

Modernising the Malaysian Construction Industry

Hamid, Z. A.

Construction Research Institute of Malaysia (CREAM), Construction Industry Development Board
(CIDB) Malaysia

(email: zuhairi@cidb.gov.my)

Kamar, K. A. M.

Construction Research Institute of Malaysia (CREAM), Construction Industry Development Board
(CIDB) Malaysia

Abstract

Malaysian construction industry is under a constant pressure to modernise and to reform. Lack of knowledge on building systems and green construction, low quality finishes on buildings and infrastructures, poor performance by contractors, the need to improve on procurement strategy, and lack of partnering initiatives are some of the frequently issues raised in meetings, conferences, workshops and seminars by clients and stakeholders in Malaysia. Some had even expressed their concern on the deteriorating quality of works produced by contractors. The industry needs to react quickly and to modernise within the capacity and knowledge acquired. It is timely that the Malaysian construction industry examines the initiatives taken by the UK construction industry and to learn from their experiences. As preliminary study looking into the area of construction improvement and change towards modernisation, this paper underlines key efforts taken under the Malaysian Construction Industry Master Plan (CIMP 2006-2015) and Rethinking Construction in the UK to identify research gaps. Through a comparison analysis, the research found that the Construction Best Practice Programme (CBPP) is an interesting area to be explored and learned by the Malaysian construction industry which looks into the transfer of best practices. Though there are many areas could be tapped from the Rethinking Construction initiatives, this paper will focus on the transfer of best practices mechanism. This paper will not draw any conclusion but rather a preliminary research proposing a conceptual framework for transfer of best practices for the Malaysian construction industry as the way forward to modernise the Malaysian construction industry through innovation and exemplars from Malaysian Construction Industry Excellence Award (MCIEA)'s achievers as the catalyst of change. This would emulate the success of CBPP under Rethinking Construction initiative in the UK. Expert workshops and quantitative industry survey will be conducted in near future to validate and further improve the framework.

Keywords: best practice transfer, construction industry master plan (CIMP) 2006-2015, Malaysia, rethinking construction, United Kingdom.

1. Introduction

The cultural shift in the UK construction industry was driven by the industry who took the lead through various initiatives such as Construction Best Practice Program (CBPP) under Rethinking Construction initiative. It is timely that the Malaysian construction industry examines efforts taken by the UK construction industry and learns from their experiences. The movement for reform in the UK construction industry during period 1993-2003 has proven to be the successful examples of what happened when government, irrespective of its political approach, seeks to work substantially together with an important industry in the economy, to effect major change, and to adapt the industry to new and modern processes and procedures. The construction industry in UK. has come a long way since the publication of the Latham's Report (1994) and the Egan's Report (1998) through Rethinking Construction that called for industry improvement. The literature research found that the integral part of Rethinking Construction is the Construction Best Practice Programme (CBPP) (DTI, 1998). Though there are many areas could be tapped from the Rethinking Construction initiatives, this paper will focus on the transfer of best practices mechanism. This is a preliminary research looking into efforts taken in Malaysia and United Kingdom to reform and modernise the construction industry focusing on transfer of best practices approaches. A conceptual framework for transfer of best practice is proposed in this paper and will be further validated in the future through expert workshops and industry survey.

2. Research methodology

A literature review is a body of text that aims to review the critical points of current knowledge. According to Cooper (1988) a literature review uses as its database reports of primary or original research, and does not report new primary research itself. A literature review seeks to describe, summarise, evaluate, clarify or integrate the content of information. Completing a literature review is usually a significant intellectual achievement in its own right, requiring the analysis and synthesis of previous work in such a manner that new understandings of that work are uncovered, and the way is opened for new research. The main part of this research paper is a review of literatures looking into the relevant documentations on effort to modernise construction industry under the Malaysia Construction Industry Master Plan (CIMP 2006-2015) and Rethinking Construction in the UK to identify research gaps. As best practice transfer is a primary concern of this paper, a conceptual framework for transfer of best practices and implementation strategy is proposed. The model will be validated and tested with the industry stakeholders through case study survey and questionnaire later on.

