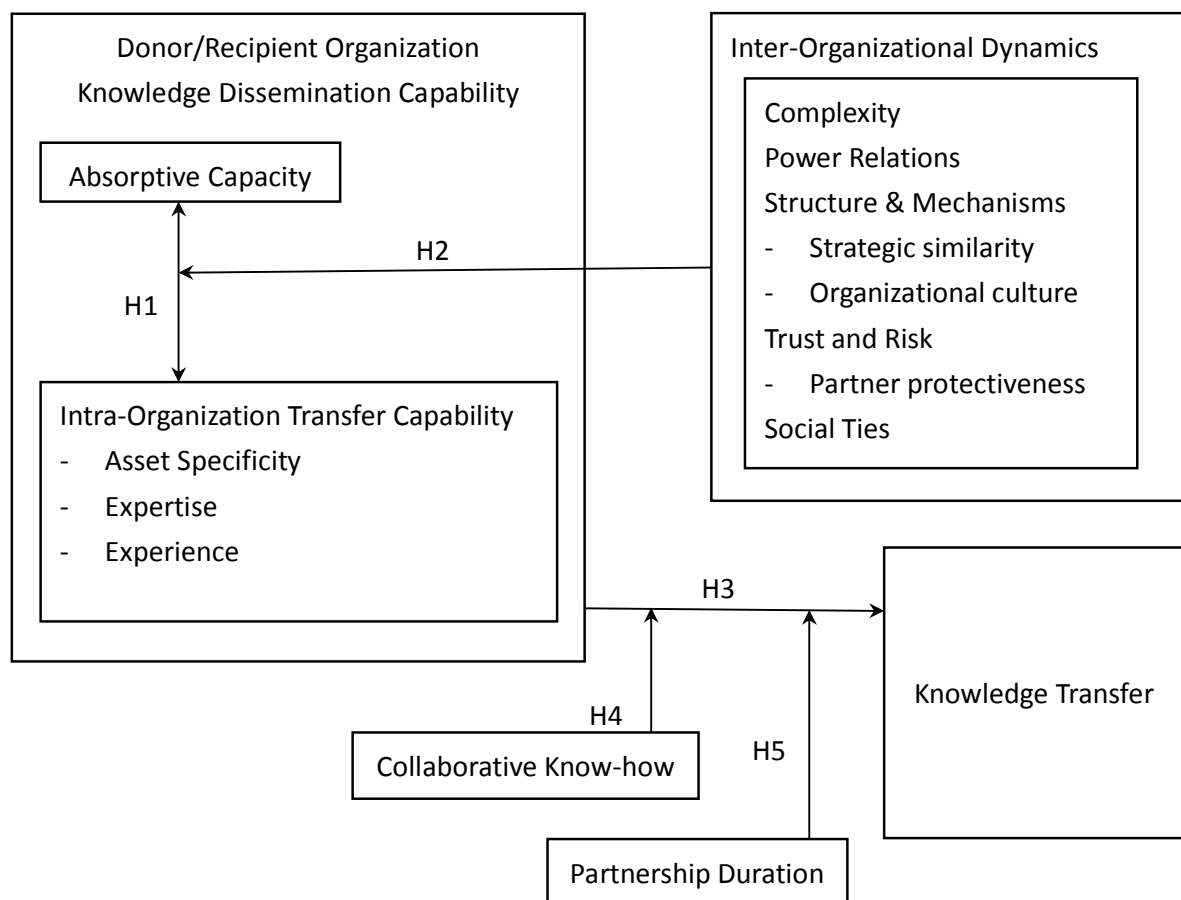
348 **Hypothesis H4 The influence of Knowledge Dissemination Capability on Knowledge**
 349 **Transfer is moderated by Collective Know-How.**

350 Lack of collaborative experience may lead to alliance problems and failures (Lei and Slocum,
 351 1992). Collaborative know-how thus helps to adopt proper procedures for information
 352 gathering, interpretation and diffusion (Simonin, 1999).

354 **Hypothesis H5 The influence of Knowledge Dissemination Capability on Knowledge**
 355 **Transfer is moderated by Partnership Duration.**

356 As the partnership sustains itself over the years, trust intensifies and attachment between
 357 partners develops (Inkpen and Beamish, 1997). It was thus expected to moderate the
 358 relationship hypothesized in the model.

359
 360 The conceptual framework of this research is shown in Figure 1.



