

# The Impact of Acquirer's Organizational Cultural Intelligence on Innovation Performance in Cross-Border Technology M&A

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**Abstract.** Based on the related researches on cultural intelligence, cultural distance and innovation performance, this paper proposes the theoretical hypothesis of the relationship between the cultural intelligence of the acquirer and the overseas technology M&A innovation performance, using the cultural distance as the moderator. Stata13.1 is used to analyze the data from enterprises that conduct technology M&A. The results show that the organizational culture intelligence of the acquirer has a positive impact on the innovation performance of technology M&A, and the cultural distance has a moderating effect on the above relationship.

## 1. Introduction

Under the tide of economic globalization, overseas technology M&A has gradually become an important strategy for Chinese multinationals to pursue technology and expand overseas, like Lenovo acquired IBM, Midea acquired German KUKA robots, and Geely acquired Volvo. It is worthy of recognition that the rapid development of overseas technology M&A has brought positive impacts on technology catch-up and technological innovation of Chinese multinational corporations. However, the path of Chinese companies' transnational technology seeking and learning is also full of challenges and setbacks. According to relevant data, less than 20% of Chinese companies are very successful in M&A, and as many as 44% of companies are not satisfied with the M&A results.

An important issue facing enterprises after completing the merger is how to solve the cultural distance between the target enterprises and the country differences. This paper believes that the preconditions of the cultural distance should also consider the ability of M&A firms to effectively integrate resources under different cultural contexts. Some scholars call this "organizational cultural intelligence"<sup>[1]</sup>. Ang and Inkpen (2008) pointed out that corporate-level cultural intelligence is crucial in international commercial projects. It is difficult to imagine that an international enterprise will be efficiently managed and operated in an environment that cannot effectively adapt to the cultural environment of different countries<sup>[2]</sup>. Domestic scholar Tang Ningyu et al. (2007) also believe that the level of cultural intelligence of cross-cultural teams will have an impact on the effectiveness of team communication and conflict resolution<sup>[3]</sup>. However, the relevant literature has not yet explored the relationship between organizational culture intelligence and innovation performance of overseas technology M&A. Based on this, this paper asks the following questions: (1) How does the organization and culture intelligence of the acquirers influence the innovation performance of overseas technology M&A? (2) How does cultural distance affect the relationship between the acquirers' organizational cultural intelligence and the innovation performance of overseas technology M&A?

In response to the above problems, this paper collects overseas technology M&A events between 2003 and 2014 recorded in the Wind database and the Flush database, develops the organizational cultural intelligence scale, issues questionnaires to sample enterprises, and analyzes the innovation performance of the acquirers' organizational culture intelligence on overseas technology M&A. The impact of cultural distance as a moderator, analysis of its impact on the relationship between organizational cultural intelligence and overseas technology M&A innovation performance.

## **2. Literature Review and Hypothesis**

Earley and Ang (2003) first proposed the concept of individual cultural intelligence to describe people's ability to adapt to culture<sup>[4]</sup>. They believe that cultural intelligence reflects people's collection and processing of information, making judgments and taking corresponding effective measures in a new cultural context. Measures to adapt to the new culture's ability, its basic elements include cognitive, motivation, and action. Moon (2010) puts forward the concept of organizational culture intelligence, based on the concept of personal culture intelligence of Earley and Ang (2003), refers to the ability of an organization to reconfigure its capabilities to operate and manage effectively in a culturally diverse environment. And the organization's cultural intelligence is composed of three kinds of abilities, namely process ability, positioning ability and path ability<sup>[1]</sup>.

