

CRITICAL SUCCESS FACTORS FOR CONTRACTING ORGANIZATION DURING
RECESSION

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ABSTRACT

The unfavorable economic condition has caused tremendous impact on construction industry. It is interesting to note that the impact is not only focusing on the success rate in obtaining new project, but also selection of approach made by construction companies. Thus, specifically, this study is to focus on the critical success factors (CSFs) for a contracting organization faced during recession. To achieve the aim of the study, an investigation on the impact, business objectives, and measures taken by contracting organizations is identified. The research methodology includes literature review and questionnaire survey. The data was analyzed using relativity index and average weighting index method. Based on the analysis of the data obtained from the survey, it was concluded that the most agreeable critical success factor is to possess strong financial status. For future research, it is recommended that a specific study can be conducted on the benchmarking during recession.

ABSTRAK

Keadaan ekonomi yang kurang memberangsangkan telah meninggalkan kesan diluar jangkaan kepada industri pembinaan. Adalah menarik untuk mengetahui bahawa kesan ini bukan hanya berfokus pada peluang untuk mendapatkan projek baru, malah pada pilihan pendekatan yang diambil oleh syarikat pembinaan. Oleh itu, dengan lebih spesifik, kertas kerja ini difokuskan pada Faktor Keberjayaan Kritikal (FKK) untuk sesebuah syarikat kontraktor sewaktu menghadapi kegawatan ekonomi. Bagi mencapai tujuan kajian, penyiasatan dijalankan keatas kesan, misi perniagaan, dan pendekatan yang telah diambil oleh syarikat kontraktor. Kaedah kajian meliputi pembacaan kajian terdahulu dan soalselidik. Keputusan kertas kerja dipersembahkan menggunakan indeks kerelatifan dan kaedah berat purata indeks. Berdasarkan analisis keatas data yang diperolehi melalui soalselidik, faktor keberjayaan kritikal sesebuah syarikat kontraktor semasa kegawatan ekonomi adalah dengan mempunyai asas kewangan yang kukuh. Untuk kajian di masa hadapan, adalah disarankan supaya kajian spesifik dilakukan keatas penanda aras kemajuan sewaktu kegawatan ekonomi.

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CHAPTER 1

INTRODUCTION

This study is engineered to investigate the impact of recession to the construction industry in Malaysia namely contracting organization. Following the impact is the measures taken by the contracting organization in addressing financial constraint during financial crisis. Finally is to gather the contracting organization perception towards the success factors. All these attributes are contributing to the aim of the study which is to identify the critical success factors (CSFs) during recession and this aim is to focus on contracting organization. In this chapter, introduction is made on the general information regarding economic recession and the impact to construction industry, problem statement of the research, research objectives, scope of project, methodology in brief, and summary of all chapters.

1.1 Background

Periods of recessions have followed dramatic increases in the price of oil. The industries that depended on energy prices suffered a sharp decrease in business and subsequently, reduced output and staff. An economy-wide decline in demand and reduction in real is influenced greatly by the higher cost of oil imports and a stringent monetary policy. The influencing factors slow down overall demand, and lead to subsequent recessions. The economic recession is the outcome of the impact on the economy by drop in demand, role of aggregate forces and the allocated forces. According to Brandel and Betts (2010), with the economic meltdown in 2008 and 2009, the pendulum swung all the way back to total budget lockdown, where governance was centralized. Maty (Ed.) (2008) affirmed in his words about the possibility of reeling in new-construction scene due to economic downturn but not on the maintenance and restoration side.