389 Figure 1 Conceptual Model

390 **3. Methodology**

391 **3.1 Sample and Collection of Data**

392 Simple random sampling approach was used in this research. A total of 2,000 copies of the
 393 questionnaire were sent to members of the professional bodies sampled from the six major
 394 professional institutions in Hong Kong construction and real estate industry. A total of 602
 395 valid responses were received, representing a 30% response rate. The main data collection
 396 instrument of this research was an anonymous questionnaire. To procure consent from
 397 participants, an invitation letter was sent to members of the professional bodies. Detailed

398 information about this research, the research objectives, and the eligibility of participants
 399 were included in the invitation letter. Participation was on an entirely voluntary basis and the
 400 questionnaire did not require participants to divulge personal details. A participant
 401 information sheet was attached to each questionnaire explaining the purpose of the research
 402 and assuring the confidentiality of collected data. Instructions were provided to guide correct
 403 completion of the questionnaire, and the contact details of the researcher were also provided
 404 in case participants required more information about the survey. The information sheet and
 405 questionnaire were prepared both in English and Chinese.

406

407 3.2 Questionnaire Design

408 All questionnaire items, with minor modification of the terms, were basically adopted from a
 409 peer-reviewed study (Simonin, 1999) published in the Strategic Management Journal. For
 410 questions on “knowledge transfer, absorptive capacity, collaborative know-how and
 411 partnership duration”, they followed the categories as illustrated by Simonin (1999). For the
 412 “Strategic Similarity, Organizational Culture, Partner Protectiveness, Social Ties”, they were
 413 grouped under the “Complexity (Inter-Organizational Dynamics)”. Similarly, for “Asset
 414 Specificity, Expertise, Experience”, they were grouped under the “Intra-Organizational
 415 Transfer Capability”. Demographic data were collected in order to identify the background
 416 information of respondents and their enterprises.

417

418 3.3 Data Analysis

419 Pearson product moment correlation, single linear regression and multiple linear regression
 420 were used to formulate several models that link the dependent, independent and moderating
 421 factors in testing the five hypotheses with 95% confidence interval.

422

423 4. Results and Analysis

424 4.1 Demographic Profile of Respondents

425 The following Table 1 outlines the key demographic information of the respondents to the
 426 questionnaire survey.

427

Table 1 Profile of 602 Respondents

| | Frequency | Percentage |
|--|-----------|------------|
| Employment Sector | | |
| Government | 296 | 49.2% |
| Private | 306 | 50.8% |
| Professional Affiliation | | |
| HKIE | 171 | 28.4% |
| ICES | 147 | 24.4% |
| HKIA | 112 | 18.6% |
| HKIS | 107 | 17.8% |
| HKIP or HKILA | 65 | 10.8% |
| Years of PFI Partnership Experience | | |
| 1 | 27 | 4.5% |
| 2 | 61 | 10.1% |
| 3 | 50 | 8.3% |
| 4 | 47 | 7.8% |
| 5 | 55 | 9.1% |
| 6 | 46 | 7.6% |
| 7 | 66 | 11.0% |

| | | |
|-----------|----|-------|
| 8 | 51 | 8.5% |
| 9 | 58 | 9.6% |
| 10 | 70 | 11.6% |
| 11 | 60 | 10.0% |
| 12 | 4 | 0.7% |
| 13 | 2 | 0.3% |
| 14 | 1 | 0.2% |
| 15 | 1 | 0.2% |
| 16 | 2 | 0.3% |
| 18 | 1 | 0.2% |

428

429 **4.2 Hypotheses Testing**

430 The questionnaire items were adapted from a peer-reviewed study (Simonin, 1999) published
 431 in the Strategic Management Journal. Hence, it is reasonable to assume that the questionnaire
 432 items had been evaluated and validated by the original author with satisfactory level of
 433 reliability and validity. The correlation between “Absorptive Capacity” and
 434 “Intra-Organizational Transfer Capability” is examined. The related hypothesis is:

435

436 **Hypothesis H1: Absorptive Capacity is positively related to Intra-Organizational**
 437 **Transfer Capability**

438 The Pearson correlation results in Table 2 above show that the correlation between
 439 “Absorptive Capacity” and “Intra-Organizational Transfer Capability” is weak and
 440 insignificant ($R = 0.033$, $p = 0.425$). Therefore, H1 is rejected.