Foreign scholars have started research on technology mergers and acquisitions earlier. Muller and Sirower (2003) pointed out that economies of scale, scope economic benefits and synergies are the drivers of M&A<sup>[5]</sup>. In addition, in the study of corporate M&A motivation, in addition to traditional factors, knowledge transfer is also very important. Domestic scholars started late in this regard. The first systematic research on technology M&A is Liu Kaiyong (2001). He believes that it is possible to obtain diversified technologies and greatly improve their technical capabilities. A certain leap in technical barriers to new industries is the main reason for large enterprises to conduct technology M&A. For the above reasons, large companies began to implement M&A for SMEs<sup>[6]</sup>.

Generally speaking, when an enterprise merges with a host country enterprise and enters its development, it will be affected by many aspects of the host country's political system, customs, laws and regulations. Zhang Xuehua (2014) believes people in different countries have formed their own national culture, values or national customs in their daily work and life. The countries where the two parties are located are different, the cultural differences are more obvious, and the cultural conflicts are often fierce. The success rate of multinational technology M&A is very low<sup>[7]</sup>.

Organizational culture intelligence is the ability of enterprises to reconfigure resources and is the ability of enterprises to operate and manage effectively in a multicultural environment. When companies engage in technology M&A, they need to face the complex environment of the host country's politics, economy, law and culture. If the organization's cultural intelligence is high, it can quickly identify cultural differences, reconfigure resources, effectively organize the operation and management of enterprises, and improve the innovation performance of enterprises. When the organizational culture sensitivity is low, it will lead to its inability to integrate the resources of both parties in the process of technology M&A, and deal with cultural differences, leading to a decline in innovation performance. Based on this, the following assumptions are made:

H1: The higher the level of organizational culture and intelligence, the higher the level of innovation performance in overseas technology mergers and acquisitions.

When there is a large cultural difference between the two countries, the complementary space between knowledge and practice, skill and so on between the two companies will be greater, and the acquires can use its higher organizational culture intelligence level to integrate learning, enhance its adaptability to the cultural environment of the host country and improve its competitiveness, so as

to achieve a higher level of innovation performance. Steigner and Sutton (2011) conducted that if the value of intangible assets of the acquired company is high and the cultural differences between the two countries are large, the internalized income of the company's internal intangible assets is transferred. High can compensate for the cost of integrating cultural differences<sup>[8]</sup>. Conversely, when the cultural distance is small, it will reduce the sensitivity of organizational culture and intelligence, that is, organizational culture intelligence cannot effectively use its internal resources to enhance the overall strength, leading to a decline in corporate competitiveness and a decline in innovation performance, the following assumptions are made:

H2: Cultural distance will enhance the impact of organizational culture and intelligence on the innovation performance of technology mergers and acquisitions.

In overseas technology M&A, the innovative performance after M&A will also be affected by certain characteristics of both parties. This paper selects the characteristics of the three aspects of the enterprise: the size of the enterprise, the investment in R&D, and the relative patent group size of both parties as the control variables.

In summary, a conceptual model is built as Figure 1.

