

Empirical Analysis on the Effects of Providers' Outsourcing Capability on Export Performance*

— Focusing on the European and American Market

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Abstract - Chinese software outsourcing providers used to rely on East Asia market. But European and American market can provide higher profits and better growth expectation. Therefore, Chinese software outsourcing providers focus on expanding European and American market in recent years. Based on the Core Competence Theory and characteristics of software outsourcing providers, this paper discusses the constitution of software outsourcing provider's undertaking competence. Through questionnaire survey on Chinese software outsourcing providers, this paper verifies that undertaking competence of software outsourcing providers has significant impact on their export performance in European and American market. In view of research conclusions, this paper then puts forward three specific suggestions for those providers to improve internal competence so as to further develop European and American market. These three suggestions are enhancing project management ability, broadening human resource reserve and building long-term partnership with clients.

Index Terms - Software outsourcing; Outsourcing provider; Outsourcing capability; Export performance; European and American market

1. Introduction

With the rapid development of information technology, software outsourcing industry worldwide is undergoing extensive and far-reaching development. Although Chinese software outsourcing industry has gotten rapid development by virtue of many advantages, we must face the fact that outsourcing providers in china's providers still perform badly in European and American market, far worse than their counterparts in India, Ireland. Considering that contracts from European and American market with more technology and more profits, this terrible performance in European and American market certainly would affects the long-term development of Chinese software outsourcing providers in a large extent. Therefore, outsourcing providers in China should seek new ideas to develop European and American market by virtue of improving their own capability. This article aims at market expansion of Chinese software outsourcing providers in European and American through empirical analysis of the relationship between outsourcing capability and export performance.

2. Theory And Literature Review

A. Core Competence Theory

In 1990, Prahalad and Hamel formally proposed the concept of core competence[1]. Core competence means the accumulative knowledge of organization; especially knowledge regarding with coordinating different production skills. The main content, core competence, can be summarized as follows. First, the nature of a firm is the aggregation of abilities. Second, the core competence of a firm is the source of its long-term competitive advantage. Third, cultivating and utilizing core competence actively is the fundamental strategy for a firm's future development. Core competence is essential for an organization; it can increase business efficiency, improve client relationship and enhance market performance. Although the research of core competence is divided into several subfields, the core characteristic of core competence is widely acknowledged. Generally speaking, the value of core competence is reflected in two aspects, one is to create excess profits for the firm, the other is to generate sufficient consumer surplus and create new value for clients [2]. The value of outsourcing capability is not only reflected in obtaining new outsourcing contracts, but also in bringing huge economic profits, strategic and social value.

This article adopts outsourcing capability as the specific form of core competence of software outsourcing providers. Outsourcing capability is the external manifestation of the core competence in software outsourcing providers, which directly determines the competitive advantage in the global market

B. Literature Review Regarding Effect of outsourcing capability on Market Performance

The relationship between capability and performance attracted much attention from scholars in the past. Hitt et al point out that the core competence of a firm would inevitably produce better performance with the combination of good implementation of business goals [3]. Although the relationship between outsourcing capability and export performance was studied before, it's still insufficient and lack of empirical analysis.

Foreign researches on the relationship between outsourcing

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capability and export performance mainly take India's outsourcing providers as research object. Levina and Ross proved that the core competence of providers would enhance client satisfaction, and further help providers to obtain stable orders, and ensure high performance[4]. Ethiraj et al takes Indian software outsourcing industry as object to study the source of providers' core competence and how it affects the operation of providers[5].

Domestic scholars mainly focused on analyzing specific issues when studying the relationship outsourcing capability and market expansion, and summing up what specific abilities are imperative through comparing with foreign outsourcing providers. Fu Chaojing believes that Chinese software outsourcing providers should put emphasis on finding and developing their own core competences in order to explore international market[6]. Kang Canhua and Ruan Fei describe the influence of maintaining partnership quality in developing market [7]. Xu Xingfeng stresses that providers should improve and enhance several abilities to compete with others, including project management ability, delivery ability and human resource management ability[8]. Wang Shuying and Zhou Mi highlight that outsourcing providers should improve their own human resource capacity in order to explore international market[9].

3. Research Process

A. Variable Definition

The independent variable of this study is the outsourcing capability of providers. According to domestic and foreign studies, this study defines outsourcing capability as the capability owned by software outsourcing providers; it is generated from integrating internal resources to meet the changing demand of clients. Based on researches of prior research, this study believes that outsourcing capability could further be defined through three dimensions: human resource capability, project management capability and client interaction skills. Human resource capability refers to providers' ability to acquire, utilize and maintain human resources. Project management capability reflects whether providers could complete tasks in accordance with predetermined cost, schedule and quality. And interaction skills refer to providers' ability to develop partner relationship with clients.

