

## **INTRODUCTION**

### **1.1 Introduction**

Resource-based view (RBV) has gained increasing attentions from various parties in recent years (Grant, 1996). It focuses on knowledge as an important source of competitive advantage as it provides skills and capabilities to a firm to innovate new product and processes. Transfer of knowledge is thus considered a knowledge-based approach to innovation.

The competition within the construction industry has becoming more intense due to external influences such as globalisation, tightening of government regulations and so on. Therefore, construction enterprises will have to be vigilant and forward looking to survive (Betts M. and Ofori G, 1992). Discovering this, focus of construction firms has shifted from production-based to knowledge-based.

Construction firms are considered project-based enterprise as most of its business activities are made up of complex and non-routine projects. Construction firms are flexible in characteristic and normally operating on ad-hoc project team and fluctuating workforce. Adopting knowledge-based innovation to develop core competencies and enhance efficiency of a

construction firms is therefore considered difficult (Sijtsema and Postma, 2004).

However, there are successful evidences of developing and transferring of new knowledge in construction firms via consortia, strategic alliances and networks. A vivid example will be the increasing interest and focus on innovation and long-term cooperation constellations with network parties amongst Dutch construction enterprises (Sijtsema and Postma, 2004).

## **1.2 Objectives**

The main purpose of the study is to examine the application and trend of knowledge-based approach to innovation as a competitive strategy in construction industry. The research objectives are:

- i) To explore the trend of knowledge transfer and knowledge-based approach to innovation of construction firms in Malaysia.
- ii) To explore the knowledge properties for innovation in the network of construction firms as project-based organizations.
- iii) To study the influence of trust-based relationships and impact of the industrial context on knowledge transfer among construction firms in Malaysia.
- iv) To examine the effectiveness of knowledge-based innovation in developing competitive advantages for construction firms in Malaysia.

### **1.3 Scope of study**

The study is conducted on major construction firms in Malaysia selected through convenient study. Most of the firms selected is located in Klang Valley and listed on Bursa Malaysia. The focus of the study is to study the application of knowledge-based innovation as a competitive strategy within construction firms in Malaysia. Survey through semi-structure interview is conducted with senior management of the construction firms whom are the decision makers in strategizing the operations of these firms. In addition, as knowledge-based innovation involves not only the decision makers of a construction firms, the operation level managers and engineers are also

interviewed to gather a more comprehensive overview of the knowledge-based structures and innovations that the firm adopted.

#### **1.4 Limitations of the study**

Firstly, it is not an easy task to arrange for an interview with the senior management of the large size construction firms in Malaysia. Moreover, the topic focuses on competitive strategies of the construction firms in Malaysia, which were considered as classified, sensitive and highly confidential issues for some of the firms approached. As a result, some requests for interview were declined. Hence, a point of contact is needed in order to arrange for an interview session. Some companies have also requested for Non-disclosure Agreement.

Secondly, in view of the time and cost constraints, the present study is restrictively conducted via interview with major construction firms in Klang Valley, which may not be representative of the total market. Apart from that, the use of quota for convenience sampling is in fact view as a limitation, which may account for upwardly biased findings.

Generally, most of the large construction firms in Malaysia are based in Klang Valley. Hence, convenience sampling drawn from the Klang Valley would be

able provide insights findings regarding the application of knowledge-based approach to innovation of construction industry in Malaysia.

Apart from that, the result of the research is based on matching concept between the hypotheses and results from the semi-structured interview. A follow-up quantitative research will be more conclusive results.

## **1.5 Organization Of The Study**

This report has been organized into five main chapters. Chapter one serves as general introduction to the study. It presents an overview of the problem, objective, significance and scope of the study. Chapter two is the literature review focusing on the knowledge-based approach to innovation and knowledge transfer acting as an effective competitive strategy. Previous researches in the knowledge-based innovation of construction industry are also reviewed here. Chapter Three presents the propositions investigated in the study and methodology to carried out the study, which includes sample design and procedures, measuring instruments adopted, followed by data collection method and data analysis techniques used in this study. Chapter Four presents the findings of the study and discussion of the research results. Chapter Five serves as a conclusion to the study conducted by summarizing the findings. Some recommendations for future research are also presented.