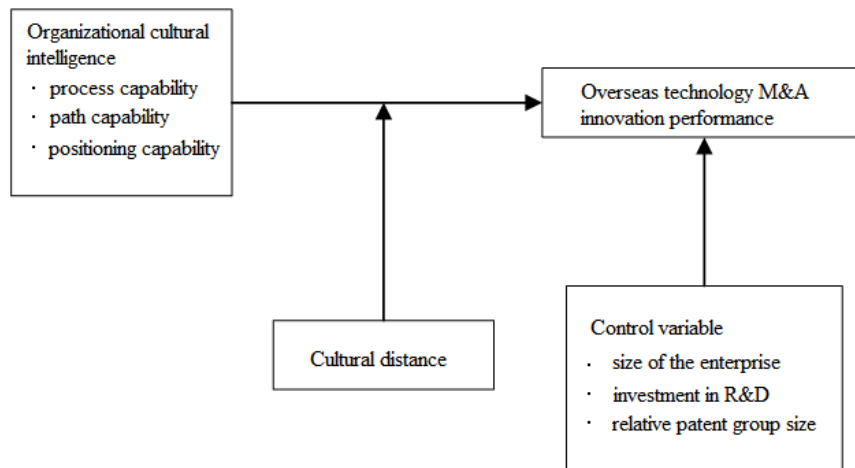


Fig 1 Conceptual model

### 3. The Empirical Process and Analysis

#### 1. Questionnaire design and sample selection

After studying the concept of organizational culture intelligence, since Taewon Moon (2010) proposed this concept, there has been no development of a mature scale to measure organizational culture intelligence. Based on the previous concepts of organizational culture intelligence, influencing factors, antecedent variables and outcome variables, this paper develops a measurement scale for organizational cultural intelligence. Organizational cultural intelligence consists of three dimensions, namely, process ability, positioning ability and path ability. Each question has 5 questions, and uses Likert's five-point scoring method. From one point to five points, it means "very non-conforming", "not in conformity", "general", "conforming" and "very consistent".

The survey sample of this paper is an enterprise with overseas technology M&A experience between 2004 and 2014. The research object is the enterprise that completes the overseas technology M&A, so the target company to be acquired must be a foreign enterprise, it is excluded from the sample: the target party is a subsidiary or branch of the domestic enterprise abroad; the target party is in the Cayman Islands. Registered in other places, but the actual business operations are concentrated in domestic companies; although the target company is a foreign company, it is mainly a company that conducts production and operation activities in China. In addition, it is

necessary to eliminate the event that the M&A activity is ultimately unsuccessful and the M&A event of the ST company. According to the above conditions, according to the criteria of Ahuja and Katila (2001)<sup>[9]</sup>, the case of M&A is judged, and finally 80 samples of companies that meet the requirements are obtained. In this paper, questionnaires were used to issue questionnaires to enterprises that had undergone overseas technology acquisitions. A total of 80 questionnaires were collected, of which 65 were valid questionnaires, and the effective recovery rate was 81.25%.

2. Variate measurement

The measurement of all variate in this paper and the data sources are shown in Table 1.

Table 1 Variable measurement index

Variable category	Variable name	Measure method	Data sources
Independent variable	Organizational culture intelligence	Scale measurement	Questionnaire
Dependent variable	Overseas technology M&A innovation performance	The number of patents applied by the acquirer within 3 years after the merger	European Patent Office database, etc.
Regulated variable	Cultural distance	Morosini (1998) on the measurement of cultural distance	Hofstede Web
Control variable	size of the enterprise	The average value of the total assets of the acquirer in 3 years prior to the merger	Annual report
	investment in R&D	The average value of R&D intensity of the acquirer in 3 years prior to the merger	Annual report
	relative patent group size	Number of patents before merger	Annual report, etc.

(1)Measurement of organizational culture intelligence

At present, there is a relatively mature measurement scale of individual cultural intelligence in the academic world, which shows good reliability and validity in the measurement of intercultural competence. However, there is no mature organizational culture intelligence scale. This paper uses the developed scale to conduct questionnaire surveys and collect data.

(2)Measurement of innovation performance

With regard to the connotation of technology mergers and acquisitions, this paper defines it as the merger and acquisition behavior of high-tech enterprises in order to acquire technology-related assets, to enhance technological capabilities, and to use technology as the main driving factor. In terms of innovation performance, it is mainly defined by three levels of creation, technology and innovation included in the process of commercialization of new technologies. With regard to the measurement of innovation performance, the number of patents is used to measure it. Considering that after the merger, the company needs time to integrate, and the innovation output has a certain lag, and the number of patents applied by the acquirer within three years after the merger is used to measure the innovation performance.

