

# MODEL FOR ORGANIZATIONAL STRATEGY IN INTERNATIONAL CONSTRUCTION JOINT VENTURES: ORGANIZATIONAL ECONOMICS PERSPECTIVE

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**ABSTRACT :** Among various joint ventures, International Construction Joint Ventures (ICJVs) have emerged as a popular approach worldwide to developing large scale projects through international participation. A model, based on economic analysis and represented by several hypotheses obtained from the analysis, will be developed. Furthermore, we will empirically test the hypotheses/model using Structural Equation Model (SEM). This research is expected to explain why there exist different organizational forms for ICJVs, and to develop a framework for choosing appropriate forms with respect to various characteristics of ICJVs.

*Key words :* Organization, International Construction Joint Ventures (ICJVs) , Transaction Cost Theory, Social Exchange Theory, Organizational Performance.

## 1. INTRODUCTION

Globalization has enabled the expansion of the construction industry through combination of cross-national construction firms and local contractors [1]. As the scope of construction becomes larger and larger, we see a tremendous increase in the complexity of the industry, which requires more advanced technology and larger capital, setting higher criteria for the bidding companies. Joint ventures have thus become the main stream in the procurement of larger-scale projects. As pointed out by Mohamed [2], the number of ICJVs is growing rapidly, especially in developing countries, where ICJVs are viewed as the best instrument for meeting the competing interests of national development and the prevention of the domination of the economy by foreign investors.

Evidences from literature show that the design of an organization has critical impacts on the performance of the organization. Brickly et al. [3] argue that poor design of organizations may result in losses to the firm and even business failure. However, there exists no particular organizational

design or form that suits all organizations. From the perspective of organizational economics, this paper attempts to explore organizational forms that can best improve the performance of ICJVs. In this paper, two basic organizational forms are defined for ICJVs, namely: separately managed joint ventures (SMJ) and jointly managed joint ventures (JMJ). In SMJ, a project is divided into a few distinct tasks and each partner is fully responsible, technically and/or financially, for her assigned tasks and makes decisions directly without the consent from other partners. Thus, in SMJ, the chain of command lies within each partner. On the other hand, in JMJ, not only does the chain of command need to meet the specific requirements from the primary participating parties but also decisions are made and implemented jointly.

This paper attempts to explain why there exist different organizational forms in managing ICJVs, analyze those variables in selecting ICJVs organizational forms from the perspective of organizational economics, and lastly propose a theoretical model for ICJVs to select suitable

organizational forms. The proposed model is expressed as a set of hypotheses and the methodology of empirical test of the model will be proposed for future work.

Section II gives a brief review of the literature, summarizing the relevant studies and theories. Section III provides an exposition of research methodologies and procedures. Section IV develops our model in terms of five hypotheses. Lastly, conclusions are made.

## **2. LITERATURE REVIEW**

This section examines issues concerning JVs and ICJVs in the literature and review relevant theories concerning the modeling of organizational strategy of ICJVs.

### **2.1 International Construction Joint Ventures (ICJVs)**

Hennart [4] argues that Joint Ventures (JVs) have been seen in achieving four main objectives : (1) taking advantage of economies of scale and diversifying risk; (2) overcoming entry barriers into new markets; (3) pooling complementary bits of knowledge; (4) allaying xenophobic reactions when entering a foreign market.

As one of the instruments of strategic alliance in the broad sense, ICJVs apply the concept of business integration, use alliance as a means to acquire new skills, create productivity, alleviate risks, and through technical cooperation, operate in the forms of joint development, or joint ventures, but maintain each party's independence at the same time [5].

### **2.2 Organization and Organizational Forms**

According to Daft [6], "organizations are social entities that are goal-oriented; are designed as deliberately structured and coordinated activity systems, and are linked to the external environment". Robbins [7] explains an organization as a consciously coordinated entity, with a relatively identifiable boundary, that functions on a relatively continuous basis to achieve a common goal or set of goals. Kast and Rosenzweig [8] define an organization as a social entity formed by a group of people, having a common goal, that utilize knowledge and skills to operate in a social environment to achieve their goal through interdependence, integration, and coordination.

### **2.3 Organizational Economics**

Organization theorists often view organizations from different perspectives, including rational-contingency perspective, radical-Marxism, and Transaction cost economics (TCE) [6]. TCE is based on the following assumptions: people act by independence principle; exchange

of products and services occurs in a free market; transaction costs are high because of the complexity and uncertainty of the environment; since contracts are long and hard to monitor, transactions are made in the internal resources; a monitoring system is established to control the transactions; and an organization will adopt the structure that incurs the lowest cost to reduce the costs of transaction between the members [6]. In addition to standard TCE viewpoint, Milgrom & Robert [9] explore organizations from the perspective of efficiency; in particular, they emphasize the efficiency of resource distribution, which he believes can be decided.