3. Problem statements

The Malaysian construction industry is under a constant pressure to improve its performance. Lack of knowledge on building systems and green construction, low quality finishes on buildings and infrastructures, poor performance by contractors, the need to improve on procurement strategy, and lack of partnering initiatives are some of the frequently issues raised in meetings, conferences, workshops and

seminars by clients and stakeholders. Some had even expressed their concern on the deteriorating quality of works produced by contractors. According to Construction Industry Development Board (CIDB) Malaysia, 69% (552,000) out of total 800,000 of registered workers as in June 2007 were foreign workers (CIDB, 2008). Foreign workers are usually unskilled when they first arrived in Malaysia and this impacted the productivity and the quality of the construction industry. The excessive use of foreign workers presented a major outflows of the currency and adding to social problems and increase in crime rate. The industry need to react quickly to this issue and to modernise within the capacity and knowledge acquired. It is timely that the Malaysian construction industry examines the initiatives taken by the UK construction industry and to learn their experiences.

4. Comparing the modernisation efforts between Malaysia and United Kingdom construction industry

4.1 Malaysian construction industry master plan 2006-2015 (CIMP 2006-2015)

2. The Malaysian construction industry plays an important role in generating wealth to the country and development of social and economic infrastructures and buildings. The industry provides job opportunities for 800,000 people which represented 8% of total workforce (CIMP, 2006). The construction industry is one of the productive sectors that constantly contribute to the economy. Its growth rates fluctuates between extremities that varies from as high as 21.1 percent in 1995 to as low as -24 percent in 1998. Since the 1990's, the contribution of the construction sector to the GDP also fluctuated albeit at a more stable rate varying from a high of 4.8 percent in 1997 to an estimated low of 2.7 percent in 2005 (CIDB, 2008). To chart the way forward for Malaysia construction industry, Construction Industry Master Plan 2006-2015 (CIMP) was launched in 2006 by Hon. Deputy Prime Minister of Malaysia. The CIMP was developed by the captain of the industry through series of workshops to overcome some of the weaknesses that were inherent in the construction industry before this and to modernise the industry. The construction industry gave itself ten years, from 2006 until 2015, to rectify the weaknesses and to improve the industry's performance as well as its image. The vision of CIMP is the Malaysian construction industry shall be a world class, innovative and knowledgeable global solution provider and the mission is to be a dynamic, productive and resilient enabling sector, supporting sustainable wealth creation and value creation, driven by technologically-pervasive, creative and cohesive construction community. The seven Strategic Thrusts of CIMP were identified as (CIMP, 2006); Strategic Thrust 1 - To integrate the construction industry value chain to enhance productivity and efficiency, Strategic Thrust 2 - To strengthen the construction industry image, Strategic Thrust 3 - To strive for the highest standard of quality, occupational safety and health and environment practices, Strategic Thrust 4 - To develop human resource capabilities and capacities in the construction industry, Strategic Thrust 5 - To innovate through research and development and adopt new construction method, Strategic Thrust 6 - To leverage on information and

communication technology in the construction industry, Strategic Thrust 7 - To obtain benefit from globalisation including the export of construction products and services. The strategies and action plans of this CIMP will need to be implemented using a phased approach, covering the 10-year period from 2006 to 2015 (CIMP, 2006). This approach has been adopted to take into account the growth in capabilities the construction industry will experience throughout this implementation period.

- Phase 1: Strengthen domestic capabilities in all key areas (2006-2008) - The immediate priority for the construction industry will be to resolve those challenges that are restraining the industry from realising its full potential.
- Phase 2: Further strengthen existing capabilities in all key areas to compete effectively with global peers (2009 – 2012) - The intermediate plans for the Malaysian construction industry are to strengthen its basic capabilities and develop strategic, competitive advantages that will allow the industry to compete effectively with its peers in the global marketplace.
- Phase 3: Increase presence and enhance stature in the global construction arena (2013 – 2015) - The long term plans for the Malaysian construction industry will see the fulfillment of the industry's vision to be a world class, innovative, and knowledgeable global solution provider.

