

RESEARCH BRIEF

2003/002

Developing World Class Firms with Strong Export Capability: Learning from Successful USA Design and Construction Firms

OBJECTIVES

This research project investigated two main issues: (1) export strategies for architectural, engineering and construction (AEC) firms; and (2) safety of tall buildings in the light of the 911 incident. In the first stream on export strategies, the objectives of the study are:

1. To compare the key features of Singapore's large design and construction firms with those of their world class counterparts in the USA, to determine the differences and similarities.
2. To determine the current strategies adopted by Singapore firms and USA firms to export design and construction services.
3. To recommend strategies that Singapore design and construction firms should adopt to become world class firms with strong export capability.

In the second stream of study, the objective is:

4. To determine the implications of the 11 September 2001 terrorist attacks in the USA (911 incident) on the USA construction industry, and evaluate the need for Singapore's construction industry to adopt any of the special measures.

RESEARCH METHOD ON EXPORT STRATEGIES

To achieve objectives 1 to 3, a retrospective case study questionnaire (data collection instrument) was designed to collect information of international projects. Respondents were requested to report projects they had undertaken outside their home countries, and if possible, those in East Asia, especially China.

Data were collected via postal surveys and interviews. The survey package comprised the questionnaire, a self-addressed and stamped envelope and a cover letter which explained the purpose of the survey. The questionnaire was sent out by mail and self-administered. Respondents who were interested could request for a summary of the findings.

The sampling frame comprised AEC firms which have headquarters in the USA or Singapore, and had undertaken international projects. Questionnaires were sent to all the top USA-based international contractors and international design firms ranked by the Engineering News Record in 2001 and 2002. As for the Singapore sample, questionnaires were sent to international contractors ranked by the Building and

Construction Authority (BCA) in 2002, and other randomly selected AEC firms. These firms were selected randomly from the websites of Building and Construction Authority (BCA), Singapore Institute of Architects (SIA) and Association of Consulting Engineers Singapore (ACES).

70 sets of data on international projects were collected using face-to-face interviews and a mass mailing approach. These comprise 34, 26 and 10 international projects undertaken by respondents from Singapore, USA and other countries. Some project data are shown in Figures 1 and 2.

RESEARCH METHOD ON EFFECT OF 911 ON THE CONSTRUCTION INDUSTRY

To achieve objective 4, a questionnaire was also designed. The purpose of the survey was to find out AEs' perception of the safety of tall buildings in Singapore and the feasibility of measures that could be adopted to improve the safety levels of tall buildings. The survey package comprised a cover letter, the questionnaire and a self-addressed and stamped envelope. Data for the survey were collected via email, surface mail and telephone.

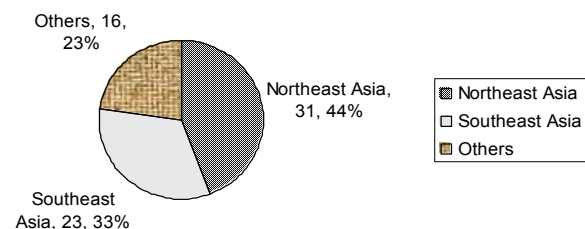


Figure 1. Distribution of projects by location.

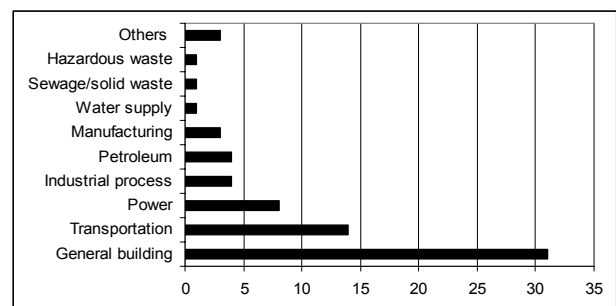


Figure 2. Distribution of projects by type.