The Malaysian-German Chamber of Commerce (MGCC) exposed the construction industry growth level in Market Watch 2009. Due to economic hibernation, this result to higher price of building materials, especially in cement and steels prices followed by the abandoned projects in 2008, several measures has been taken by government to improve the delivery system for construction industry. In the previous recession, the Malaysia government had allocated RM 18 billion under 2000 Budget to pump priming the construction sector. The results have been favorable as reflected in the growing optimism and rise in construction activity. Loans approved by the banks for the construction sector has also risen in tandem with the rise in Gross Domestic Product (GDP) growth rate and per capita income. For the ensuing year, the 2001 Budget has forecasted and growth rate of 5.5 per cent for the construction sector (Construction Industry Development Board, 2008a). Added to this, the employment opportunity for building and construction graduates across the country is supported by the data obtained from the survey done by Bank Negara Malaysia (2008a) on employment outlook in the

manufacturing, services and construction sectors, 24 per cent of the companies stated that they would reduce number of jobs in 2009.

According to Construction Industry Development Board (2008b), government budget and expenditure reacting to economic tidal may well portray the condition of industry as well. In the mid-term review of the Ninth Malaysian Plan (NMP), government announced an additional budget of RM 10 billion, and increment from RM 220 billion to RM 250 billion. Up to now, there has been no evidence of reduction in government expenditure especially for construction activities. In year 2008, RM 63.15 billion worth of projects was awarded (of which 43.7 per cent of RM 27.60 billion, is from government coffers) compared to 2007 and 2006 values of RM 47.48 billion and RM 22.45 billion respectively, that is, no cutback in government spending for construction activities. Kaur (2009) in *Business Times* reviews that the government awarding contracts under RM 60 billion stimulus package. The first stimulus of RM 7 billion had benefited some 15,000 small contractors who were given contracts for building works, maintenance and repair, and the extension of schools.

Referring to Business Monitor International (2009a) on Malaysia Infrastructure Report for Quarter Four 2009, Malaysian water firm, Puncak Niaga's subsidiary Syabas has halted a USD 7.14 billion project to repair and replace old pipes, which was due to start in early 2010, as it is restructuring its water assets, according to Bernama. Rozali Ismail, executive chairman of Syabas, stated the federal government has instructed Syabas officials to delay the works including its repair works under the third program. No restart date has been agreed.

Further to construction review made by Business Monitor International (2009b), in June 2008, government officials said that they would remove the price cap on cement. This move was made to help the country's building industry, which had been affected by

rising fuel costs. As fuel prices rose, cement makers were more reluctant to supply their product to outlying regions because of the costs involved with transport. However, cement prices have since fallen, as a far bigger preoccupation; the global economic downturn has taken hold of the construction market. The outlook for construction is poor for 2009. The global economic downturn bodes ill for exports and economic growth in Malaysia, so private commercial construction will be undermined. Furthermore, the government is limited in its ability to spend on public infrastructure construction.

In contrary, approaches for improving business performance in the construction industry have evolved tremendously over the years, in example, from quality assurance to Total Quality Management (TQM). However, there are several considerations to be taken to the implementation of approaches in contracting organization. One of major deliberations is on the declining economics. Setting up appropriate objectives to incorporate business aims is the essence of success. The next stage involves maneuvering the strategic plan by establishing a set of measures. Later is to take into action what has been planned as accordance to the guidelines set by the management. At the core of a contracting organization business, assessment is important to determine whether there is improvement to be done, which includes process flow, profit making, efficiency and productivity. Results then reviewed using key performance indicator or other tool to achieve key business result. Hence, impact should be studied closely in order to get the clear picture of aims in determining the critical success factors.

Despite seeing economy trend as the major factor to profitability in construction industry, there is no research or study has been carried out by researchers to unveil the impact of recession to Malaysia construction industry. Literature review sighted from Emerald database shows few studies have been done but not specifically to the impact and contributed to other sector such as business. Ilmakunnas (2002) as example has studied the turnover of jobs and workers in a deep recession by revealing the evidence

from the Finnish business sector. Jannadi (1997a) studied the reasons for construction failures in Saudi Arabia, identified the major factors that contribute to the failure of construction contractors in the Eastern Province of Saudi Arabia. Jannadi (1997b) ranked the factors according to their importance from the viewpoint of contractors and legal accountants and the Spearman rank correlation coefficient was calculated.