4.1 Rethinking construction in the UK

According to Rethinking Construction (DTI, 1998) report, there is deep concern that the UK construction industry as a whole is under-achieving. It has low profitability and invests too little in capital, research and development and training. Too many of the industry's clients are dissatisfied with its overall performance. The construction industry in UK move forward to modernise since and the Rethinking Construction summarised an industry wide initiative to improve the performance of the construction industry in United Kingdom (DTI, 1998). Far reaching changes to design, construction and procurement affect. It is about to inculcate engineering best practice as well as cultural and management issues in the industry. The gist of the document highlighted measures taken to improve the industry through collaborative and partnering initiatives. In order to see the effectiveness of the strategy the content of Rethinking Construction limited their debate on the following key principles, which include the followings; client leadership, integrated teams throughout the delivery chain, and respect for people. Lastly, what the industry wanted to achieve through the objectives are to achieve radical improvements in the design, quality, customer satisfaction and sustainability of UK construction and to be able to recruit and retain a skilled workforce at all levels by improving its employment practices and health and safety performance. A task force was established to look into ways of delivering the objectives. The task force proposed seven targets for improvement, which underpin Rethinking Construction initiatives that shall focus into the following targets (Thirwall *et.al*, 2002); reduced capital cost, reduced construction time,

better predictability, fewer defects, fewer accidents, increased productivity and increased turnover and profit.

The Movement for Innovation (M4I) takes the lead in promoting Rethinking Construction among the non-housing sectors of the UK Construction Industry and related trade and professional organisations. The Board of Management is responsible for the performance and learning outputs from the M4I demonstration Projects, and has led the development of the Key Performance Indicators and the Environmental Performance Indicators. M4I is developing the regional network for Rethinking Construction, through its demonstration projects cluster programme (Thirwall *et.al*, 2002). These clusters are now expanding to embrace the Housing Forum Demonstration Projects. M4I is promoting Rethinking Construction events, such as off-site fabrication, Knowledge Management and Lean Construction via seminar and conference.

The Construction Best Practice Programme (CBPP) is an integral part of the Rethinking Construction initiative (DTI, 1998). The Construction Industry Best Practice Programme has been developed to help any construction-related organisation achieve greater efficiencies through improved knowledge and a change of business practices. A recent survey showed that more than 90% of users acknowledged that the programme has brought financial benefits to their company. The main drive has been to improve the business management of construction through the delivery of services to the sector and the dissemination of best practice information. The CBPP plays a specific role in continuous business improvement, providing opportunities for individuals, business teams, entire companies and supply teams to engage in best practice. CBPP is about raising awareness, gaining commitment and facilitating the sharing of knowledge. Its publications include case studies, profiles, guides, and more than 150 director's briefings and information on the learning by doing workshops. Users will benefit from the recent establishment of a team of 40 best practice advisers.

Never Waste a Good Crisis is a report from Constructing Excellence and was published in October 2009 (Constructing Excellence, 2009). The report looks to determine the level of industry progress since Rethinking Construction and define the improvement agenda for the next decade. As the Review Team at Constructing Excellence have found, difficult times still await the industry. Private capital expenditure is being delayed, public spending is under tremendous pressure and ambitious environmental targets are being implemented. Whilst the industry is moving in the right direction, it has fallen well short of Egan's targets. Both safety and profitability have taken reasonable steps forward, but progress on all other areas has been disappointing with an annual improvement of less than 3%. In the Review Team's opinion, however indicated that these challenges can and should be used as a catalyst for change to strengthen the industry. The review also sets out a future agenda for UK construction, including some quick fixes, and identifies one of the greatest challenges for the sector as being the delivery of a built environment that supports the creation of a low carbon economy.

4.2 Rethinking Construction in Malaysian Perspective – identifying research gaps

The move towards modernisation of construction industry is a global phenomenon and not a local or isolated action. It is timely that the Malaysian construction industry examines the initiatives taken by the UK construction industry and to learn their experiences. Although it is difficult to make apple to apple comparison, in a nutshell however, both initiatives are aim to modernise the industry and solve problems faced by the industry players. The CIMP and Rethinking Construction highlighted the importance of partnering to reduce fragmented gaps, importance of training and research, the significant of occupational safety and health in construction and improvement of quality through advance processes. Throughout the CIMP initiative, one can observed nonetheless that there is lack of effort in sharing best practices, demonstration project and technology transfer. The importance of this activity cannot be discounted. Interestingly in the Rethinking Construction document suggested that the Construction Best Practice Programme (CBPP) is an integral part of the initiative another interesting area to be explored and learned by the Malaysian construction industry that looks into the transfer of best practices. Though there are many areas could be tapped from the Rethinking Construction initiatives, this paper will focus on the transfer of best practices mechanism. This could be a research gap that will be explore further in this research