441

442 Table 2 Correlations between Absorptive Capacity and Intra-Organizational Transfer
 443 Capability (H1)

| | | Absorptive Capacity | Intra-Organizational Transfer Capability |
|---|---------------------|------------------------|---|
| Absorptive Capacity | Pearson Correlation | 1 | 0.033 |
| | Sig. (2-tailed) | | 0.425 |
| | N | 602 | 602 |
| Intra-Organizational Transfer Capability | Pearson Correlation | 0.033 | 1 |
| | Sig. (2-tailed) | 0.425 | |
| | N | 602 | 602 |

444

445 **Hypothesis H2: The relationship between Absorptive Capacity and**
 446 **Intra-Organizational Transfer Capability is moderated by**
 447 **Inter-Organizational Dynamics.**

448 As Power Relations is a binary variable (either Government Employees or Private Sector
 449 Employees), a dummy variable named “Government Employee” is created and coded as 1 if
 450 the respondent is a government employee and 0 if the respondent is a private sector employee.
 451 The interaction term between the dummy variable of “Government Employee” and
 452 independent variable of “Intra-Organizational Transfer Capability” was computed using the
 453 compute command in SPSS.

454

455 Table 3 below shows the regression analysis results using the Baron and Kenny (1986)
 456 approach to test the moderating effect of “Inter-Organizational Dynamic” on the relationship
 457 between “Knowledge Dissemination Capability” and “Knowledge Transfer”.

458

459 As indicated in the three models shown in Table 3, there is a weak and insignificant total
 460 effect of “Intra-Organizational Transfer Capability” on “Absorptive Capacity” (adjusted
 461 $R^2=-0.01$, $p>0.05$) in model 1, and model 2 shows an insignificant increase in R-square when
 462 the latent variables of “Organizational Culture”, “Social Ties”, “Partner Protection” and
 463 “Strategic Similarity” and the dummy variable of “Government Employees” are added
 464 (adjusted $R^2=0.01$, $p>0.05$). In model 3, when the interaction terms of “Intra-Organizational
 465 Transfer Capability * Organizational Culture” (ITCxORC), “Intra-Organizational Transfer
 466 Capability * Social Ties” (ITCxSCT), “Intra-Organizational Transfer Capability * Partner
 467 Protection” (ITCxPPR), “Intra-Organizational Transfer Capability * Strategic Similarity”
 468 (ITCxSSM) and “Intra-Organizational Transfer Capability * Government Employees”
 469 (ITCxG) are added, the explanation power of the model increases insignificantly (adjusted
 470 $R^2=-0.01$ with R square changed= 0.006 , $p>0.05$), indicating that the interaction term does
 471 not contribute to the increment in explaining the variance in “Knowledge Transfer”.
 472 Therefore, Hypothesis H2 is rejected.

473

474

Table 3 Model Summary for H2/Model Summary (d)

| Model | R | R Square | Adjusted R Square | Change Statistics | | | | |
|-------|----------|----------|-------------------|-------------------|----------|-----|-----|---------------|
| | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | 0.033(a) | 0.001 | -0.001 | 0.001 | 0.637 | 1 | 600 | 0.425 |
| 2 | 0.106(b) | 0.011 | 0.001 | 0.010 | 1.237 | 5 | 595 | 0.290 |
| 3 | 0.130(c) | 0.017 | -0.001 | 0.006 | 0.679 | 5 | 590 | 0.639 |

475

a Predictors: (Constant), Intra-Organizational Transfer Capability

476

b Predictors: (Constant), Intra-Organizational Transfer Capability, Organizational Culture, Social Ties, Partner Protection, Strategic Similarity, Government Employees

477

478

c Predictors: (Constant), Intra-Organizational Transfer Capability, Organizational Culture, Social Ties, Partner Protection, Strategic Similarity, Government Employees, ITCxG, ITCxORC, ITCxSCT, ITCxPPR, ITCxSSM

479

480

Dependent Variable: Absorptive Capacity

481

482

483

Hypothesis H3: Knowledge Dissemination Capability is positively related to Knowledge Transfer

484

485

486 The linear regression test results in Table 4 and Table 5 reveal that “Knowledge
 487 Dissemination Capability” of knowledge has a significantly positive impact on “Knowledge
 488 Transfer” (Standardized beta = 0.555, $p < 0.05$). In other words, “Knowledge Dissemination
 489 Capability” enables “Knowledge Transfer”. “Knowledge Dissemination Capability” explains
 490 30.6% (Adjusted $R^2 = 0.306$) of the variation in “Knowledge Transfer”. Therefore,
 491 Hypothesis H3 is supported.

