Managing Knowledge Transfer in Offshore Software Development: The Role of Copresent and ICT-Based Interaction

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ABSTRACT

The aim of this article is to examine the role of copresent interaction and the extent to which this can be supplemented by information and communication technology-based interaction for managing knowledge transfer in distributed settings. This study draws on two case studies of small UK firms sourcing software development from India and Bangladesh. Using Nonaka and Konno’s knowledge creation theory, the role of copresent and ICT-based interactions in managing knowledge transfer is explained. The article contributes an extension of the concepts of knowledge creation theory by providing evidence of the role of copresent and ICT-based interaction for knowledge transfer in the context of offshore software development.

Keywords: Bangladesh, ICTs, Knowledge Transfer, Offshore Software Development

INTRODUCTION

Offshore software development refers to the process of sending tasks at various stages of the software development lifecycle to suppliers in low-wage countries. This may involve direct ownership of foreign facilities, partnering, or outsourcing (Shao & Smith David, 2007; Carmel & Tija, 2005). There is a large, expanding literature on knowledge transfer (see Schultze & Leidner [2002] for a review) and an increasing focus on the complexities of knowledge transfer between software team members that are separated across time and space (e.g., Nicholson & Sahay, 2004; Kotlarsky, Oshri, Hillegersberg, & Kumar, 2007; Cha, Pingry, & Tatcher, 2008; Vlaar, Fenema, & Tiwari, 2008). Other authors have questioned the need for co-present interaction for effective knowledge transfer in such scenarios (Boden & Molotch, 1994; Maznevski & Chudoba, 2000; Nardi & Whittaker, 2002; Oshri, Kotlarsky, & Willcocks 2007). Boden and Molotch (1994) emphasize how co-present interaction contributes to the development of trust. This concurs with the findings of Maznevski and Chudoba (2000), who describe the importance of initial co-present meetings to establish effective temporal rhythms like...
‘heartbeats’ which support subsequent stages of
global virtual teamwork. Nardi and Whittaker
(2002) point out how copresent interactions
allow bodily shared activities such as touch-
ing, eating and drinking together, or engaging
in mutually meaningful experiences through
socialization in a common physical place. They
argue that copresent interaction is particularly
useful as it is ‘thick’ with information and can
enable a transfer of greater degree of contextual
knowledge than ICT-based interaction. Oshri
et al. (2007) also emphasize the importance of
copresent meetings for creating interpersonal
ties and facilitating socialization. However, in
their study, socialization in globally distributed
teams is also supported by the use of various
collaborative technologies employed before
and after copresent meetings.

A gap in the existing academic literature and
a problem facing practitioners is that although
copresence is desirable for knowledge transfer,
arrangements may be logistically impossible or
cost prohibitive. This article aims to improve
our understanding of the practices firms are
adopting to overcome the dilemma between
the need for co-presence on the one hand and
the drive for lowest cost ICT-mediated offshore
outsourcing on the other. The study is guided
by the following research questions:

- What is the role of co-present interaction
  for knowledge transfer?
- How can ICT-based interaction enable
  knowledge transfer?

The empirical study draws on two cases
of UK-based software companies sourcing
software development from India and Ban-
gladesh. The contribution of the article lies in
the application and extension of the concepts
of knowledge creation theory or “SECI-Ba”
(Nonaka & Konno, 1998), enabling an analysis
of the knowledge transfer practices and diffi-
culties experienced. The article is organized as
follows. The next section presents the literature
review and theoretical framework drawing on
concepts derived from SECI-Ba. Subsequently
in the research methodology section, we explain
the data collection and analysis approach. Follow-
ing this is the discussion and analysis of the
findings, and finally we present the conclusions
and limitations of the study.

THEORETICAL FRAMEWORK

The theoretical basis draws on knowledge
creation theory (Nonaka, 1994; Nonaka &
Konno, 1998). This theory presents knowl-
edge as created and transferred through a
continuous dialogue between tacit and explicit
knowledge along four patterns of interaction—
socialization, externalization, combination, and
internalization (SECI)—that create a ‘spiral’
model of knowledge. Tacit knowledge is broadly
understood as intuitive and unarticulated, while
explicit knowledge is knowledge that can be
codified or documented (Nonaka & Konno,
1998). The concept of ‘Ba’ refers to a “shared
space for emerging relationships,” which can
be physical (e.g., office, dispersed business
space), virtual (e.g., e-mail, teleconference),
mental (e.g., shared experiences, ideas, ideals),
or a combination of all three. For Nonaka and
Konno (1998), knowledge is embedded in Ba
and acquired through one’s own experience or
reflections on the experiences of others within
Ba. The authors identify four Ba types that
correspond to the stages of the SECI model:
originating Ba (copresence), interacting Ba
(peer-to-peer), cyber Ba (group-to-group), and
exercising Ba (onsite). Thus, each Ba supports a
particular knowledge conversion process in the
SECI model, as summarized in Table 1.

Nonaka (1994) argues that tacit knowledge
cannot be formally articulated between indi-
viduals and can only be exchanged through joint
activities. Originating Ba provides a physical
context for ‘socialization’, an existential space
where individuals can share feelings, emotions,
and experiences, hence removing barriers, as
well as increasing trust. Examples are group
physical activities or educational visits (Ko-
stiainen, 2002). Secondly, ‘externalization’ is
the process of converting tacit knowledge into
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