5. Best practices transfer in construction – theory and practice

A best practice is a technique, method, process, activity, incentive, or reward that is believed to be more effective at delivering a particular outcome than any other technique, method, and process when applied to a particular condition or circumstance. The idea is that with proper processes, checks, and testing, a desired outcome can be delivered with fewer problems and unforeseen complications. Best practices unleash the value within an organisation by ensuring Best practices can also be defined as the most efficient or least amount of effort and effective best results way of accomplishing a task, based on repeatable procedures that have proven themselves over time for large numbers of people. Best practices can also be defined in a multi-level definition as follows (Jarrar and Zairi, 2000):

- Good idea (unproven): not yet substantiated by data but makes sense intuitively. It could have a positive impact on business performance, but requires further review and analysis. If substantiated by data, this could be a candidate for implementation in the organisation.
- Good practice: technique, methodology, procedure, or process that has been implemented and has improved business results for an organisation (satisfying some element of customers' and stakeholders' needs). This is substantiated by data collected at the organisation.
- Proven best practice: a good practice that has been determined to be the best approach for many organisations, based on analysis of process performance data.

Reference is often made in literature to best practice. In reality and practices however, there are no best practice companies who excel in everything (Clarke and Garside, 1997). Also in an industry that is changing continuously, there are unlikely to be one single practice or activity that works equally well for everyone (Clarke and Garside, 1997). Nevertheless, there are benefits to be gained by understanding another organisation's processes, practice and behaviors and tailoring them to suit. Some organisations regularly take best practice from variety of sources, both internally and externally and adapt them to suit own business needs (Clarke and Garside, 1997). In definition, transfer is identifying and learning from best practices and applying them in a new configuration or new location (O'Dell and Grayson, 1997). Therefore, best practice transfer is the practical problem of transferring knowledge from one part of the organisation to another part of the organization or from one exemplary organisation to others. Like Knowledge Management approaches, best practice transfer seeks to organize, create, capture or distribute knowledge and ensure its availability for future users. Argote & Ingram (2000) define best practice transfer as the process through which one unit (e.g., group, department, or division) is affected by the experience of another. The followings are few models for transfer of best practices captured from literature:

Lillrank (1995) proposed that practice would be more effectively transported across different cultures if they were first translated into abstract ideas, as illustrated in Figure 1. An abstraction must go beyond the simple description of the directly observable processes and certainly demands a deeper understanding of the meaning and dynamics of processes related to their original context (Lillrank, 1995).

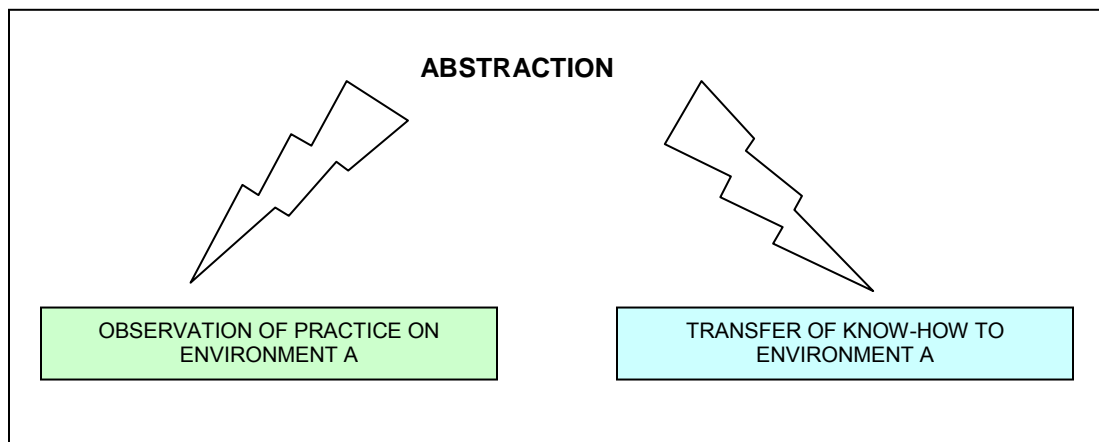


Figure 1: Abstraction as a mechanism of knowledge transfer (adapted from Lillrank, 1995)

From a learning perspective, knowledge transfer involves not only transmission (sending or pre-sending to a potential recipient) but, above all, absorption. A successful learning (transfer) process should enable people to become more capable of dealing with unexpected production problems by themselves and, in this way, expand their own knowledge (Davenport & Prusak, 1998)