According to Lam *et al.* (2004a), various research efforts in the context of Critical Success Factors (CSFs) were identified. As construction projects are often initiated according to stated goals and objectives, most of the lists were based on a particular project scope and purpose. As a result, the factors are very specific for a particular project scope and purpose. Consequently, there is no specific effort to discuss on the CSFs for contracting organization during financial crisis.

Lam *et al.* (2004b) also studied the CSFs concerns the features of a design and build project. The CSFs are including project characteristics, project procedures, project management strategies, project-related participants, project work atmosphere, and project environment. Therefore, this research is proposed to study the CSFs especially to contractors in Malaysia construction industry. In order to derive the factors to success, impact of financial crisis to be identified and comprehended. Accompanying the step is the measures taken by the contracting organization in addressing financial constraint during recession. Lastly is the perception on business objectives or aims, which is later to be considered as factors to success.

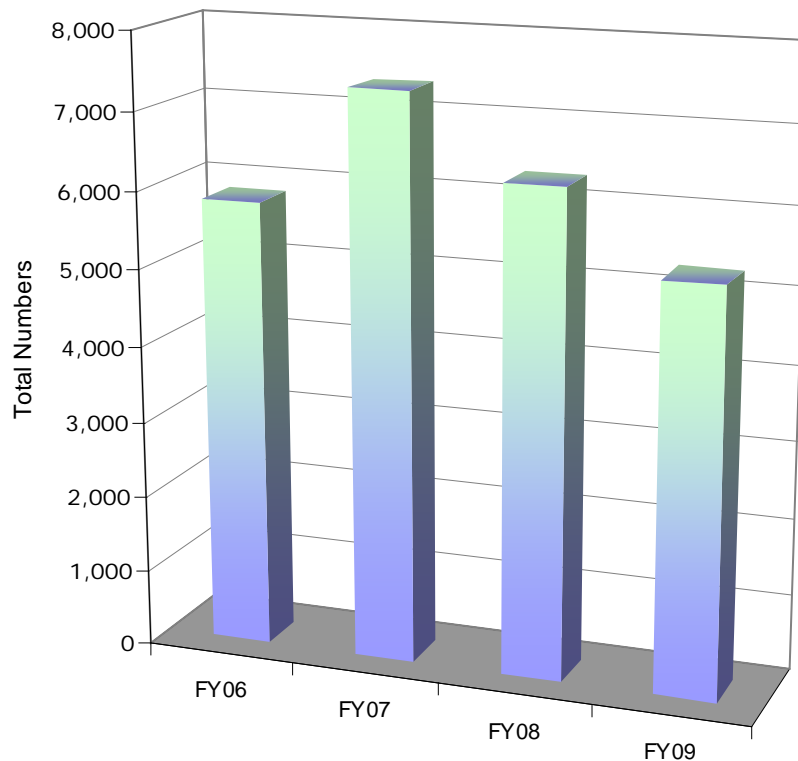
Different from the study made by Jannadi (1997c), the survey which is to be conducted will cover respondents from all major parties involved in construction industry and not solely focusing on contractors. Lam *et al.* (2004c) once again specifically referred to design and build procurement systems in construction. In further, most of the time the paper relates CSFs to the benchmarking. Added to this, what makes

this study dissimilar compares to other studies is the focus on the contracting organization within recessionary period.

1.2 Problem Statement

Construction industry performance is improving through case studies and research. This is motivated through benchmarking and stimulus injection by the government. According to Bank Negara Malaysia (2009b), the implementation of two fiscal stimulus programmes, together with the easing of monetary policy, and the implementation of construction-related projects under the Ninth Malaysia Plan (NMP) provided support for domestic demand. On the other hand, other sectors with the exception of construction, recorded negative growth in the first quarter of 2009. Despite seeing the positive growth due to government helping hands, there is always a concern that financial crisis might arise again. Does Malaysia government might be able to be prepared for this at anytime in the future and does construction sector will always need support in order to be sustainable?