492

Table 4 Model Summary: Influence of Knowledge Dissemination Capability on Knowledge Transfer (H3)/Model Summary (b)

493

494

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|----------|----------|-------------------|----------------------------|
| 1 | 0.555(a) | 0.308 | 0.306 | 0.72548 |

495

a Predictors: (Constant), Knowledge Dissemination Capability

496

Dependent Variable: Knowledge Transfer

497

498

499
500

Table 5 Coefficients: Influence of Knowledge Dissemination Capability on Knowledge Transfer (H3)/Coefficients (a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------------------------------|-----------------------------|------------|---------------------------|--------|-------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -0.973 | 0.272 | | -3.576 | 0.000 |
| | Knowledge Dissemination Capability | 1.424 | 0.087 | 0.555 | 16.325 | 0.000 |

501 Dependent Variable: Knowledge Transfer

502

503 **Hypothesis H4: The influence of Knowledge Dissemination Capability on Knowledge**
504 **Transfer is moderated by Collaborative Know-How.**

505 A moderating variable is a factor that is positioned between the independent variable and
506 dependent variable. A multiple regression was used to test the moderating effect on the two
507 variables. Table 6 shows the regression analysis results using the Baron and Kenny (1986)
508 approach to test the moderating effect of “Collaborative Know-How” on the relationship
509 between “Knowledge Dissemination Capability” and “Knowledge Transfer”.

510 As indicated in the three models shown in Table 6, there is a significant total effect of
511 “Knowledge Dissemination Capability” on “Knowledge Transfer” (adjusted $R^2=0.306$,
512 $p<0.05$) in model 1, and model 2 shows a significant increase in R-square when
513 “Collaborative Know-How” is added (change of $R^2 = 0.026$, $p<0.05$). In model 3, when the
514 interaction term (KDCxCKH) is added, the explanation power of the model does not increase,
515 indicating that the interaction term does not contribute to the increment in explaining the
516 variance in “Knowledge Transfer”. Therefore, Hypothesis H4 is rejected.

517

518

Table 6 Model Summary for H4/Model Summary (d)

| Model | R | R Square | Adjusted R Square | Change Statistics | | | | |
|-------|----------|----------|-------------------|-------------------|----------|-----|-----|---------------|
| | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | 0.555(a) | 0.308 | 0.306 | 0.308 | 266.493 | 1 | 600 | 0.000 |
| 2 | 0.578(b) | 0.334 | 0.332 | 0.026 | 23.735 | 1 | 599 | 0.000 |
| 3 | 0.578(c) | 0.334 | 0.331 | 0.000 | 0.000 | 1 | 598 | 0.986 |

519 a Predictors: (Constant), Knowledge Dissemination Capability

520 b Predictors: (Constant), Knowledge Dissemination Capability, Collaborative Know-how

521 c Predictors: (Constant), Knowledge Dissemination Capability, Collaborative Know-how,
522 KDCxCKH

523 Dependent Variable: Knowledge Transfer

524

525 **Hypothesis H5: The influence of Knowledge Dissemination Capability on Knowledge**
526 **Transfer is moderated by Partnership Duration.**

527 Table 7 below shows the regression analysis results using the Baron and Kenny (1986)
528 approach to test the moderating effect of “Partnership Duration” on the relationship between
529 “Knowledge Dissemination Capability” and “Knowledge Transfer”.

530 As indicated in the three models shown in Table 7, there is a significant total effect of
531 “Knowledge Dissemination Capability” on “Knowledge Transfer” (adjusted $R^2=0.306$,
532 $p<0.05$) in model 1, and model 2 shows an insignificant increase in R-square when
533 “Partnership Duration” is added (change of $R^2 = 0.001$, $p>0.05$). In model 3, when the
534 interaction term (KDCxPND) is added, the explanation power of the model increases

535 insignificantly (change of $R^2 = 0.001$, $p > 0.05$), indicating that the interaction term does not
 536 contribute to the increment in explaining the variance in “Knowledge Transfer”. Therefore,
 537 Hypothesis H5 is rejected.