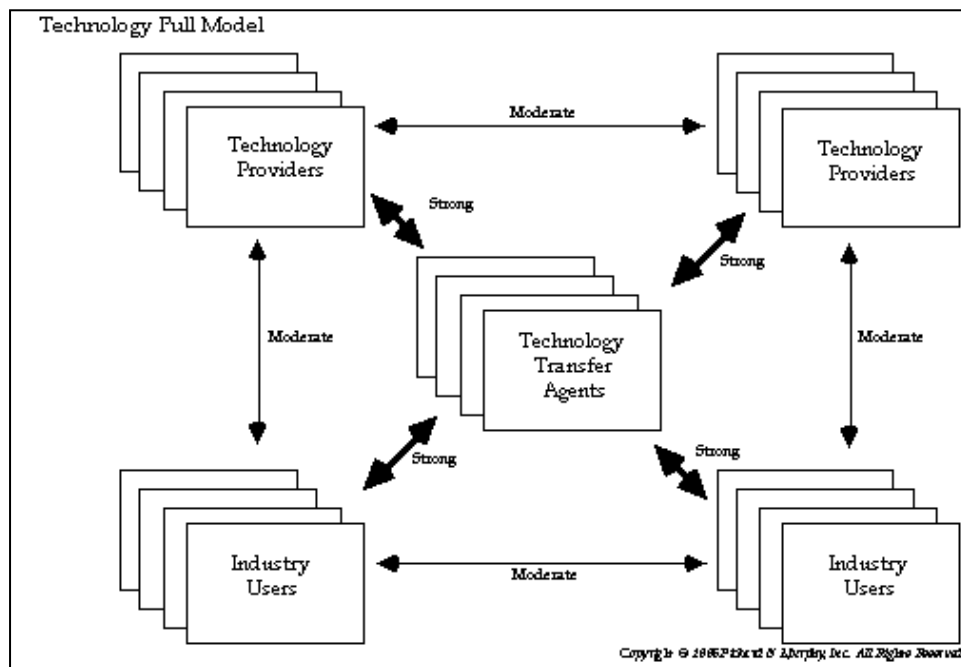
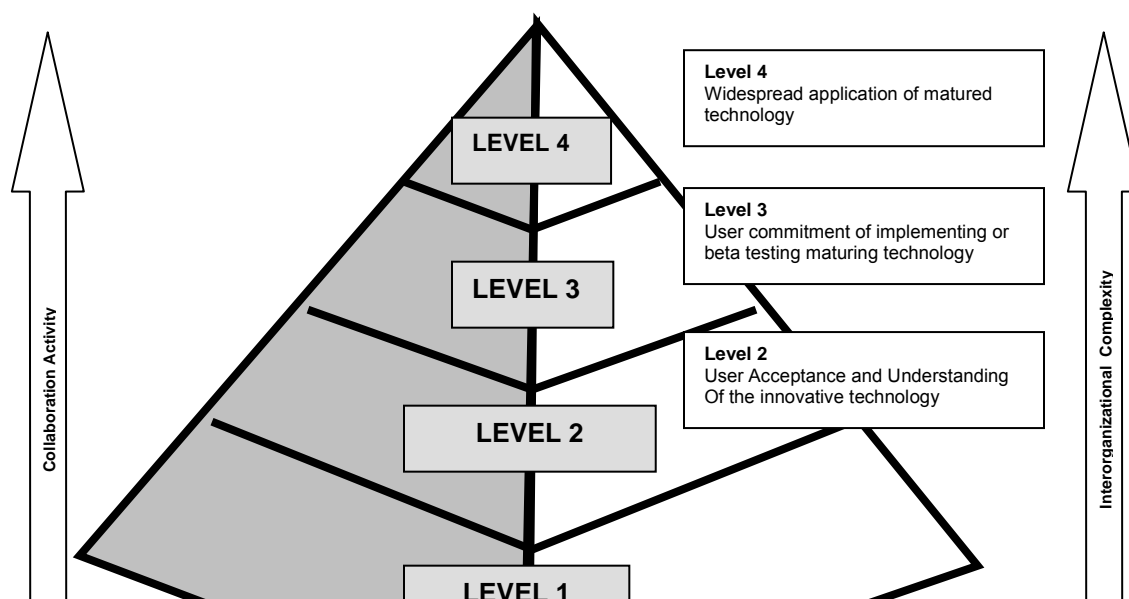


Figure 2: Technology pull model

The “pull” model was suggested by Pickard and Golden (1995) as a mechanism of best practice transfer. The main thrust of this model is establishing a technology transfer agent and put up a mechanism of technology transfer to the industry users via interviews and workshop. The “pull” model shown in Figure 2 is characterized by a significantly higher degree of face-to-face, personal contact between technology transfer “extension agents” technology resource providers, and industry executives.