80 and 160 questionnaires were sent to randomly selected AEs in the public and private sectors respectively. 34 questionnaires were received, giving an overall response rate of 14%. Interviews were also conducted with the purpose of examining the building authorities' efforts in addressing the safety of tall buildings after 911.

FINDING 1: KEY FEATURES OF INTERNATIONAL FIRMS

The findings reveal that top Singapore contractors are lagging behind top USA contractors in export earnings, total construction revenues, years of experience in the construction industry, staff strength, market coverage, and expertise in different project types. The fact that Singapore is a young nation with less than 40 years of history needs to be taken into account as it is unlikely for Singapore contractors to progress and develop very far within this short time-frame. Notwithstanding this, Singapore contractors are urged to improve on their deficiencies and disadvantages so that they can compete with foreign contractors.

FINDING 2: STRATEGIES ADOPTED BY SINGAPORE AND USA FIRMS IN EXPORTING

Among the 14 possible market entry strategies investigated, the three most frequently used market entry strategies are:

- Setting up a subsidiary firm in the host country
- Setting up a branch office in the host country
- Setting up a project joint venture with a firm in the host country.

The entry strategies that bring about significant project success are shown in Figure 3. The three most effective market entry strategies that contribute to project success are:

- Adopting partnering
- Setting up a subsidiary firm in the host country
- Setting up a branch office in the host country.

The study also showed that Singapore firms adopt 15 business strategies, while USA AEC firms adopt 19 business strategies frequently and effectively. Singapore firms lagged behind USA firms in the following areas:

- Undertaking structured studies of target market before entry
- Investing in R&D relating to the project or host country
- Employing citizens from the host country to manage the project
- Becoming a member of a consortium in the host country.

FINDING 3: STRATEGIES TO ADOPT TO BECOME WORLD CLASS

Based on the findings, the following strategies are recommended to Singapore firms when undertaking projects overseas:

1. Set up wholly owned subsidiaries in the host countries.

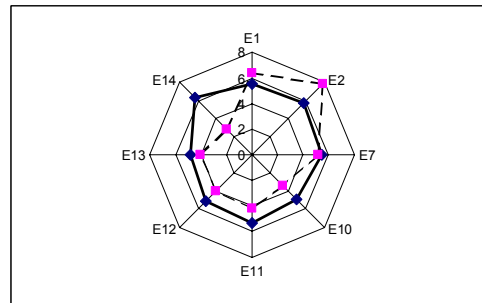


Figure 3. Market entry strategies that contribute significantly to project success.

Legend: Dark continuous line shows the effectiveness in contributing to project success. Broken line shows the frequency of usage. (Not to scale)

2. Form joint ventures with firms in the host country.
3. Focus on core competency by:
 - a. offering niche products or services through differentiation strategy and cost leadership strategy
 - b. specializing in a certain field
 - c. finding a niche area and establishing leadership in it.
4. Undertake R&D and structured studies relating to the host country and the project.
5. Procure globally; including employing citizens from the host country.
6. Build networks and contacts including becoming a member of a consortium in the host country.
7. Build up experience and track record of similar types of projects in order to enhance international reputation.
8. Offer product and service of high quality.
9. Understand clients' requirements.

FINDING 4: IMPLICATIONS OF 911

The study identified 23 possible measures to improve the safety of tall buildings, and 16 issues relating to the safety level of tall buildings. The results show that AEs: (1) confirm the need to improve the safety of tall buildings further; (2) are making an effort to address the heightened safety concern; (3) will give full support to initiatives to address heightened safety concern; (4) agree to conduct risk assessment during design phase; and (5) will welcome performance-based design code. AEs do not agree that buildings should be designed to withstand hydrocarbon fires or aircraft attacks.

The four most popular methods to improve the safety of tall buildings are providing exit signs with lighting at floor levels; a separate design code for super high-rise buildings; fire refuge and rescue floors; and a decentralized fire fighting system.

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