#### **2.3.1 Transaction Cost Economics**

Williamson [10,11,12,13] suggests that transactions should be carried out following the principle of minimum possible total costs which are calculated based on production costs and transaction costs. Production costs may differ between firms due to learning or proprietary knowledge. Transaction costs include the fees and time spent on writing and enforcing the contract, for haggling over terms and contingent claims. He argues that because of the existence of bounded rationality, uncertainty, opportunism, and asset specificity, transaction cost can be minimized by bringing together different entities involving in certain transactions into one single entity or organization. According the transaction cost theory, the principle of minimizing transaction cost determines the optimal boundary or form of an organization, including an ICJV.

#### **2.3.2 Resource-based View**

Resource-based view (RBV) stresses that the success of an organization or business is the result of uniqueness created by unique resources owned by the organization and the optimal use of resources. Such view regards that different firms as a collection of resources, and that firm resource heterogeneity tends to be constant because of resource immobility, imperfect imitability, and non-substitutability[14,15,16]. From a resource-based view, the use of ICJVs can be justified by the integration of all necessary, valuable, and imperfectly imitable resources of the allied firms so as to create an ICJV's unique strength or competitive advantage. Furthermore, as we shall argue later, RBV will also help to determine the best form for ICJVs to integrate resources and create competitive advantages.

#### **2.3.3 Social Exchange Theory**

Homans [17] argues that interpersonal interaction is a process in which both participating parties perform activities related to the other party and exchange valuable resources. Blau [18]

extends such interpersonal interaction to organizations and explores inter-organizational resource exchange. According to social exchange theory and TCE, certain organizational strategy, such as vertical or horizontal integration, may reduce transaction cost when the process of exchanging valuable resources is relatively uncertain. As we shall examine later, factors, such as trust, can also be crucial in determining how the resources will be exchanged under what organizational strategies.

### **3. METHODOLOGY**

#### **3.1 Modeling: Building Hypotheses**

This study explores variables that may affect the selection of organization forms for ICJVs, the impacts of the relevant factors, and the relations among these variables. Based on organizational economics theories and many case studies and in-depth interviews conducted in this research, theoretical hypotheses and model for ICJVs organizational forms will be developed.

#### **3.2 Structural Equations Modeling (SEM)**

SEM is a statistical analysis technique that is applied in the exploration and analysis of complicated multivariable study [19]. It integrates two main techniques in statistics: “factor analysis” and “path analysis”. SEM can be used to examine or test the relationships between latent external variables and internal variables. Note that models can not be built based on SEM; rather, SEM emphasizes that models should be built through clear conception, literature, debate and deduction of the hypotheses of a hypothesized model [20].

### **4. THE MODEL: HYPOTHESES DEVELOPMENT**

We first define ICJVs and, according to the characteristics of ICJVs, analyze the variables that may affect the selection of organizational forms. We then explore the relations and influences of the variables based on both theories and our studies of practices of ICJVs. A set of hypotheses will be proposed. Finally with respect to various characteristics of ICJVs, we build a framework based on the proposed hypotheses for choosing appropriate forms to improve performance.

#### **4.1 Organizational Characteristics of ICJVs**

Since ICJVs are usually on a single-project basis, working as temporary organizations, it is necessary to sustain flexibility among organizational structures. Postmodern organizations are characterized by small, appropriate, flexible organizational structures and

cross-system cooperation. ICJVs often exhibit most characteristics of such postmodern organizations. This study defines two distinct organizational forms observed in the practice of ICJVs: separate management and joint management. The differences between the two management forms will be examined from the perspective of Webber’s [21] static principle and decision authority. Note that we do not argue that an ICJV will be either separately managed or jointly managed. In fact, most ICJVs’ management may be the combination of the two, and we would like to treat separate management and joint management as the extremes of a spectrum of ICJV’s organizational strategies.