Figure 3 (Kozmetsky, 1994) shows the four level of technology as technology transfer based on four level of maturity. Level 1 focus on R&D effort and innovation, level 2 is on user’s acceptance to the technologies. Level 3 is on user commitment and finally a widespread adoption or best practices. The level of maturity is depends on collaboration activities and interhorizontal complexity in one organisation.



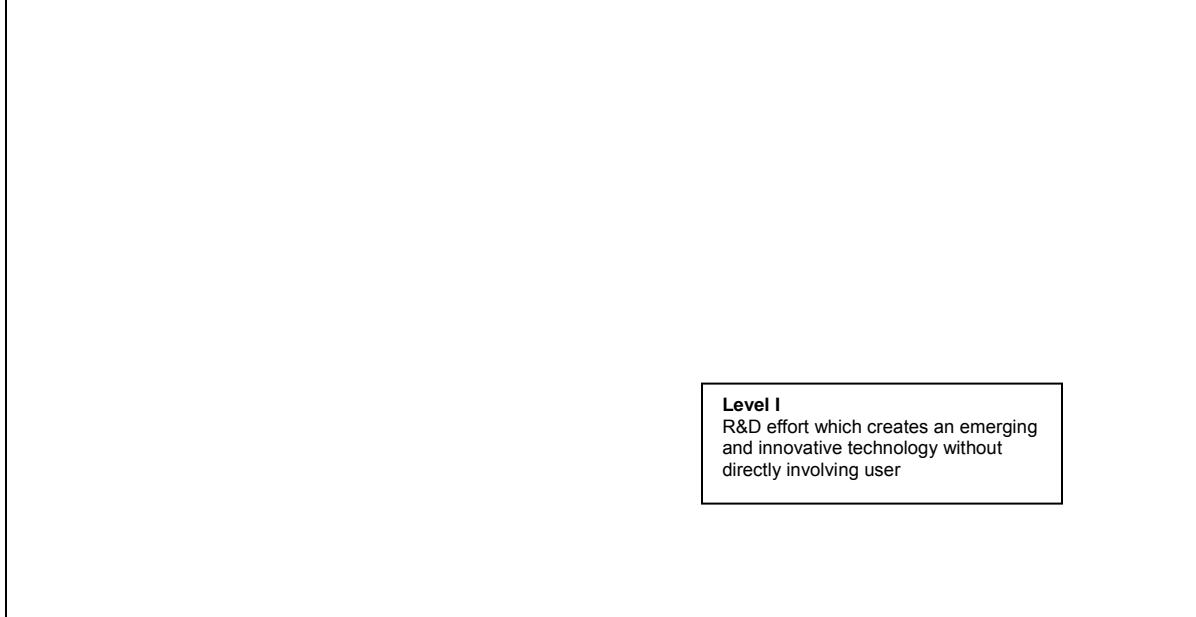


Figure 3: Four levels of the technology transfer process (Kozmetsky, 1994) model

6. A proposed conceptual framework for best practice transfer in Malaysia

A study by the European Centre for TQM (Jarrar and Zairi, 2000) suggested that the best practice process for the effective transfer of best practices is made up of six major steps as depicted in Figure 4. Each step captures the crucial elements and information that are relevant in the transfer process; searching, evaluating, validating, transfer, review and routinising.

Jarrar and Zairi's model (Jarrar and Zairi, 2000) as indicated Figure 4 is proposed as a conceptual model proposes in this paper (The selection of the model is based on simplification only; this is to grasp the fundamental idea of best practice transfer and suit a preliminary mode of this paper. More research will be undertaken to compare and analyse few models and select appropriate model that suit Malaysia construction industry). Further research will be undertaken through expert workshops and industry survey to validate and improve this framework to suit the Malaysia construction industry.