538
 539

Table 7 Model Summary for H5/Model Summary

| Model | R | R Square | Adjusted R Square | Change Statistics | | | | |
|-------|----------|----------|-------------------|-------------------|----------|-----|-----|---------------|
| | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | 0.555(a) | 0.308 | 0.306 | 0.308 | 266.493 | 1 | 600 | 0.000 |
| 2 | 0.556(b) | 0.309 | 0.307 | 0.001 | 1.130 | 1 | 599 | 0.288 |
| 3 | 0.557(c) | 0.310 | 0.306 | 0.001 | 0.770 | 1 | 598 | 0.380 |

540 a Predictors: (Constant), Knowledge Dissemination Capability
 541 b Predictors: (Constant), Knowledge Dissemination Capability, Partnership Duration
 542 c Predictors: (Constant), Knowledge Dissemination Capability, Partnership Duration,
 543 KDCxPND
 544 Dependent Variable: Knowledge Transfer
 545

546 **5. Discussion**

547 This research illustrated nearly no effect of absorptive capacity on intra-organizational
 548 transfer capability and also revealed that inter-organizational dynamics cannot facilitate
 549 knowledge absorption and dissemination within donor and recipient organizations. The
 550 interactions among all items are insignificant. It has been shown that even if greater resources
 551 are allocated to learning from partners dedicated to facilitating knowledge absorption, there is
 552 still a minimal effect on knowledge dissemination within organizations. It is understandable
 553 that since PFI projects are still new and all participants are on a learning curve. Both
 554 experiences and expertise have to be accumulated for better transfer and dissemination within
 555 organizations. Absorptive capacity theory also suggests that prior knowledge acquired from
 556 this specific teacher should also be important to understanding knowledge (Lane, Salk, and
 557 Lyles, 2001). For this research, prior acquired knowledge seems weakly associated with
 558 current learning. It still needs time for partners in PFI projects to develop the learning path.
 559

560 The results of the correlation between the knowledge dissemination capability of
 561 donor/recipient organizations and knowledge transfer in PFI projects indicate that the positive
 562 effect of knowledge dissemination capability on knowledge transfer is significant amongst
 563 PFI partners. Asset specificity is the extent to which investments support a particular
 564 transaction, rather than be redeployed for the other purposes (McGuinness, 1994). It is not
 565 only an important determinant of governance choice (Klein, 1989; Anderson and Coughlam,
 566 1987) that can be acquired over time by learning-by-doing, but it is also a source of
 567 ambiguity (Simonin, 1999). This research supported the positive correlation between
 568 knowledge transfer and knowledge dissemination capability, including asset specificity as a
 569 dimension. Therefore, knowledge transfer is likely to interact with asset specificity in PFI
 570 projects.
 571

572 The results of this research found a weak effect of collaborative know-how and partnership
 573 duration on knowledge transfer in PFI projects. The special nature of PFI projects as a new
 574 approach may explain this finding. This research provides a further understanding of the
 575 process of knowledge transfer between public and private sector organizations. Through a
 576 study of PFI projects, this study provides a new dimension of knowledge transfer in the field
 577 of knowledge management. The effects of causal ambiguity and its antecedents on the

578 process of knowledge transfer between strategic alliance and joint venture partners in the
579 private sector have been illustrated by various studies. The conceptual model for this research
580 was derived from the models developed by: Simonin (1999), Grant (1996), Argote, McEvily
581 and Reagans (2003), and Easterby-Smith, Lyles and Tsang (2008). Making use of the
582 antecedents, the mutual inter-organizational knowledge transfer between PFI partners was
583 mapped using four sets of rational factors: (1) the resources and capabilities of the donor firm
584 (2) the resources and capabilities of the recipient firm, (3) the nature of knowledge that is
585 being exchanged, and (4) inter-organizational dynamics (Easterby-Smith, Lyles and Tsang,
586 2008).

587
588 The important implications for business practices emerging from this research concerns the
589 relative importance of various antecedents and four sets of rational factors: (1) the resources
590 and capabilities of the donor firm (2) the resources and capabilities of the recipient firm, (3)
591 the nature of knowledge that is being exchanged, and (4) inter-organizational dynamics
592 (Easterby-Smith, Lyles and Tsang, 2008). Partners in PFI projects seeking to change the
593 extent of knowledge transfer need to focus particularly on developing strong and trustworthy
594 relations, especially within organizational boundaries. As such, relations that foster close
595 cooperation are also likely to support knowledge transfer both at the intra-organizational and
596 inter-organizational levels.