Managing a contract what else to sustain organization growth is to some extent decisive during depression stage. The construction industry has been long depending on the world economic weather. Making the right decision is crucial for the developers at time of recession to ensure that the choice made is not only an advantage for the company's development and growth but the most essential part is making profit. The biggest impact will be on the contracting organization, whereby they have to endure with smaller profit margin and more financial constraint. This statement is supported by the data obtained from Construction Industry Development Board (2010c).



	FY06	FY07	FY08	FY09
No. of Projects	5,854	7,358	6,327	5,281

Figure 1.1 Histogram shows total number of projects awarded to by category as of December 2009 (Construction Industry Development Board, 2010d).

Figure 1.1 derived from a table obtained from CIDB official website. The figure shows the obvious fall in total number of projects, during the years when recession occurs. Number of projects awarded to the contractors dropped (-7.5 per cent) from 7,358 in 2007 to 6,327 in 2008. This is followed by another plunge (-9.0 per cent) in year 2009 with total number of projects is 5,281, which made total percentile dropped from 2007 to 2009 is 16.5 per cent.

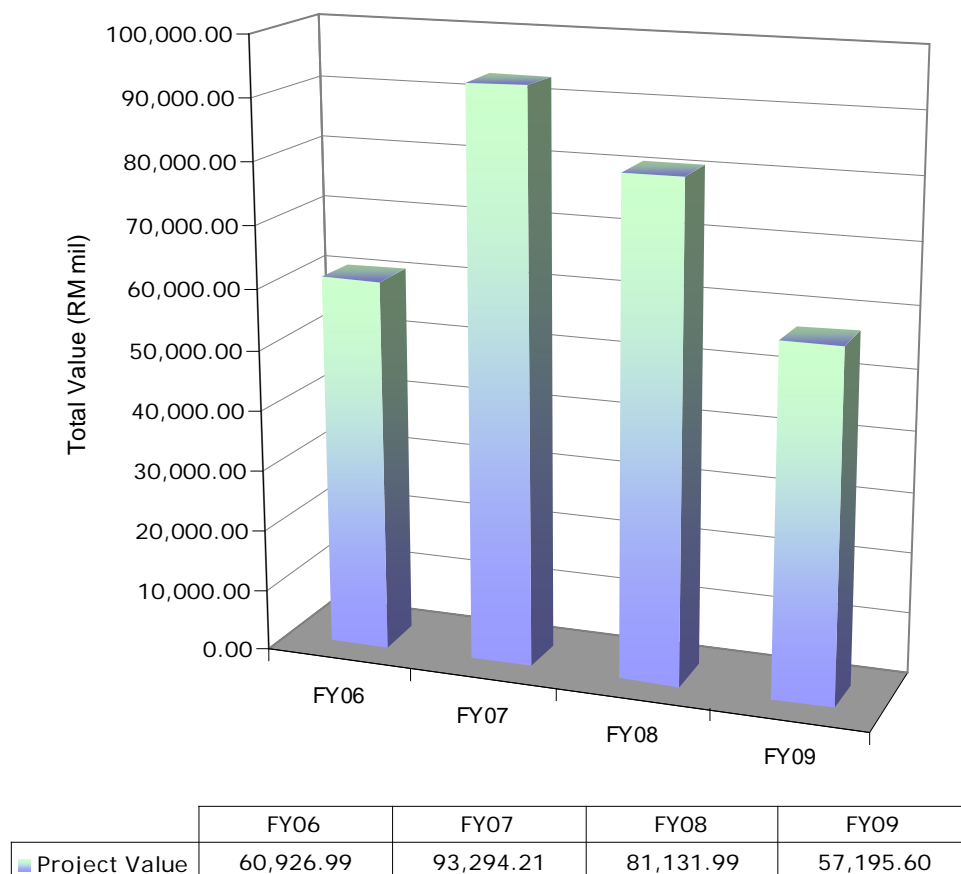


Figure 1.2 Histogram shows total value of projects awarded by category as of December 2009 (Construction Industry Development Board, 2010e).

