CSCanada
Management Science and Engineering
Vol. 6, No. 3, 2012, pp. 34-38
DOI:10.3968/j.mse.1913035X20120603.Z0660

ISSN 1913-0341 [Print]
ISSN 1913-035X [Online]
www.cscanada.net
www.cscanada.org

Experience and Inspiration of Risk Management of India's Software and Service Outsourcing

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Supported by The National Soft Science Project (2011GX2D035) and DJTU Doctoral Scientific Research Fund.

Received 19 June 2012; accepted 7 September 2012

Abstract
India is well-acknowledged as a destination for global software and service sourcing. There are much best practices of risk management in outsourcing that we can learn from India. Since 2009, the State Council approved 21 cities to be service outsourcing demonstration cities. Software and service outsourcing has played an important role in economic development. However, due to the complexity of the software services outsourcing, the risk is also complicated and difficult to identify. Learn from India's risk management strategy, the risk factors can be recognized using critical success factors from the point of service-providers, and a comprehensive risk management mechanism should be built by the government and the businesses together. Measures taken to protect outsourcing industry from risks include market diversification, industrial scale expanding, and industrial gradient transfer, and construction of the contractual relationship governance mechanism and the protection of intellectual property.

Key words: Software and service outsourcing; Risk Management; India

DONG Meixia, GE Jiping (2012). Experience and Inspiration of Risk Management of India's Software and Service Outsourcing. *Management Science and Engineering*, *6*(3), 34-38. Available from http://www.cscanada.net/index.php/mse/article/view/j.mse.1913035X20120603.Z0660 DOI: http://dx.doi.org/10.3968/j.mse.1913035X20120603.Z0660

INTRODUCTION
Software and service outsourcing involves the contract-issuing party, the contractor, and the environmental uncertainties. So software and service outsourcing faced with the possibility to withstand all kinds of loss, this possibility is the so-called "risk". In 2009, the investigation report on global software development by the Standish Group (the CHAOS Summary 2009, April) pointed out that the overall success rate of software projects is 32%, part failure rate was 44% and complete failure rate was 24%. The Standish Group gave out the failure reasons of software outsourcing by statistics of more than 8000 software projects. Management and technical problems accounted for 65% and 35%, and failure of management is the key[1]. The research made by Microsoft Corporation showed that investing 5% cost in risk management can get 50% to 75% completion of schedule.

Software outsourcing industry is booming as one of the emerging industry in China. According to the statistics of the State Ministry of Industry, China's software exports in 2009 was $18.5 billion, an increase of 14%, among which software and service outsourcing exports was $2.4 billion, an increase of 15%. See from the data of service outsourcing industry, at the end of 2010, China's service outsourcing contracts valued $27.4 billion, the execution amount of the contract was $19.8 billion, an increase of 37.0% and 43.1%; among which international (offshore) services outsourcing contract amount accounted for $19.83 billion, the execution amount of the contract was $14.45 billion, an increase of 34.3% and 43.1% respectively.

China's software and service outsourcing has also been considerable development, but the various risks that exist in the implementation of software services outsourcing has affected the development of China's software outsourcing industry. Dasgupta and Mohanty(2009) pointed out that, in order to maintain a sustainable global core competitiveness, software and service outsourcing

industry in carrying out the business and remain competitive, must be able to measure and reduce the various risks (myriad risk) successfully. It is important to management risks existing in outsourcing for promoting the development of software and service outsourcing industry.

1. RESEARCH SUMMARY

1.1 Implications of the Outsourcing Risk

Gluch (1994) pointed out that risk is related to the uncertainty of possibility. Aubert, Patry and Rivard (1998) defined outsourcing risk as "expected losses", which are the losses caused by negative events multiplied by the probability. Boehm (1991) defined risk exposure through the following relationships: RE = P (UO) * L (UO). RE is on behalf of exposure, P (UO) is the likelihood of a dissatisfied factor consequences, and L (UO) is the impact if the result is not satisfactory. In software services outsourcing industry practice and relevant research, the risks are as unfavorable factors leading the project to be failed.

Research on the risks of services outsourcing mainly focuses on the risk of outsourcing projects, including the risk of the client, the service-provider (contractor), the both two and the whole process of outsourcing. Risk management in the whole process is in fact covers the risk of the software service outsourcing enterprises. But due to the complexity of the project of software services outsourcing, we must consider the adaptability of the environment in risk management. That is, we should research the risk of software and service outsourcing industry from a strategic perspective. Slywotzky and Weber (2007) pointed out that the strategic risks include all risks of the most businesses.