Export performance in European and American market is the dependent variable in this study. In view of existing research Carlos[10], this study proposes export performance of outsourcing providers involve two aspects, economic aspect and strategic aspect. It contains two dimensions: strategic and economic. Strategic dimension of export performance emphasizes the overall goal reached by export, while economic dimension of export performance emphasizes the economic effects attained by export.

B. Hypotheses

Based on theoretical research and the topic of this study, we propose following hypothesis. H1: software outsourcing providers' outsourcing capability has positive effect on their

export performance in European and American market. Meanwhile, according to the dimensions constituting outsourcing capability, the main hypothesis could also generate three sub-hypotheses. H1-1: Human resource capability of software outsourcing providers has positive effect on their export performance in European and American market; H1-2: Project management capability of software outsourcing providers has positive effect on their export performance in European and American market; H1-3: Interaction skills of software outsourcing providers has positive effect on their export performance in European and American market.

C. Survey Design

The research object of this study is Chinese software outsourcing providers that seek to obtain outsourcing orders from European or American Market. In this study, 150 providers are surveyed; 200 questionnaires are issued, and 126 valid questionnaires are collected. This survey concentrated in the software outsourcing model cities such as Nanjing, Suzhou, Wuxi, Shanghai, and Hangzhou. Both field survey and E-mail methods are used. Besides, considering research topic, this survey mainly interviewed with middle or senior managers and project managers. What's more, the design of survey scale fully draws on existing scales.

Firstly, at the beginning of survey, some basic information of providers are collected, such as company property, staff size, registered capital, method of receiving orders and their overseas development situation.

Secondly, several indicators are extracted to measure human resource capability, project management capability and interaction skills. After repeated discussion and revision, final questions are as follows. "we have internationally advanced in IT infrastructure"; "we have strong technical capability"; "we have strong talent base"; "our project teams are harmonious and good at collaboration"; "we own rigorous recruitment and evaluation mechanisms"; "we are good at training and developing staff" are used to measure human resource capability. "We have deep understanding of client needs"; "we are able to carry out strict management on the progress of projects"; "we have the ability of ensuring service delivery quality" are used to measure project management capability. "We have smooth communication channels with clients"; "we have a strong relationship of mutual trust with clients"; "we have sound intellectual property protection strategy" are used to measure interaction skills.

Thirdly, "our export performance in European and American market fully reach predetermined strategic objectives"; "our export business in European and American market is very successful"; "our clients in European and American market are very satisfied with our service" are used to measure strategic dimension of export performance in European and American market. "Our export business in European and American market grows very fast"; "our export business in European and American market is highly profitable"; "our profits of export business in European and American market grow very fast" are used to measure economic dimension of export performance in European and

American market.

Finally, all of indicators for outsourcing capability and export performance are measured in the form of Likert five-point. Each indicator is assessed by respondents from 1 to 5, ranging from “strongly disagree” to “strongly agree”.

4. Result

A. Statistics on Basic Information of Providers

According to the feedback of company property, consisting of state-owned enterprises, civilian-run enterprises, foreign-funded enterprises and other enterprises, their respective proportions are 11.1%, 58.7%, 20.6% and 9.5%, which shows that China's software outsourcing providers are mainly civilian-run enterprises. As for enterprise size, different levels of size are all involved, but providers with less than 100 staff members has the highest proportion of 42.9%. About a half of the providers set up overseas offices or departments. Besides, up to 81.4% providers believes that long-term clients are their main sources of obtaining outsourcing contracts.

B. Regression Analysis

Before conducting regression analysis, reliability and validity analysis of outsourcing capability scale and export performance scale are done firstly. Results show that the KMO test of human resource capability, project management capability and interaction skills are 0.81, 0.65, 0.65 respectively, all above the minimum acceptable value of 0.5. Bartlett's test of outsourcing capability scale proves to be significant; which means that factor analysis is suitable here. Then factor analysis is performed and three factors are concluded, with the cumulative proportion of variance explained being 52.784%, 64.851%, 65.876% for each dimension and factor loadings of all indicators are beyond the minimum level of 0.5. Likewise, the KMO test of strategic dimension of export performance and economic dimension of export performance are 0.64, 0.79 respectively. Bartlett's test of export performance scale proves to be significant. Then factor analysis is performed and two factors are concluded, with the cumulative proportion of variance explained being 69.261%, 64.182% for each dimension and factor loadings of all indicators are beyond the minimum level of 0.5.