Figure 1.2 also derived from a table obtained from CIDB official website. The figure shows total value of projects awarded to the contractors from year 2006 to 2009. Total value of projects awarded to the contractors depreciated as much as 6.97 per cent from 93,294.21 million in 2007 to 81,131.99 million in 2008. This is followed by another fall in 2009 at 17.3 per cent from 2008 to 57,195.60 million in 2009, which made total of depreciation percentile is 24.2 in three years.

The study of recession in construction industry has not been an entirely straightforward matter. One of the main problems that arise is a common one in

research: how exactly does one define the impact? That is to say, what exactly is recession? People seem to see the recession in many ways for many different perspectives. Adding to this confusion is the difficulty of disentangling the impact from other related, but decidedly different, processes such learning to adapt, struggling to survive, or ignoring the even altogether. Does recession, as some have suggested, require conscious and deliberate effort by the construction players, or can it pass by passively? Is there a consistent model that can be applied to the stages of recession? Or do multiple stages necessarily have to occur at all? Can recession be a state of equilibrium in construction process?

Other major obstacles found when proposing the research is no suitable reference for analysis in this research title. The closest information only can be obtained based on the survey and statistic prepared by the Malaysia Department of Statistic and Construction Industry Board of Malaysia. Due to no topic of research found closest to the project title, the study has been proposed. Consequently, recession impact is widely recognized in the construction industry but not specifically focused on the contracting organization. The impact may be severe if not because of the government helping hands. However, the problem is, do the contractors aware of the impact on their organizations and does they know how to adapt and successfully survive? Other than that, number of projects dropped whenever there is financial crisis. Thereby, a study needs to be conducted to understand the relativity of recession impact to the success rate of a contracting organization during recession. Last but not least, company approach also to be taken into account. This is because of the measures taken by the contracting organizations may affect the chances to successfully achieve their goals. Due to the above problems, aim and objectives of the research are developed.

1.3 Aim and Objectives of the Research

The aim of this research is to determine the Critical Success Factors (CSFs) for contracting organization during recessionary period. To achieve the aim of study, three objectives have been determined as following:

- (i) To identify critical impacts on contracting organizations during recessionary period;
- (ii) To identify company approaches in addressing financial constraints during recession; and
- (iii) To identify the Critical Success Factors (CSFs) for a contracting organization during financial crisis.

1.4 Scope of the Study

There are few considerations have been taken while carrying this study. Due to resources and time constraint, following are the limitations which have been imposed on the study:

- (i) Survey correspondence only done to 30 respondents in Peninsular Malaysia;
- (ii) Questionnaires only spread to respondents residing in Klang Valley area; and
- (iii) Samples may be biased because not all major contracting organizations are selected.

1.5 Research Methodology

Research methodology is briefly shown in the following process flow chart (Figure 1.3). All eight (8) phases shown are explained in Chapter 3 (Research Methodology):