597

598 **6. Limitations and Recommendations**

599 First, the research used a self-completed questionnaire survey. Although every effort was
600 made to ensure that the questionnaire was written properly, the meaning of the questions and
601 terms such as ‘partnership duration’ and ‘experience’ were subject to the respondents’
602 interpretations. A face-to-face interview approach may be better for future research so that the
603 questions can be consistently explained and respondents have the opportunity to ask for
604 clarification of terms if necessary. Second, although questionnaires were distributed through
605 professional bodies and the invitation letter made it clear who the participants of the survey
606 should be, the actual respondents might have been selected based on the recipients’ own
607 criteria. Finally, the major limitation of Baron and Kenny’s (1986) approach for moderation
608 evaluation is that it is based on a set of linear regressions and cannot be easily extended to
609 more complex situations that are frequently encountered in applied research (Green, Ha and
610 Bullock, 2010). To cite this study as an illustration, knowledge transfer actually is a complex
611 construct with multiple dimensions, so examinations of other classifications, such as different
612 natures of knowledge transfer or different stages of the transfer process, might extend the
613 findings beyond just using the linear regression approach. SEM is an alternative analysis tool
614 for performing modulating tests on multiple dimensions simultaneously. However, it was not
615 used in this research because it is very complicated if used for a conceptual framework with
616 multiple moderators, and it is only worth using to minimize the limitation of linear
617 regressions.

618

619 Given the insignificant moderating effect on knowledge transfer in PFI, the roles of
620 partnership duration and collaborative know-how needs to be studied again in the future.
621 Owing to the inconsistencies when compared to that of previous studies, this finding rests on
622 the necessity for future research to trace more closely and accurately the evolution of
623 awareness and adaptation of partners over the course of the PFI partnership. In turn, it
624 underlines the need to formally account for these two constructs in the future research.

625

626 In addition, given that research results are based on PFI projects in Hong Kong, it is
627 recommended that similar studies be carried out in other countries.

628 **7. Conclusion**

629 With regard to the “Knowledge Dissemination Capability”, there is nearly no relationship
 630 between absorptive capacity and intra-organizational transfer capability within the donor and
 631 recipient organizations in PFI projects. It appears that although knowledge is absorbed, it
 632 takes time to retain the knowledge within the donor and recipient organizations in PFI
 633 projects upon accumulation of experience and expertise. Together with the insights from this
 634 study that the effectiveness of inter-organization dynamics is positively related to
 635 organizational knowledge transfer, PFI partners need to carefully balance absorptive capacity
 636 and intra-organizational transfer capability, since the inter-organization dynamics cannot
 637 facilitate the knowledge dissemination within donor/recipient organizations.

638
 639 This research found a weak effect on collaborative know-how and partnership duration
 640 towards knowledge transfer in PFI projects. The special nature of PFI projects as a new
 641 approach with a short history also explains these findings. Whereas the age of organizations
 642 does not influence knowledge transfer, older units, e.g. public sector organizations, appear to
 643 experience difficulties transferring knowledge within organizations that requires further
 644 investigation.

645
 646 This research represents a step towards quantitatively summarizing the empirical literature
 647 related to organizational knowledge transfer in PFI projects. It is highly likely that the
 648 number of studies investigating organizational knowledge transfer in the context of PFI will
 649 increase. There is clearly a need for additional theoretical and methodological development
 650 of the organizational knowledge transfer constructs for public and private sector
 651 organizations when it comes to partnerships. It is hoped that the results of this study will
 652 encourage additional research into how organizations may successfully acquire and transfer
 653 knowledge in order to enhance the performance of public projects for the benefit of all
 654 stakeholders, including the community at large. As such, the seminal work of Polanyi (1967)
 655 remains timely and fundamental to understanding the flow of knowledge transfer between
 656 partners of PFI projects, particularly when active knowledge sharing is an objective shared by
 657 PFI partners.

658
 659 **References**

660 Anderson E, Coughlan A (1987). International market entry and expansion via independent
 661 or integrated channels of distribution. *Journal of Marketing* 51:71-82.

662
 663 Argote L, McEvily B, Reagans R (2003). Managing knowledge in organizations: an
 664 integrative framework and review of emerging themes. *Management Science*. 49(4):571-582.

665
 666 Baron RM, Kenny DA (1986). The Moderator-Mediator Variable Distinction in Social
 667 Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of*
 668 *Personality and Social Psychology*. 51(6):1173-1182.

669
 670 Baum JAC, Ingram P (1998). Survival-enhancing learning in the Manhattan hotel industry
 671 1898 – 1980. *Management Science*. 44(7):996-1016.

672
 673 Bell G, Zaheer A (2007). Geography, networks, and knowledge flow. *Organization Science*.
 674 18(6):955–972.

675
 676 Boh WF, Nguyen TT, Xu Y (2012). Knowledge transfer across dissimilar cultures, *Journal of*
 677 *Knowledge Management*. 17(1):29–46.