1.2 Summary of Software and Service Outsourcing Risk Managements

Risk management has long been considered to be one of the key success factors of software projects (Taylor, 2007)[7]. The objective of risk management objective is to identify the project which is expected to cause the project failed. There is no doubt to strengthen risk management is vital for sustainable development of software industry (Zhao & Watanabe, 2010).

Li, Dong, and Wang (2009) pointed out the three areas that the outsourcing of services focused on: technology, labor costs, and cultural backgrounds. The problem existing in any aspect will lead to the failure of the software outsourcing projects. Researches on the risk management of software services outsourcing at home and abroad are mainly from the following three aspects: risk management based on the contractual relationship governance (Deng & Mao, 2008; Willcocks, 1999; Tian & Yang, 2010; Das & Teng, 1996, 2001; Kleim, 1999; Zhao & Watanabe, 2010); risk management based on the principal-agent theory (Bahlib & Rivard, 2005; Li, Chang & Dong, 2009); risk management based on the whole-process risk management theory (Zuo *et al.*, 2011; Boehm, 1991; Hu *et al.*, 2010; Jiao, 2003; Dasgupta & Mohanty, 2009).

Researches on software services outsourcing risk management are more on the points of the client. There is less research on the point of the contractor. And there is lack of researches from a strategic point.

2. SOFTWARE AND SERVICE OUTSOURCING RISK AND MANAGEMENT MEASURES IN INDIA

2.1 Development of India's Software and Service Outsourcing Industry

Software outsourcing industry in India occupies a pivotal position. The revenues have grown over 15 times from FY1998 to FY2009. Even in the context of the financial crisis, India's software services outsourcing revenues and the proportion of GDP are also show a clear growth trend from FY 2008 to FY 2012 (projected). Related data are in Figure 1 and Figure 2. India has evolved to become the most preferred destination for sourcing of Knowledge Services. In FY 2010, India has a USD 2.0 billion market from providing Knowledge Services Outsourcing and generated employment for about 70,108 people in over 100 firms. India already accounts for 46% of the total of global service outsourcing market and 65% of the total global software outsourcing market. Indian face with a variety risks in the healthy development of the software and service outsourcing.

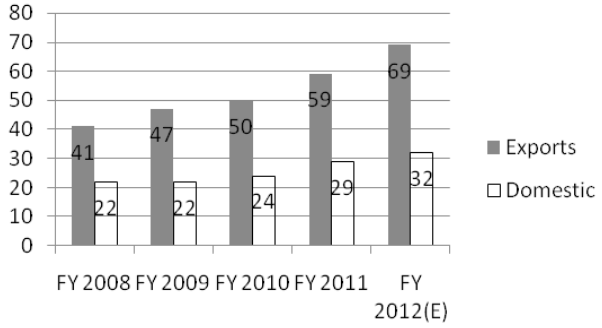

Figure 1
Revenues of India's IT-BPO
Source: Nasscom

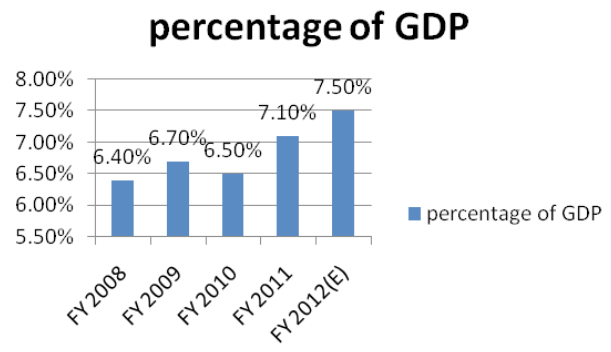

Figure 2
Percentage of GDP of India's IT-BPO Revenues
Source: Nasscom

2.2 Risks in India's Software and Service Outsourcing Industry

India's National Software and Services Company Association (Nasscom) report, outsourcing industry is facing much risk, such as protectionism, visa issues, over-cost, exchange rate fluctuations, inflation and geopolitical risks. U.S. outsourcing industry research firm, Brown and Wilson Group has recently published Black Book of Outsourcing (2009). In the report, in the global top 25 greatest risk area list, the Indian capital New Delhi ranked No. 6, Mumbai ranked No. 9, and Bangalore ranked No. 23, and Calcutta ranked No. 25.