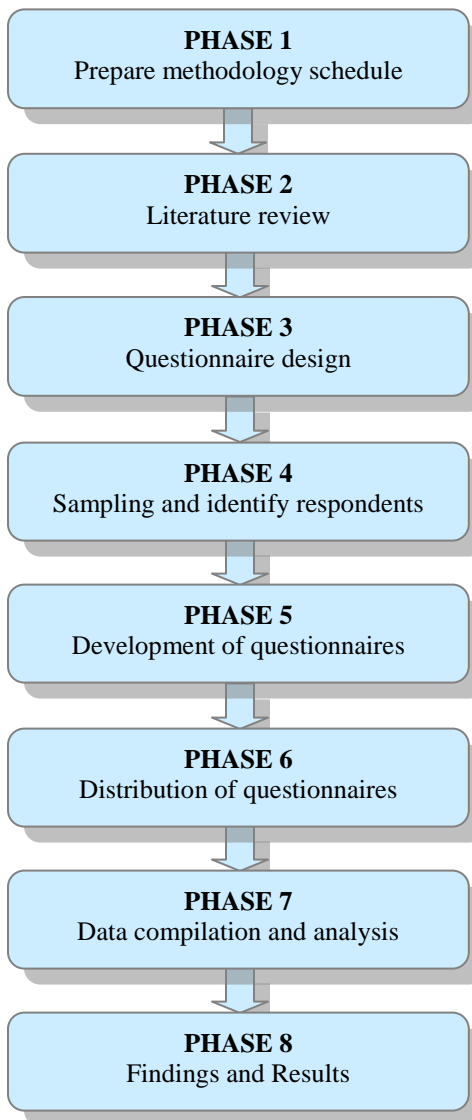


Figure 1.3 Methodology process flow chart

REFERENCES

- Anonymous (Ed.) (2009). Business News: Navigating the Storm; Charting a Path to Recovery? How the Global Construction Industry is Rebuilding and Redesigning the Future. *Ecology, Environment and Conservation*. 166.
- Bajaj, D. (2001). Risk Response and Contingency Strategies among Contractors in Sydney, Australia. *AACE International Transactions*, 111. ABI/INFORM Global, ProQuest.
- Bennett, R. (2005). Marketing Policies of Companies in a Cyclical Sector: An Empirical Study of the Construction Industry in the United Kingdom. *Journal of Business & Industrial Marketing*, 20 (3), 118-126. Emerald.
- Brandel, M. and Betts, M. (2010). Swinging Towards Centralization. *ComputerWorld*, 44 (5), 16. ABI/INFORM Global, ProQuest Computing.
- Brockhoff, K. K. and Pearson, A. W. (1998). R&D Budgeting Reactions to Recession. *Management International Review*, 38 (4), 363. ABI/INFORM Global, ProQuest.
- Business Monitor International (2009). Malaysia Infrastructure Report Q4 2009, 1752-7848. *Business Monitor International Ltd*. ABI/INFORM Global, ProQuest.

- Cassidy, R. (2009). Small AEC Firms Getting Battered by The Big Guys. *Building Design and Construction*, 50 (9), 5. Chicago.
- Chan, E. H.W. and Au, M. C. Y. (2007). Building Contractors' Behavioral Pattern in Pricing Weather Risks. *International Journal of Project Management*, 25, 615-626. Science Direct.
- Chan, J. K. W. *et al.* (2005). Construction Firms at the Crossroads in Hong Kong. *Engineering, construction and Architectural Management*, 12 (2), 111. ABI/INFORM Global, ProQuest.
- Cheng, M. Y., Sayed, H. and Guo, J. H. (2009). Social Acceptance and Readiness for the Knowledge-based Economy in Malaysia. *ASEAN Economic Bulletin*, 26:3 (1793-2831), 253-65. ABI/INFORM Global, ProQuest.
- Clark, N. (2010). Surviving and Thriving. *Environmental Design and Construction*, 13(1), 21. ABI/INFORM Global, ProQuest Science Journals.
- Construction Industry Development Board (2008). *Construction Projects in Local Market*. Kuala Lumpur: CIDB.
- Construction Industry Development Board (2008). *Corporate View Point: Datuk Hamzah Hasan Gives His Take on the Health of Malaysian Economy*. Kuala Lumpur: CIDB.
- Construction Industry Development Board (2008). *Overview of the Malaysian Construction Industry*. Kuala Lumpur: CIDB.
- Dainty, A. R. J. *et al.* (2004). Bridging the Skills Gap: A Regionally Driven Strategy for Resolving the Construction Labour Market Crisis. *Engineering, Construction and Architectural Management*, 11 (4), 275. ABI/INFORM Global, ProQuest.