- 678 Carrillo PM, Robinson HS, Anumba CJ, Bouchlaghem NM (2006). A knowledge transfer
679 framework: the PFI context. *Construction Management and Economics*. 24(10): 1045-1056.
680
- 681 Carrillo PM, Robinson HS, Anumba CJ, Patel M (2009). *Governance & Knowledge
682 Management for Public-Private Partnerships*, Wiley, John & Sons: Oxford.
683
- 684 Cohen WM, Levinthal DA (1990). Absorptive capacity: A new perspective on learning and
685 innovation', *Administrative Science Quarterly*. 35(1):128–152.
686
- 687 Darr E, Argote L, Epple D (1995). The acquisition, transfer and depreciation of knowledge in
688 services organisations: Productivity in franchises. *Management Science*. 41(11):1750-1762.
689
- 690 De Jong, BA, Elfring T (2010). How does trust affect the performance of ongoing teams?
691 Mediating role of reflexivity, monitoring, and effort. *Academy of Management Journal*, 53(3):
692 535-49.
693
- 694 Easterby-Smith M, Lyles AM, Tsang EWK (2008). Inter-organizational knowledge transfer:
695 current themes and future prospects. *Journal of Management Studies*. 45(4):677-690.
696
- 697 Edwards JS, Kidd JB (2001). Knowledge management when 'the times they are a-changing,
698 In *Proceedings of the ECKM 2001 Conference* (Remenyi D, Ed), 171–183, Second European
699 Conference on Knowledge Management; Bled, Slovenia, 5–6 November.
700
- 701 Gann D (2001). Putting academic ideas into practice: technological progress and the
702 absorptive capacity of construction organisations. *Construction Management and Economics*.
703 19(3):321-330.
704
- 705 Grant RM (1996). Toward a knowledge-based theory of the firm. *Strategic Management
706 Journal*. 17(S2):109-122.
707
- 708 Green DP, Ha SE, Bullock JG (2010). Enough Already about “Black Box” Experiments:
709 Studying Mediation Is More Difficult than Most Scholars Suppose. *The Annals of the
710 American Academy of Political and Social Science*. 628(1):200–2008.
711
- 712 Greve, H R (1999). Branch systems and nonlocal learning in populations. In A. Miner
713 & P. Anderson (Eds.). *Advances in Strategic Management* 57-80. Greenwich, CT: JAI Press.
714
- 715 Gupta AK, Govindarajan V (2000). Knowledge flows within multinational corporations.
716 *Strategic Management Journal*. 21(4):473–496.
717
- 718 Hagedoorn J, Narula R (1996) Choosing organizational modes of strategic technology
719 partnering: international and sectoral differences. *Journal of International Business Studies*
720 27(2):265–284.
721
- 722 Hansen M, Lovas B (2004). How do multinational companies leverage technological
723 competencies? Moving from sing to interdependent explanations. *Strategic Management
724 Journal*, 25(8-9), pp. 801–822.
725
- 726 Hartel CEJ, Fujimoto Y (2000). Diversity is not the problem - openness to perceived
727 dissimilarity is. *Journal of Management & Organization*. 6(1):14-27.