As shown in Table 1, in the stepwise regression analysis of outsourcing capability and strategic dimension of export performance in European and American market, the Sig. values of outsourcing capability' three dimensions are less than the significance level of 0.05. The three dimensions all have significantly positive regression coefficients, indicating that the three dimensions of independent variable have positive influence on the dependent variable. Therefore, software outsourcing providers' outsourcing capability has positive effect on their strategic dimension of export performance in European and American market. As shown in Table 2, we can also find that software outsourcing providers' outsourcing capability has positive effect on their economic dimension of export performance in European and American market. Thus, all hypotheses in this study have been supported by the results of empirical analysis.

TABLE I Regression Coefficients For Strategic Dimension

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
	Constant	0.163	0.202		0.800	0.424
1	Human resource capability	0.228	0.067	0.253	3.512	0.001
2	Project management capability	0.349	0.066	0.426	5.306	0.000
3	Interaction skills	0.193	0.053	0.249	3.409	0.001

^a Dependent variable: strategic dimension of export performance in

European and American market

TABLE II Regression Coefficients For Economic Dimension

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
	Constant	0.557	0.217		2.265	0.09
1	Human resource capability	0.164	0.068	0.199	2.406	0.018
2	Project management capability	0.306	0.069	0.402	4.415	0.000
3	Interaction skills	0.196	0.060	0.262	3.285	0.001

^a Dependent variable: strategic dimension of export performance in

European and American market

5. Discussion

Empirical analysis shows that software providers' outsourcing capability has positive effect on their export performance in European and American market.

A. The Effect of Human Resource Capability on Export Performance in European and American Market

The regression analysis shows that the human resource capability has significantly positive effect on strategic and economic dimensions of export performance in European and American market, regression coefficients are 0.228 and 0.164 respectively. Human resource capability is an important component of outsourcing capability. More than 60% of the cost comes from the labor cost; human resources are also the carrier of technology, thus it's conceivable that human resource capability is important for outsourcing providers. Clients from European and American market attach great importance to human resource capability, technical capability and enterprise size; and they are more willing to select those providers that have larger scale, higher technical capability and sufficient human resource reserves. This is also the reason why India's outsourcing providers are more favored by clients from European and American market.

B. The Effect of Project Management Capability on Export Performance in European and American Market

Project Management Capability has the most profound impact on export performance, regression coefficients are 0.349 and 0.306 for economic dimension and strategic dimension respectively, which indicates that the importance of project management capability in expanding European and American market. Project management capability involves the management level of project quality, schedule, risk, cost, delivery aspect in the project implementation process. The project management capability can determine the success of entire project implementation directly. Clients from European and American market put much emphasis on project management capability, as it is the fundamental factor for successful accomplishment and delivery of the whole software project.

C. The Effect of Interaction Skills on Export Performance in European and American Market

Interaction skills also show significantly positive impact on the export performance in European and American market. The regression coefficients are 0.193, 0.196 for strategic and economic dimensions respectively. Interaction skills reflect how providers communicate with their clients and whether they could communicate well with clients during the whole process of project. Over the years, academics have been emphasizing the importance of long-term partnership for providers' long-term development. And interaction skills are the most important factor to establish such long-lasting relationship. Besides, considering that cultural and geopolitical gap existing between Chinese software outsourcing providers and their European and American clients, providers should improve their interaction skill levels in order to obtain and maintain better export performance in European and American market.

6. Conclusion

The outsourcing capability has directly positive effects on their export performance in European and American market. This study suggests that domestic outsourcing providers must improve their own internal capabilities so as to achieve long-term competitive advantage and expand market share in the Europe and the USA. Here are some specific suggestions.

Firstly, outsourcing providers should put more attention in the enhancement of project management capability, management capability includes many aspects such as schedule management, quality management, cost management and delivery management included. Outsourcing providers could enhance their project management capability through recruiting and training senior project managers; seeking their own weaknesses in project management through learning from

clients; increasing exchange with other providers, especially industry leaders in same business area.

Secondly, outsourcing providers should increase human resource reserve and cultivate high-end talent. On one hand, domestic software outsourcing providers must continue to increase human resource reserve. Outsourcing providers could cooperate with social training organizations or universities to jointly develop talent reserves. On the other hand, expanding European and American market urgently need high-end technical talent and project managers, so outsourcing providers could broaden talent recruitment system through various means and introduce high-end talent from foreign software companies.

Thirdly, outsourcing providers should improve interaction skills to build long-term relationship with clients. Differences in culture and business environment between domestic providers and their foreign clients imply the necessity to interact with each other efficiently. Outsourcing providers could set up outsourcing alliances and form a professional team to interact with clients. Providers should also exercise their interaction skills through the whole project and gradually improve interaction skills. Besides those above, establishing overseas offices or branches is also an effective way to improve interaction results with clients.

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