- Gardiner and Theobald (2008). Tender Prices Continue to Fall. *Structural Survey*, 27 (3). ABI/INFORM Global, ProQuest.
- Goodell, P.W. and Martin, C.L. (1992). Marketing Strategies for Recession Survival. *The Journal of Business and Industrial Marketing*, 7 (4), 5. ABI/INFORM Global, ProQuest Telecommunication.
- Gransberg, D. D. (1997). Evaluating Best Value Contract Proposals. *AACE International Transactions*. p.60. ABI/INFORM Global, ProQuest.
- Gransberg, D. D. and Ellicott, M. A. (1997). Best-Value Contracting Criteria. *Cost Engineering*, 39 (6), 31. ABI/INFORM Global, ProQuest.
- Grogan, T. (2009). Competition Intensifies as Recession Deepens. *Engineering News Record (ENR)*, 263 (10), 54. New York.
- Gunaratne, L. P. (1993). Building Up from the Recession. *The TQM Magazine*, 5/1, 45. ABI/INFORM Global, ProQuest.
- Hsieh, T. Y. and Wang, M. H. L. (2001). Finding Critical Financial Ratios for Taiwan's Property Development Firms in Recession. *Logistics Information Management*, 14 (5/6), 401. ABI/INFORM Global, ProQuest.
- Hussey, D. (2001). Creative Strategic Thinking and the Analytical Process: Critical Factors for Strategic Success. *Strategic Change*, 10 (4), 201. ABI/INFORM Global, ProQuest.
- Ilmakunnas, P. (2002). The Turnover of Jobs and Workers in a Deep Recession: Evidence from the Finnish Business Sector. *International Journal of Manpower*, 24 (3), 216-246. Emerald.

- Jabatan Tenaga Kerja Semenanjung Malaysia (2009). *Give Priority to Malaysians, Firms Told*. Georgetown: Jabatan Tenaga Kerja Semenanjung Malaysia.
- Jannadi, M. O. (1997). Reasons for Construction Business Failures in Saudi Arabia. *Project Management Journal*, 28 (2), 32. ProQuest.
- Jeon, J. (2009). Success Factors for a Lessons-Learned System in a Construction Organization. *Cost Engineering*, 51 (5), 31. ABI/INFORM Global, ProQuest.
- Juhary, A. *et al.* (2004). Knowledge Management in Agile Organizations. *Sunway College Journal*, 1, 13-20. ABI/INFORM Global, ProQuest.
- Kaur, S. (2009). Building Industry Seen Maintaining Revenue. *Business Times*. Retrieved on August 17, 2009, from <http://www.btimes.com>.
- Klemperer, P. (2007). Bidding Markets. *Journal of Competition Law and Economics*, 3 (1), 1-47. ABI/INFORM Global, ProQuest.
- Kudelka, B. (2000). Fast-track Funding. *Civil Engineering*, 70 (4), 54. ABI/INFORM Global, ProQuest.
- Lai, J. H. K. and Yik, F. W. H. (2006). Critical Contractual Issues of Outsourced Operation and Maintenance Service for Commercial Buildings. *International Journal of Service Industry Management*, 17 (4), 320-343. Emerald.
- Lam, E. W. M., Chan, A. P. C. and Chan, D. W. M. (2004). Benchmarking Design-Build Procurement Systems in Construction. *Benchmarking: An International Journal*, 11 (3), 287-302. Emerald.