Currently, India's software and service outsourcing risk is mainly the risk of over-reliance on the client. According to their level of socio-economic development, India developed a strategy relying on foreign markets, outsourcing-based, and export-led. Software and services have been exported to more than 130 countries and regions, accounting for 20% of the world's market share, and began to focus on market diversification. The clients of the European and American markets occupy more than 90% for many years, among which the United States and United Kingdom accounted for about 80 percent of India's software services exports, and Europe and Asia markets has just started to develop, and the Indian domestic market is more limited. Because of over-reliance on the United States, foreign policy changes imposed greatly on India. For example, in August 2010, the United States increased the visa fees of H-1B visas and L visa for skilled workers substantially. The policy led India to undertake the increased cost of software and service outsourcing project. Ohio, USA, enacted regulations that prohibit government IT and back-office outsourcing to foreign companies. The above policy reduced the source of India's outsourcing business.

2.3 Risk Management Strategies in India's Software and Service Outsourcing Industry

Accelerating the export market diversification. 2004-2008, the growth rate of U.S. market is 28.7%, the average annual growth rate of Europe, Asia-Pacific region were as high as 51.4% and 42.1%. The export diversification pattern leading by European and American markets is gradually formed.

Reducing the risk of project failure by expanding industrial scale. Through the introduction of foreign companies, India promotes the development of local enterprises. At the end of 2010, India has hundreds of enterprises more than thousands of employees. Employees of the enterprises above the top ten are all above 20,000. The revenues of the top few are in excess of 20 billion U.S. dollars. The profit margin of Tata, Infosys, and Wirpro are more than 20%, and the completion rate of service outsourcing contract is up to 96% [22].

Promoting industrial upgrading. India promotes actively industrial upgrading while maintaining a cost advantage. Measures are as following: providing independent intellectual property rights by improving the capability of independent innovation; transferring gradually outsourcing services from low-end business chain such as call centers, data entry and after-sales service etc. to high-end value chain such as market analysis, systems integration, and program implementation, etc. by using virtualization, cloud computing, green IT and other new technologies. Knowledge Process Outsourcing in India accounted for about 70 percent of the world's share[22].

Supporting fully by government policies. The India government create a good environment for the development of the Indian software outsourcing industry through infrastructure improvement, government policies, intellectual property protection, etc. For example, the Indian government expanded the fiber-optic network, satellite communications and wireless networks, and promoted the rapid development of a nationwide Internet, corporate networks and extranets. The Indian government developed "the Policy of Computer Software Exports, Software Development and Software Training". The Policy identified a clear development strategy of the Indian software industry, and gave special preferential policies in the IT export. In addition, India has also developed copyright law to protect the intellectual property rights of software products.

Building the relationship contractual governance mechanism. India expanded services using the origins of history and culture with the United States and Europe, and paid attention to cooperation with international famous big companies, such as Microsoft and Intel Company.

3. IMPLICATIONS OF INDIAN'S SOFTWARE AND SERVICE OUTSOURCING STRATEGIC RISK MANAGEMENT FOR CHINA

India is in the first class of providing software and service outsourcing service, while China is the second level. Therefore, it is essential for the development of China's software outsourcing industry to learn from India's experience in risk management, combined with the key factors of China's software outsourcing to determine the risk, and thus raised the risk of promoting the development of software services outsourcing industry coping strategies.

3.1 Risk Factors of China's Software and Service Outsourcing Industry

The development of Software and service outsourcing industry involves four aspects of the government, market, and social and corporate, among which the government, market and social constituted the external environment, and at the enterprise level, focuses should be on the relationship between the client and the service-provider which is connected up by projects. The complex relationships between the many factors caused the complexity of the software outsourcing industry risk. Software and service outsourcing industry risk is the risk existing in outsourcing industry, including the project risk, risk of the enterprises and industry risk. The relationships of the risks are as following: project risk, and corporate enterprise operational risks constitute the risk of the software and service outsourcing enterprises. Software and service outsourcing enterprises constitute the software services outsourcing industry, and the risk of different enterprises and industrial environment faced by all enterprises constitute the industrial risk. Their relationship is shown in Figure 3.