#### **4.1.1 Separately Managed Joint Ventures**

In this paper, Separately Managed Joint Ventures (SMJ) is characterized by 1. each firm is technically and financially responsible for their assigned tasks, which are often negotiated during bid preparation, and 2. during construction, each firm makes most decisions related to the assigned tasks without the consent of JV management team or other partners. In separately managed joint ventures (SMJ), the chain of command is mainly lies independently within each participating firm. Thus, in SMJ there is only one set of chain of command for members from each firm. In terms of coordination and communication, in SMJ the needs for coordination are limited to higher levels managers. As a result, the cost for coordination is lower and the cultural conflicts in management are fewer. Another advantage of SMJ is to efficiently employ expertise and skills in each firm, saving the time and cost of communication between individuals from different firms, and improving the organizational performance.

#### **4.1.2 Jointly Managed Joint Ventures**

Here, Jointly Managed Joint Ventures (JMJ) is characterized by 1. all partners jointly share profits and risks of the ICJV according to an agreed proportion, although distinct tasks may still be assigned to each firm, and 2. during construction, JV management makes most decisions, which will be followed by all partners.

In jointly managed joint ventures (JMJ), there are two sets of chain of command, with the extra one from the JV management. In terms of coordination and communication, in JMJ the needs for coordination are extended to all levels of a JV organization. As a result, the cost for coordination is much higher and the cultural conflicts in management may be more frequent. One advantage of JMJ is to more effectively monitor and control the performance of other partners, and learn from other partners.

## 4.2 Rationales of JVs and Resource-based Organizational Factors

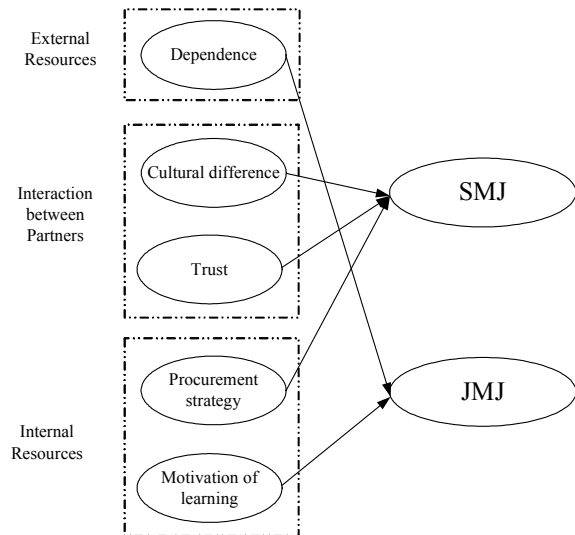
Kogut [22] proposes three notions of the motivations of using joint ventures: first, transaction costs are reduced by choosing JVs; second, strategic cooperation can help improving competitive ability or market ability; third, JVs can facilitate the transfer and learning of certain knowledge. We argue that Kogut's rationales of JVs can be integrated into a resource-based view, and according these rationales, we may extract organizational factors that best assure the performance of ICJV. First, transaction costs are closely related to the characteristics of a firm's resources, external or internal, such as uncertainty and asset specificity. Second, strategic cooperation behaviors for improving competitive ability will be desired when a JV promotes better resource integration and uniqueness, such as market power or technology. Finally, the needs for the learning of certain knowledge come from the firm's needs to internalize particular resource, i.e., some proprietary knowledge, outside the firm. Therefore, we may argue that the incentives for JVs are mostly resources related, and that the factors that best assure the performances of ICJV can be formed from the perspective of resource characteristics of each partner. Specifically, with respect to each JV partner, the resource characteristics can be categorized to, as shown in Fig. 1, first, external resource factors, second, internal resource factors, and 3. factors concerning the interaction between partners. Note that the interaction characteristics focus on the process of exchange or integrate resources between partners.

## 4.3 Hypotheses Development

As argued in previous section, here we will develop five hypotheses that model the selection of ICJVs forms based on three basic resource perspectives of JVs.

### 4.3.1 External Resources

By providing services to others, individuals or firms can create authority over others. If the services can be found nowhere else, then dependence is formed. Resource dependence is an important ingredient in social exchange theory. Resource dependence theory argues that organization can reduce environmental uncertainty by integrating certain resources to reduce dependence [23]. Also, according to RBV, if the resources of other partners are crucial to the competitive advantage of an ICJV, then the participating firm will strongly depend on others' resources.