## **1.6 Background of The Interviewed Companies**

### **1.6.1 Gamuda Berhad**

Gamuda Berhad is Malaysia's leading infrastructure group. Incorporated in 6<sup>th</sup> October 1976, Gamuda diversify its core business activities from construction to infrastructure privatisation and property management. Gamuda Berhad was listed on the main board of Bursa Kuala Lumpur on 10<sup>th</sup> August 1992. At present, Gamuda Berhad owned the concession on Lebuhraya Damansara Puchong (LDP) highway via consortium company KESAS Sdn Bhd and SPRINT highway with the similar concession agreement with SPRINT. Other privatisation projects include concession agreement with the Selangor State Government for the Sungai Selangor Phase 3 Water Project (SSP3).

In 2000, Gamuda Berhad was voted Best Asian Construction Company by Euromoney magazine. In July 2002, Gamuda Berhad signed a joint venture agreement with MMC Engineering to jointly undertake the construction of SMART - an integrated bypass tunnel-cum-motorway in Kuala Lumpur City.

Gamuda Berhad also ventured into international construction. International construction projects Gamuda Berhad undertaken in recent years are concession agreement of Panagarh-Palsit Highway projects in West Bengal, India; Kaohsiung Mass Rapid Transit Project in Taiwan and so on.

As on 2004, Gamuda Berhad is the largest construction company in Malaysia, with market capitalisation of more than 1 billion US dollars.

### **1.6.2 Road Builder Berhad**

Road Builder Berhad is one of Malaysia's leading infrastructure corporations with domestic and international operations. Incorporated in 1985, Road Builder Group has diversified its core of construction and infrastructure development into property development, highway tolling concessions and port operations.

One of the Road Builder's significant achievements is the design and built of the world's first state of the art cable-stayed arch bridge in Putrajaya, Malaysia. This is an achievement that is testimony of our engineering expertise and technological innovation.

Road Builder owned the concessions of New Pantai Highway, Sungai Besi Highway and Bestraya Highway. Road Builder also ventured into international construction which includes construction of national highway from Gurgoan In Haryana to Kotputli In Rajasthan; 4-lane national highway from Raniganj To Panagaph in West Bengal and so on.

Road builder Berhad is also the first construction company in Malaysia to be accredited the ISO 9002 Quality System Certification for Building and Civil Engineering services from SIRIM QAS Sdn Bhd. Road Builder Berhad currently has approximately 1700 employees and is one of the largest construction company in Malaysia.

### **1.6.3 IJM Corporation Berhad**

IJM can trace its beginnings to three well-run construction companies – IGB Construction Sdn Bhd, Jurutama Sdn Bhd and Mudajaya Sdn Bhd. These three enterprising construction companies merged in 1984 in a bid to compete more effectively against bigger foreign rivals who were making their presence strongly felt in the Malaysian market in the late 1970's and early 1980's.

IJM has won many awards including Malaysian International Contractor of the Year Award from the Construction Industry Development Board in 2000, the Malaysian Builder of the Year Award in 2001 and the Project Award (Major Building Category) in 2003. To add feather to its cap, the Company was awarded the inaugural Malaysian Business Corporate Governance Award in 2002, and the KLSE Corporate Merit Award (Construction Sector) in 2002 and 2003. The Group's increasing success in exporting its construction services abroad has not gone unnoticed. The Malaysian International Trade and



Industry Ministry recently honoured the Company with its Excellence Award 2003 for the Export of Services.

IJM also diversified into industry such as quarrying, ready-mixed concrete and plantation and has recorded good results. The plantation division is now listed on the Mainboard of Bursa Malaysia.

IJM has been very successful in the overseas infrastructure privatisation (Build-Operate-Transfer) schemes, investing in major infrastructure projects such as Guangdong Provincial Expressway in China, Western Access Tollway project in Argentina, Swarna and Rewa tolled highway projects in India, BAWC water treatment plant in Vietnam and others.

