Methodology Fit in Offshoring Software Development Projects

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ABSTRACT

Offshoring has become a viable alternative for companies to lower software development costs and leverage labor resources worldwide. To achieve success in offshoring software development projects, a vendor must choose appropriate development methodologies. This study aims to examine how methodology fit affects offshoring project performance. The authors propose that methodology fit affects project performance through interfirm knowledge sharing between vendors and clients. In addition, the impact of methodology fit on knowledge sharing is dependent on relational capital between vendors and clients. A survey was conducted among software companies in China that provide offshoring services. 108 completed questionnaires were collected. The results confirm the authors’ hypotheses.

Keywords: Knowledge Sharing, Methodology Fit, Offshore Outsourcing, Relational Capital, Software Development

INTRODUCTION

More and more businesses are outsourcing their software development overseas in order to leverage global labor resources, reduce costs, and integrate diverse knowledge bases. Offshoring is a form of outsourcing in which a client contracts business to a vendor located outside of the client’s home country (King & Torkzadeh, 2008). As a special type of outsourcing, offshore outsourcing poses more challenges in operations and collaboration. It is necessary to closely examine various aspects of offshoring in order to better manage the process (King & Torkzadeh, 2008). In this study, we examine a commonly outsourced IT function: software development, from the vendor’s perspective.

Previous research on offshoring has focused on firm level determinants of offshoring decisions (Mohapatra, Srivastava, & Teo, 2008), cost issues in outsourcing (Dibbern, Winkler, & Heinzl, 2008), risks involved in offshoring (Gonzalez, Gasco, & Llopis, 2005), intellectual property transfer in offshoring (Gupta, Neuhold, & Wiederhold, 2010), vendor-client relationship (Mirani, 2006), hybrid offshoring (Denny, Mani, Nadella, Samdal, & Swaminathan, 2008), factors that affect vendors’ performance (Agrawal,
Goswani, & Chatterjee., 2012), and knowledge management in outsourcing (Cha, Pingry, & Thatcher, 2009; Lee, 2001). Most outsourcing research explores offshoring problems from the client’s perspective. Little has been done to understand the role of software development methodology in offshoring software development (OSD) (Agrawal et al., 2012). As an important dimension of vendor competence, software development methodology plays a more important role in offshoring than in traditionally in-house software development projects, because OSD demands more guidance from development methodologies to mitigate risks in this long-distance collaboration (Ramesh, Cao, Mohan, & Xu, 2006). Therefore, in this study, we investigate the role of methodology fit in OSD from a knowledge-sharing perspective. We also incorporate relational capital in our study to explore its effect on the relation between development methodology fit and offshoring success.

In the following sections, we elaborate the theoretical development and form hypotheses. Then we present our research method, followed by the data analysis and results. Finally, we discuss the contributions, limitations, and implications for future research.

**THEORETICAL DEVELOPMENT**

Knowledge sharing plays a critical role in OSD. Therefore, we use the lens of interfirm knowledge sharing to explore the relationship between development methodology and OSD success. The focus of this study is not on technical details of development methodologies. Instead, through the lens of knowledge sharing, it examines how methodology fit affect the success of offshoring software development projects. This study focuses on clients and vendors’ interactions. Therefore, we focus on information system literature in model development.

**Interfirm Knowledge Sharing in OSD**

OSD is a knowledge-intensive activity. As a team activity, OSD involves clients and vendors who possess specialized knowledge and expertise needed in a project respectively. OSD requires two types of knowledge: technical knowledge (e.g., how to design a system and how to implement it) and business domain knowledge (e.g., industry background, corporate-specific knowledge, business-domain knowledge, product requirements, etc.) (Koh, Ang, & Straub, 2004). Vendors possess technical knowledge such as system design, programming, and development methodologies to construct a software application. Though essential in OSD, technical knowledge alone is not sufficient. The vendor needs to obtain business domain knowledge possessed by the client, translate business knowledge into project requirements, generate designs to meet those requirements, and implement the final design in software code. On the other hand, the vendor must share its technical knowledge with the client. Such sharing activities can effectively engage the client, and help the client understand the progress of project and the artifacts (Levina & Ross, 2003). Technology and business knowledge need to be shared between two firms in OSD both directly, via personal communication, and indirectly, via documents and artifacts.

Experience has shown that interfirm knowledge sharing in OSD is more difficult than co-located projects. The hurdles are created not only by specialized knowledge domains (business knowledge vs. technical knowledge) but also by geographic locations and different business goals (Tiwana, 2008). Knowledge exchange theory argues that geographic closeness can increase the frequency of interaction which can reduce the cost of searching and sharing knowledge, and help utilize explicit and tacit knowledge (Arikan, 2009). In OSD, long distance between vendors and clients in OSD would dramatically decrease the frequency of interactions. In addition, the different business cultures, goals and assumptions may hinder the
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