**Figure 1.** Hypothesized model of organizational strategies for ICJVs

Therefore, if the success of an ICJV highly depends on joint management of other partners' resources so as to enhance competitive ability or eliminate uncertainty, JMJ will seem to be a better choice of organizational form. On the other hand, each firm in SMJ has their own resources, such as expertise or technology, so that assigned tasks in a JV can be completed when managed independently. From the TCE perspectives, whereas joint management will usually incur higher transaction cost in management process, more transaction cost can be reduced if the construction depends on other party's proprietary technology and joint management can facilitate the integration of such unique resources. Accordingly, we derive our first hypothesis. *Hypothesis One: the higher the extent of dependence on external resources, the more likely contracting companies in ICJVs will adopt JMJ, and vice versa.*

### 4.3.2 Internal Resources

From the resource-based view, different firms have different strategies for profits due to the characteristics of their specific resources and advantages. In a construction project, procurement strategy, including subcontracting, plays an important role in the coping with business uncertainty and controlling cost, and hence has critical impacts on profitability. In an ICJV, some firms may focus on higher procurement flexibility, such as choosing their own subcontractors, and tight supplier control; some firms may focus on differentiation strategy by providing advanced technology or construction methods; some firms may even focus on knowledge learning and building competitive ability. We argue that for a participating firm who emphasizes on flexible procurement strategy

will adopt SMJ. Here, hypothesis two is derived from the perspective of a firm's profit strategy due to her resource characteristic. *Hypothesis Two: the more requirements on the flexibility of the firm's procurement strategy, the more likely ICJVs will adopt SMJ, and vice versa.*

For the third hypothesis, we shall also apply the resource-based view as introduced previously. Through alliance, a contracting firm in ICJVs could obtain valuable but imperfectly imitable resources and capability to become the firm's competitive advantage. Depending on contracting firm's resources, some firms in ICJVs do not have the needs or motivations to internalize other partners' knowledge. For example, some firms participating in ICJVs are because of the entering of a new or unfamiliar market, instead of lacking particular technology. However, a firm with a strong motivation of learning will lead to the choice of JMJ, which is characterized by joint operation and implementation, which create a good learning environment. *Hypothesis Three: the stronger the motivation of learning, the more likely ICJVs will adopt JMJ form, and vice versa.*

#### 4.3.3 Interaction between Partners

Two major issues in ICJVs related to the interaction between partners are organizational culture and trust.

Organizational culture refers to the set of values, beliefs, understandings, and ways of thinking that is shared by the members of an organization [6]. In order to complete an ICJV project, the ICJVs as a temporary organization needs to exchange and adapt to different organizational cultures of the all partnering firms in a short period of time. As a result, the degree of cultural difference plays an important role on the selection of the form for managing an ICJV. Characterized by separate direction, instructions, and operation, SMJ can reduce conflicts that arise from organizational cultural differences. According, hypothesis four is derived. *Hypothesis Four: the bigger the cultural difference, the more likely ICJVs will adopt SMJ, and vice versa.*

Hypothesis five is based on social exchange theory. One basic assumption in transaction cost view is that people are rational and self-interested, and thus there is opportunism. Williamson [12] defines opportunism as self-interest seeking with guile, including lying and cheating. Thus, trust cannot be a solution in Williamson's world. However, in social exchange viewpoint, Blau [18] argues that reciprocity in the process of social exchange gives rise to gratitude, responsibility, and trust between the parties. Recently researchers such as Gulati [24,25] and Singh [26]

have applied "trust" in the study of JVs in the broad sense. Candace & Wiersema [27] also perceive trust as reliability and predictability. Reliability is important expectation of the partner in the alliance; whereas predictability refers to the partnership, integration of information, and consistence in the cooperation. Therefore, according to social exchange view, trust is a possibility or characteristics that may exist in the interaction of two firms.

In this paper, we take the view of social exchange and recognize the existence of trust and its effect. As a result, if the contracting firm cannot have a high level of trust toward other partners, the contracting company in ICJVs will be anxious and doubtful about their alliances, and thus JMJ will be a better form of ICJVs that minimizes transaction costs. On the other hand, SMJ will be a better choice if there is a high level of trust, as SMJ will have the lowest management costs such as monitoring, communication, and coordination. Accordingly, hypothesis five is obtained. *Hypothesis Five: the higher the trust level toward other partners, the more likely contracting company in ICJVs will adopt SMJ, and vice versa.*

#### 4.4 Hypothesized Model

Combining the hypotheses derived in previous section, we construct a hypothesized model, as shown in Fig. 1, for selecting the forms of an ICJV. Figure 1 also serves as a variable relation structural framework for empirical test using SEM. The empirical test using SEM will be left in future study.

### 5. CONCLUSIONS

In this study we have constructed a hypothesized model for ICJVs' organizational forms. In the model, we argue that a contracting firm with higher extent of dependence on external resources, more flexibility of the firm's procurement strategy, stronger motivation of learning, smaller culture difference with other partners, or lower level of trust toward other partners, will lead to more preference toward JMJ, and vice versa. In the future we will perform empirical tests using SEM according to the structural model in Fig. 1.