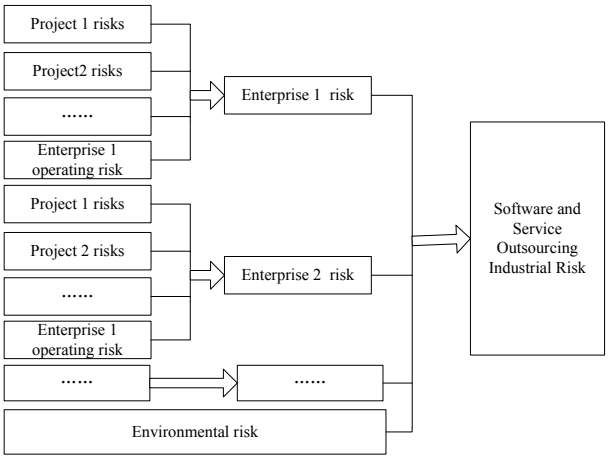

Figure 3
Relationship Between Project Risks, Enterprise Risks and Industrial Risks

According to the risk sources of software and service outsourcing industry and combined with the factors leading to failure, China's software and service outsourcing risk factors include: industrial environmental risks (including over-dependence on the client; imperfect intellectual property protection measures, etc.); the relationship with the client as the service-provider (including the relational risk, cost overruns, and poor performance capabilities, etc.).

3.2 Countermeasures to Strengthen China's Software and Service Outsourcing Risk Management Learning from India

1) To Formate the Diversified Market Pattern

The data from ChinaSourcing shows that in 2008 32.3% of China's outsourcing orders from Japan, orders from the United States and Hong Kong and Macao are respectively 24.6% and 12.9%[23]. And the software and service outsourcing enterprises in China are constantly expanding the Japanese market. Overall, China's service outsourcing has a higher degree of dependence on Japan. To reduce the risk of over-reliance on the client, the service-provider should open up the market, and maintain an appropriate proportion of the structure. In 2012 and the next five years, the domestic service outsourcing market of China is still able to maintain growth of about 12% to 15%, so we can explore the domestic market to develop in-sourcing while developing the offshore outsourcing market.

2) To Expand the Industrial Scale

It is generally believed that the companies have more than 500 employees are not only more likely to get the trust of customers, but also easier access to the orders of the client. China's software and service outsourcing industrial concentration is significantly lower than India's, which are shown in Figure 4 and Figure 5[23]. Expanding business scale and improving the software service outsourcing industry concentration play an important role for the elimination of the relational risk.

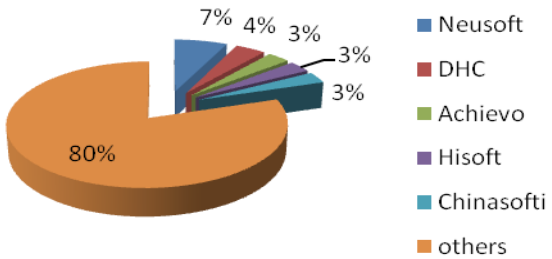

Figure 4
Industrial Concentration of Software and Service Outsourcing in China
Source: Research report of China's service outsourcing industry in 2010

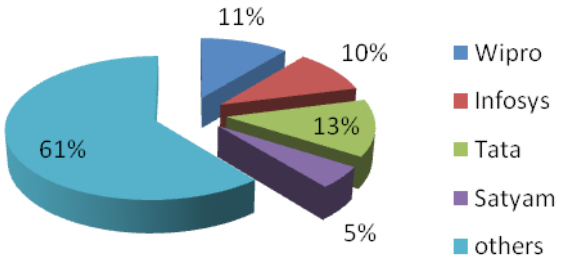

Figure 5
Industrial Concentration of Software and Service Outsourcing in India
Source: Research report of China's service outsourcing industry in 2010

To achieve industrial gradient transfer. Compared to India, China are mainly provide ITO and BPO. In the outsourcing market, China's technology and management innovation are still not competitive. China should transfer gradually from the low-end services to the high-end value-added services.

To Strengthen the legal protection of intellectual property rights. An significant risk in the development of software and service outsourcing industry is intellectual property disputes triggered by the lack of protection of enterprise technology and trade secrets. China should learn from India's approach to further improve intellectual property legislation.

To build the relationship contractual governance mechanisms. A lot of risk in software and services outsourcing are caused by the lack of trust and communication between the client and the service-provider. For example, a wrong understanding of the client needs, lack of coordination of business relationships, and poor communication. All the above risks should be managed by strengthening the relationship contractual governance and building a sound communication mechanism.

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