- Lee, K. H. and Sivananthiran, A. (1996). Contract Labor in Malaysia: Perspectives of Principal Employers, Contractors and Workers. *International Labor Review*, 135 (1), 75. ABI/INFORM Global, ProQuest.
- Malaysian-German Chamber of Commerce (2009). *Market Watch Malaysia 2009: Construction Industry*. Kuala Lumpur: Malaysia-German Chamber of Commerce.
- Mann, J. and Runge, J. (2009). State of the Industry Report 2009 – Tough Times Today May Point the Industry Towards A More Sustainable Future. *American Water Works Association Journal*, 101 (10), 36. ABI/INFORM Global, ProQuest.
- Maty, J. G. (Ed.) (2008). Of Market Meltdowns, Bailouts, and Other Blissful Thoughts. *Journal of Architectural Coatings*. 10/11 2008, 2. ABI/INFORM Global, ProQuest.
- Miozzo, M. and Ivory, C. (2000). Restructuring in the British Construction Industry: Implications of Recent Changes in Project Management and Technology. *Technology Analysis & Strategic Management*, 12 (4), 513. ABI/INFORM Global, ProQuest.
- Mohan, S. C. (2005). Casebook on Insolvency and the Construction Industry. *Singapore Journal of Legal Studies*, 310. ABI/INFORM Global, ProQuest.
- Momaya, K. and Selby, K. (1998). International Competitiveness of the Canadian Construction Industry: A Comparison with Japan and the United States. *Canadian Journal of Civil Engineering*, 25 (4), 640. ABI/INFORM Global, ProQuest.

- Musso, F. J. (1992). Activity Based Costing for Defense Contractors. *The CPA Journal*, 62 (5), 79. ABI/INFORM Global, ProQuest.
- Ng, S. T., Skitmore, R. M. and Leung, T. K. C. (2005). Manageability of Stress Among Construction Project Participants. *Engineering, Construction and Architectural Management*, 12 (5, 3), 264. ABI/INFORM Global, ProQuest.
- Ngowi, A. B. (2000). Construction Procurement Based On Concurrent Engineering Principles. *Logistic Information Management*, 13:6 (0957-6053), 361-368. Emerald.
- Odusami, K. T. and Onukwube, H. N. (2008). Factors Affecting the Accuracy of a Pre-Tender Cost Estimate in Nigeria. *Cost Engineering*, 50 (9), 32. ABI/INFORM Global, ProQuest.
- Oo, B. L. *et al.* (2008). A Comparison of Contractors' Decision to Bid Behaviour According to Different Market Environments. *International Journal of Project Management*, 26, 439-447. Science Direct.
- Oo, B. L. *et al.* (2007). Modelling Contractors' Mark-up Behaviour in Different Construction Markets. *Engineering Construction and Architectural Management*, 14 (5), 447-462. Emerald.
- Pearl, R. G. (1994). The Effect of Market Conditions on Tendering and Price Forecasting. *Transactions of AACE International*, DCL 1.1. ABI/INFORM Global, ProQuest.
- Pells, D. L. (Ed.) (2008). Silver Lining: Why the Economic Recession May be Good for Project Management!. *PM World Today*, X (XII), 1-11. ABI/INFORM Global, ProQuest.

- Plank, R. D. *et al.* (1997). Public Involvement Helps Supply Project Succeed. *American Water Works Association Journal*, 89 (5), 40. ABI/INFORM Global, ProQuest.
- Prior, G. (2009). Cut-Throat Bidding Hits Northern Firms for Six. *Contract Journal*, 448 (6731), 17-18. ABI/INFORM Global, ProQuest.
- Reimer, S. (1999). Contract Service Firms in Local Authorities: Evolving Geographics of Activity. *Regional Studies*, 33 (2), 121. ABI/INFORM Global, ProQuest.
- Rochford, L. and Wotruba, T. R. (1993). New Product Development under Changing Economic Conditions. *The Journal of Business & Industrial Marketing*, 8 (3), 4. ABI/INFORM Global, ProQuest.
- Schaafsma, H. (1997). Alternative Pathways to Management Competence: Housing Construction. *Journal of European Industrial Training*, 21 (1), 19. ABI/INFORM Global, ProQuest.
- Talal, A. K. (2006). Construction Management – Presumed Dead But Still Alive. *AACE International Transactions*. PMS21-PMS26. ABI/INFORM Global, ProQuest.
- Ward, S. and Lewandowska, A. (2005). Shelter in the Storm: Marketing Strategy as Moderated by the Hostile Environment. *Marketing Intelligence and Planning*, 23 (7), 670-687. Emerald.