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#### REFERENCES

[1] Sillars, D.N. & Kangari, R., 'Predicting Organizational Success within a Project-Based Joint Venture Alliance', *Journal of Construction*

- Engineering and Management*, Vol.130(4) , pp.500-508, 2004.
- [2]Mohamed, S.,” Performance in International Construction Joint Ventures: Modeling Perspective”, *Journal of Construction Engineering and Management*,Vol.129(6), pp.619-626,2003.
- [3]Brickley ,J.A., Smith,C.W. , Zimmerman,J.L., and Willett,J., *Designing organizations to create value : from structure to strategy*, New York :McGraw-Hill,2003.
- [4]Hennart, J.F., “A Transaction Costs Theory of Equity Joint Ventures” , *Strategic Management Journal*,Vol. 9(4),pp.361-374,1988.
- [5]Zuckerman, H.S, Kaluzny, A. D., Montgomery, R. L., Ford, L., ”Strategic Alliances in Health Care: The Challenges of Cooperation”, *Frontiers of Health Services Management*, Vol.7(3), pp. 3-23,1991.
- [6]Daft, R.L., *Organization theory and design*, 7th, Ohio: South-Western College Publishing, 2001.
- [7]Robbins S.P., *Essentials of organizational behavior*, 4th, New Jersey: Prentice-Hall, 1994.
- [8]Kast, F.E. & Rosenzweig, J.E., *Organization and management : a systems and contingency approach*, 4th, New York :McGraw-Hill,1985.
- [9]Milgrom, P. R. & Robert, P., *Economics, Organization, and Management*, New Jersey : Prentice-Hall, 1992.
- [10]Williamson,O.E., “Transaction Cost Economics: The Governance of Contractual Relations,” *Journal of Law and Economics*, Vol.22(2), pp.233-261,1979.
- [11]Williamson, O. E., “The Economics of Organization: The Transaction Cost Approach”, *The American Journal of Sociology*, Vol.87(3), pp.548-577, 1981.
- [12]Williamson, O. E., *The economic institutions of capitalism*. New York: Free Press,1985
- [13]Williamson, O. E., “Comparative Economic Organization: The Analysis of Discrete Structural Alternatives”, *Administrative Science Quarterly*, Vol.36(2),pp.269-296, 1991.
- [14] Barney, J.B., ”Firm resources and sustainable competitive advantage ”, *Journal of Management*,Vol.17(1),pp.99-120,1991.
- [15]Chi, T., “Trading in Strategic Resources: Necessary Conditions, Transaction Cost Problems, and Choice of Exchange Structure”, *Strategic Management Journal*, Vol.15, pp.271-290, 1994.
- [16]Peteraf,M.A., ”The Cornerstones of Competitive Advantage: A Resource-Based View” , *Strategic Management Journal*, Vol.14(3), pp.179-191, 1993.
- [17]Homans,G.C., “Social Behavior as Exchange ” , *The American Journal of Sociology*,Vol.63,pp.597-606,1958.
- [18] Blau, P.M., *Exchange and Power in Social life*, New York: John Wiley and Sons,1964
- [19]Tabachnick,B.G., & Fidell,L.S., *Using Multivariate Statistics*. MA: Allyn and Bacon, 2001.
- [20]Chiou,H.J., *Principles and practice of Structural Equation Modeling with LISERL*, Taipei: Yeh Yeh,2003
- [21]Webber, R.A., *Management: basic elements of managing organizations*, Homewood : R. D. Irwin ,1979.
- [22]Kogut .B., “Joint Ventures - Theoretical And Empirical-Perspectives” , *Strategic Management Journal*, Vol.9(4), pp.319-332,1988.
- [23] Pfeffer, J., & Salancik, G. R., *The external control of organizations*, New York: Harper & Row,1978.
- [24]Gulati, R.,”Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances”, *Acad. Management Journal*, Vol.38(1), pp85-112,1995.
- [25]Gulati, R.,” Alliances and networks ” , *Strategic Management Journal*, Vol.19(4), pp.293-317,1998.
- [26]Gulati, R., & Singh, H.,” The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances” , *Administrative Science Quarterly*, Vol.43(4), pp.781-814,1998.
- [27]Candace Y.Y. & Wiersema M., ”Strategic flexibility in information technology alliances: The influence of transaction cost economics and social exchange theory”, *Organization Science*, Vol.10(4),pp.439-459,1999.