- 728
729 Hobman EV, Bordia P, Gallois C (2004). Perceived dissimilarity and work group
730 involvement. *Group & Organization Management*. 29(5):560-587.
731
732 Hofstede G, Hofstede GJ, Minkov M (2010). *Cultures and Organizations: Software of the*
733 *Mind* (3rd ed). McGraw-Hill, New York.
734
735 Ingram P, Simons T (1999). The exchange of experience in a moral economy: Embedded ties
736 and vicarious learning in Kibbutz agriculture. *Academy of Management Proceedings*.
737
738 Inkpen AC, Beamish PW (1997). Knowledge, bargaining power, and the instability of
739 international joint ventures. *Academy of Management Review*. 22(1):177-202.
740
741 Jansen JJP, Van den Bosch FAJ, Volberda HW (2005). Managing potential and realized
742 absorptive capacity: how do organizational antecedents matter? *Academy of Management*
743 *Journal*. 48(6):999–1015.
744
745 Kettl D (1993). *Sharing Power. Public Governance of Private Markets*. Washington, D.C.,
746 Brookings.
747
748 Khamseh HM, Jolly D (2014). Knowledge transfer in alliances: the moderating role of the
749 alliance type. *Knowledge Management Research and Practice*. 12(4):1-12.
750
751 Klein S (1989). A transaction cost explanation of vertical control in international markets.
752 *Journal of the Academy of Marketing Science*. 17(3):253-260.
753
754 Krot K, Lewicka D (2011). Innovation and organisational trust: study of firms in Poland.
755 *International Journal of Innovation and Learning*. 10(1):43-59.
756
757 Lane PJ, Salk JE, Lyles MA (2001). Absorptive capacity, learning, and performance in
758 international joint ventures. *Strategic Management Journal*. 22(12):1139–1161.
759
760 Lane PJ, Lubatkin M (1998). Relative absorptive capacity and interorganizational learning.
761 *Strategic Management Journal*. 19:461–477.
762
763 Lei D, Slocum JW (1992). Global strategy, competence-building and strategic alliances.
764 *California Management Review*. 35(1):81-97.
765
766 Leonard-Barton D, Sensiper S (1998). The role of tacit knowledge in group innovation.
767 *California Management Review*. 40(3):112-132.
768
769 Levy M, Loebbecke C, Powell P (2001). SMEs, Co-Opetition and Knowledge Sharing: The
770 IS Role. *Global Co-operation in the New Millennium*. 9th European Conference on
771 Information Systems. Bled, Slovenia.
772
773 McGuinness T (1994). *Markets and managerial hierarchies*. Thompson, G. *Markets,*
774 *Hierarchies and Networks*. Sage:London.
775
776 Mitchell R, Nicholas S, Boyle B (2009). The role of openness to cognitive diversity and
777 group processes in knowledge creation. *Small Group Research*. 40(5):535-554.

- 778
779 Mu J, Tang F, MacLachlan DF (2010). Absorptive and disseminative capacity: Knowledge
780 transfer in intra-organization networks. *Expert Systems with Applications*. 37(1):31–38.
781
782 Nagle JF (1992). *A history of government contracting*, Washington, DC: George Washington
783 University Press.
784
785 Nonaka I, Takeuchi H (1995) *The Knowledge-Creating Company*, Oxford: Oxford
786 University Press.
787
788 Norman PM (2002). Protecting knowledge in strategic alliances: resource and relational
789 characteristics. *Journal of High Technology Management Research*. 13(2):177–202.
790
791 Parkhe A (1991). Interfirm diversity, organisational learning and longevity in global strategic
792 alliances. *Journal of International Business Studies*. 22(4):579-601.
793
794 Reagan R, McEvily B (2003). Network structure and knowledge transfer: The effects of
795 cohesion and range. *Administrative Science Quarterly*. 48:240–267.
796
797 Salamon LM (2002). *The Tools of Government: A Guide to the New Governance*. Oxford:
798 Oxford University Press.
799
800 Simonin BL (1999). Ambiguity and the process of knowledge transfer in strategic alliances.
801 *Strategic Management Journal*. 20(7):565-623.
802
803 Simonin BL (1997). The Importance of Collaborative Know-How: An Empirical Test of the
804 Learning Organization. *The Academy of Management Journal*. 40(5):1150-1174.
805
806 Soberg PV (2012). Activity specific knowledge characteristics in the internationalization
807 process. *Baltic Journal of Management*. 7(3):251-267.
808
809 Tiemessen I, Lane HW, Crossan MM, Inkpen AC (1997). Knowledge management in
810 international joint ventures. *Cooperative Strategies, North American Perspectives*.
811
812 Todovora G, Durisin B (2007). Absorptive capacity: valuing a reconceptualization. *Academy of Management Journal*. 32(3):774–786.
813
814 Tsai, W. (2001). Knowledge transfer in intra-organizational networks: effects of network
815 position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*. 44:996–1004.
816
817
818
819 Volberda HW, Foss NJ, Lyles MA (2010). Absorbing the concept of absorptive capacity:
820 how to realize its potential in the organization field. *Organization Science*. 21(4):931–951.
821
822 Wijk R, Jansen JJP, Lyles MA (2008). Inter- and Intra-organizational knowledge transfer: A
823 meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies*. 45(4):677-690.
824
825
826 Young HK, Chih YY, Ibbs CW (2009). *Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development*. *California Management Review*.
827

828 51(2):51-78.

829

830 Zahra SA, George G (2002). Absorptive capacity: a review, reconceptualization, and
831 extension. *Academy of Management Review*. 27(2):185–203.

832

833 Zhou L, Keivani R, Kurul E (2013). Sustainability performance measurement framework for
834 PFI projects in the UK. *Journal of Financial Management of Property and Construction*.
835 18(3):232-250.

836

837

838