(3)Cultural distance measurement

The specific values of cultural distance can be calculated by referring to the score formula of Hofstede's cultural dimension. In terms of the calculation of cultural distance, Morosini (1998) is used to calculate the distance between different cultures<sup>[10]</sup>. The specific calculation formula is shown in (1):

$$CD_j = \sqrt{\sum_{i=1}^5 (X_{ij} - C_i)^2} \quad i=1,2,3,4,5; \quad j=1,2,3,\dots \tag{1}$$

(4)Control variable

Business size. This paper uses the total assets of the enterprise to measure the size of the

enterprise.R&D investment. The measurement of R&D investment in this paper is measured by the mean value of R&D intensity in the current year and the previous two years. Relative to the size of the patent group. The difference in knowledge base between the two parties is measured by the ratio of the patent group size, that is, the ratio of the number of patents applied before the merger of the two parties.

3. Data analysis

Using the stepwise regression method, the proposed hypothesis is tested and divided into four models. Model 1 is a regression analysis of the control variables. Model 2 adds three dimensions of the cultural intelligence of the independent variables based on the first model, and performs regression analysis on the independent variables, control variables and dependent variables. Model 3 is based on model 2, the adjustment variables are added; the model 4 mainly tests the adjustment effect of the cultural distance, so the interaction term between the organizational culture intelligence and the cultural distance is added on the basis of the model 3. Table 2 shows the results of regression analysis of organizational culture intelligence and innovation performance.

Table 2 Regression results of organizational cultural intelligence and innovation performance

variable	1	2	3	4
Process		0.145***	0.145***	0.143*
Position		0.138**	0.131***	0.109*
Path		0.149**	0.151**	0.139*
CD			0.012***	0.020**
CD*Process				0.112*
CD*Position				0.128*
CD*Path				0.105*
AT	0.003*	0.008**	0.000*	0.003
ET	-1.473	-1.072	-1.174	0.772
Total	0.088**	0.066*	-0.045	0.048
N	65	65	65	65
R <sup>2</sup>	0.217	0.358	0.365	0.384
R <sup>2</sup>	0.209	0.346	0.354	0.377

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.001

As shown in Table 2, in Model 1, the relationship between the company's size relative to the patent group, the total assets of the enterprise, and the innovation performance is more significant and positive. Explain that the larger the scale of the company relative to the patent group, that is, the greater the ratio of the number of patents applied by the acquirer before the merger to the number of patents applied by the target before the merger, the greater the knowledge difference between the two parties, The greater the potential of enterprise innovation and research and development, the higher the level of innovation performance. In addition, the larger the company, the more capital the company develops innovative products, and the higher the level of innovation performance.

In Model 2, each dimension of organizational culture intelligence has a positive impact on innovation performance. The regression coefficients are 0.145, 0.138, and 0.149, respectively, which are significant at the levels of 0.01 and 0.05, respectively, assume H1 is verified.

In Model 3, the regression coefficient of cultural differences on innovation performance is positive, indicating that cultural differences have positive effects on innovation performance, that is, the greater the cultural difference, the greater the influence of organizational culture intelligence on innovation performance, and the smaller the cultural difference. The smaller the impact of organizational culture intelligence on innovation performance. Assume H2 is verified.

In Model 4, after adding the interaction between the three dimensions of organizational culture intelligence and cultural differences, the positive and negative directions of the regression

coefficients of organizational cultural intelligence and cultural differences did not change, and remained significant; the regression coefficient of the interaction term was 0.112, 0.128, 0.105, both are significant at the level of 0.1. It further proves the regulatory effect of cultural differences on organizational cultural intelligence and innovation performance.

#### **4. Conclusion**

This paper mainly explores the impact of acquires' organizational culture intelligence on innovation performance of overseas technology M&A under the adjustment of cultural distance. The relationship between them is as follows: (1)The organizational culture intelligence of the acquires promote the innovation performance of technology M&A. (2)Cultural distance plays a regulatory role between acquires' organizational culture intelligence and technology M&A innovation performance.

The shortcomings of this paper are: (1)The limit on the number of samples. (2)Only the impact of organizational culture intelligence on innovation performance has been studied, but there are still many factors that have an impact on the level of innovation performance after overseas technology M&A.

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