

An Industrial Survey of Software Outsourcing in China

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Abstract. Most studies of software outsourcing focus on how to manage the outsourcing from the perspective of the outsourcer, i.e., a company issuing a subcontract. There are few studies of outsourcing presented from the viewpoint of the supplier, i.e., a company receiving a subcontract. Since more and more Chinese software companies are getting software outsourcing subcontracts from all over the world, it is important to investigate how software outsourcing projects are actually performed in China, and to identify possible enhancements. Our study has collected data by a questionnaire-based survey from 53 finished projects in 41 Chinese software suppliers. The results show that: 1) Differences in natural languages may not be the barrier of Chinese software suppliers. 2) Email is most used to discuss development related issues, while face-to-face meetings are mainly used to discuss management and requirements issues. 3) The main reasons for overtime work at the Chinese suppliers are design or requirements changes initiated by the outsourcers and the suppliers' initial underestimation of the effort.

Keywords: Software Outsourcing, Empirical Study.

1 Introduction

Software outsourcing is gaining more and more attentions. It can help software companies to save costs and to focus on their core businesses [1, 5]. Along with the China's policy of opening to the outside world, China is becoming one of the biggest software supplying countries, together with India, Ireland, Russia, and so on. Although the volume of Chinese software exports in 2005 is \$3590 million, which has grown from \$720 million in 2001, it is still only 1/6 of India's and is 0.5% of the total volume of Chinese exports [2, 15].

Comparing to in-house software development, there are several factors that may impact the effectiveness of software outsourcing, such as infrequent and ineffective

communications between decentralized teams [6], time zone differences [4], and cultural differences [7, 8, 13]. Many studies have been performed on these issues, but mainly from the outsourcers' perspective. Since China is emerging as a major player in software outsourcing, it is important to study and make guidelines on such issues, in order to help Chinese software suppliers to improve their businesses.

Our questionnaire-based survey has investigated seven software engineering issues in Chinese software suppliers. Due to page limitation, we present only three of them in this paper, namely differences in natural languages, effective communication, and overtime work. We have used membership lists from a national Chinese Software Organization (called CSO¹ in this paper) to achieve a representative subset of software companies. We have gathered information from 53 finished projects in 41 Chinese suppliers. The results show that differences in natural languages may not be the critical factor to affect the success of Chinese software suppliers. Email is the most common mean of communication in development related issues between the outsourcers and suppliers, while face-to-face meetings are mainly used to discuss management and requirements issues. Design or requirements changes initiated by the outsourcers and the suppliers' initial underestimation of the effort are the main reasons for suppliers' overtime work.

The remainder of this paper is structured as follows: Section 2 presents the related work and research questions. Section 3 describes the research design. Section 4 presents results and discussions. Section 5 contains a general discussion. Conclusion and ideas for future work are presented in Section 6.

2 Related Work and Research Questions

There are two main participators in software outsourcing: the outsourcer and the supplier. Software outsourcers are the organizations that give software development subcontracts to other organizations, called the suppliers. Most previous studies focus on managing the software outsourcing from the outsourcers' point of view, such as how to manage the cultural differences [7, 8, 13], how to evaluate and select capable suppliers [10], and how to manage contractual related issues [3]. However, only few studies [11, 12] focus on facilitating the efficiency of software outsourcing from the suppliers' perspective, such as how to communicate and cooperate with outsourcers.

Since China has one of the largest software supplier industries in the world, it is opportune to investigate how Chinese software suppliers can improve their practices to communicate and cooperate with software outsourcers all over the world. The possible lack of English skill can pose constraints for Chinese software suppliers in communicating with outsourcers from Western countries [7]. As it is much harder to follow the plans in projects across organizational and geographic boundaries than projects within the same place and organization [16], the geographical differences between China and Western countries may also introduce additional project overruns [11, 14].

¹ The name of this organization was omitted for confidential reasons.