IJM went public in 1986 with a market capitalization of RM66 million, total assets of RM172 million and a local business. By 31 December 2003, the Group's market capitalisation and total assets stood at RM1.78 billion and RM2.56 billion respectively. Over time it has evolved a very institutional ownership profile, and an independent management team with an excellent reputation for professionalism, performance and good governance

#### **1.6.4 MTD Capital Berhad**

MTD Capital Berhad was incorporated in 1980. Beginning as civil engineering Construction Company, the company carved a niche in the upper end of road construction, especially in the design and construction of mountainous roads. MTD is a top five construction company in Malaysia specialising in highway construction. The company was listed on KLSE Second Board and subsequently transferred to the Main board in January 1994 and December 1998 respectively. In July 1994, the company venture into the privatisation of KL Karak Expressway (KLK) under the built own and transfer (BOT) under a 32-year concession. Its significant venture in property development was via its 50% owned Labur Bina, which is developing Bandar Bukit Tinggi, a 346 acre self-contained township in Klang, Selangor.

The company recent expansion includes the participation in the restructuring of Dewina Bhd, which involves the injection KLK and general offer for Metacorp Bhd, owner of Metramac, the concessionaire of urban roads in KL. Upon completion of these exercises, the group would comprise of six listed companies.

### **1.6.5 WCT Engineering Berhad**

WCT was incorporated on 14th January 1981 as a private limited company under the name of WCT Earthworks & Building Contractors Sdn Bhd. It became a public-listed company on 1st April 1995 and assumed its present name of WCT Engineering Berhad, which is listed on the Main Board of the KLSE.

Over the years, WCT has undertaken a variety of construction works ranging from earthworks to building, bridges, roads, highways, dams and international racing circuits. The world-class Malaysian Formula One Racing Circuit in Sepang with state-of-the-art facilities costing RM308 million was completed within a record of 14 months.

WCT was also the leading bulk earthworks sub-contractor for the Kuala Lumpur International Airport at Sepang, with five packages worth RM150 million secured from the various main contractors. A total of 50 million cubic metres of earthworks were completed by WCT within 3 ½ years.

Besides projects in Malaysia, WCT has construction projects in India as well as Bahrain which include Durgapur Expressway from KM581 to KM646 on Dankuni to Palsit Section of NH2 in west Bengal, India; 4-laning from KM517 to KM581.457 on Panagarh to Palsit section of NH2 in West Bengal, India;

Widening & rehabilitation of existing 2-lane highway from KM54.383 to KM111.600 on Tada to Nellore Section of NH5 in Andhra Pradesh, India.

WCT also ventured into property development and is the developer for Bandar Bukit Tinggi 1, 2 and 3 in Klang which covering more than 1400 acres.

#### **1.6.6 Gadang Holdings Berhad**

Gadang Holdings Berhad was incorporate in Malaysia 1993 and listed on the Second Board of Bursa Kuala Lumpur on 2<sup>nd</sup> September 1994. Gadang Group's core business activity is in earthworks, civil engineering and building construction. It also undertakes property development and investment, and to complement these activities, engages in the manufacture of cement. In addition, the Group has investment in telecommunication activities. The Group's operations are situated in Selangor, Penang and Federal Territory (Kuala Lumpur)

#### **1.6.7 Pintaras Jaya Berhad**

Pintaras Jaya Berhad was incorporated in Malaysia as a limited company on 23<sup>rd</sup> November 1989 as Pintaras Jaya Sdn Bhd, specialising in geotechnical foundation works. The company was converted into a public company on 6<sup>th</sup> December 1993 and listed on the Main Board of the Bursa Kuala Lumpur.

Pintaras Jaya Berhad's core business covers a wide spectrum of activities relating to piling, foundations, geotechnical engineering, building and civil engineering works. Apart from specialist services such as design and construction of piling system, Pintaras Jaya Berhad also venture into earth retaining systems and manufacturing of pre-cast pile.

As on 2004, Pintaras Jaya Berhad has a workforce of 200 people and has completed more than 150 projects with a total value exceeding RM400 million.

#### **1.6.8 Company X**

Company X was originally birthed from a joint venture between local engineers and an international corporation of Japan. From humble beginning, Company X has diversified from a specialist in mechanical and electrical engineering into an engineering procurement, construction and turnkey developer which provide services include: turnkey project management, electrical and mechanical services, civil and structural, power generation and infrastructure.