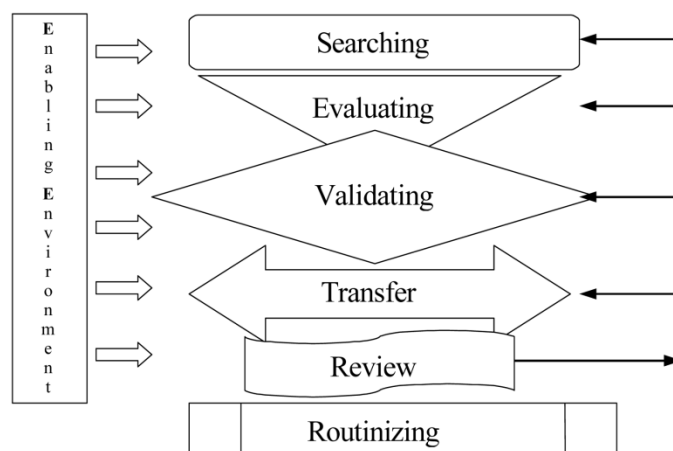


Figure 4: Transfer of best practice model (Jarrar and Zairi, 2000)

Based on the model Jarrar and Zairi (2000) (Figure 4) the following steps should be taken to initiate best practice transfer:

- **Search** –Despite the poor images portrayed, some contractors have shown significant quality in their work and practice best project management techniques to deliver quality and excellent construction project. In line with the aspiration of CIMP 2006-2015, the construction industry achievements are showcased during the Malaysian Construction Industry Excellence Award (MCIEA) host annually by Construction Industry Development Board (CIDB) since 2001. It is relevant and important that their experiences and knowledge to success captured and shared by other players to gain mutual benefit for the betterment of the construction industry. The objectives of the MCIEA are to recognise individuals or/and organisation; who have contributed and demonstrated excellence in enhancing image, performance and improvement of the construction industry and to provide a platform for healthy competition amongst industry players in the quest for excellence by showcasing best practice in project implementation. MCIEA will be awarded to high achievers and performance in the industry that remarkably showcase their product and management style. They will be judged in several categories including the Contractor Awards, Special Awards, and R&D Project of the Year Award, Innovation Award, International Achievement Award, Individual Awards and Contractor of the Year Award. Their experiences should be learned by others and shared. A mechanism for the dissemination and transfer of knowledge and technology must be established in a continuous and strategic approach. Identifying the best practice exemplars is a significant step towards the transfer of best practice initiative.
- **Evaluate** – A case study survey will be conducted with the MCIEA award winners. Facts search via minutes of meetings from panel of judges, interviews with the with the MCIEA award winners will further validate and strengthen the data.
- **Validate** - The validation exercise is then expanded to provide the basic input for strategic transfer of best practices and its future applications through iteration process via workshops with experts from practitioners, local universities, professional bodies and research institution
- **Transfer, Review and Routinising** - Three dominant issues namely corporate culture, relationships within an organization and high level of technology use within an organization as a strategic part of any facilities management organization are pertinent to the transfer of best practices. Special Interest Group (SIG) is to be established by the industry. The aim of this SIG is to act as enabler to enhance and transfer the knowledge on current best practices among contractors and cascading them to the entire construction value chain. The objectives of the SIG

are as follows; to instill best practices in construction to Malaysian contractors and other stakeholders, to transfer the knowledge from MCIEA award winning recipients to other contractors, to transmit lessons learned from best practices in UK, Singapore, Japan and EU to Malaysian contractors. Construction Industry Development Board (CIDB) and Construction Research Institute of Malaysia (CREAM) will become the secretariat and agent of change of this initiative based on their capacity as appointed bodies to drive the development of construction industry in Malaysia. Figure 5 shows the framework on strategy to implement the transfer of Best Practices. There are three main components involved in the implementing of the framework strategy which include the followings:

1. Contributor (MCIEA projects winners, Local Collaborators, International Collaborators, R&D Initiatives)
2. Agent of change (Members in SIG)
3. Recipient (contractor, client, other stakeholders)



Figure 5: Transfer, review and routinising – a proposed model

The following themes are proposed to be implemented through transfer of best practice initiative; implementing Industrialised Building Systems (IBS) and modularisation, procurement best practice strategy, creating values from facilities and assets management, rethinking the Information Technology (IT) programs and tools, integrating supply chain, collaboration and partnering. This preliminary research proposing a conceptual framework for transfer of best practices for the Malaysian construction industry as the way forward to modernise the Malaysian construction industry through innovation and exemplars from MCEIA 's achievers as the catalyst of change. This would emulate the success of CBPP under Rethinking Construction initiative in the UK. Expert workshops and quantitative industry survey will be conducted in near future to validate and further improve the framework

7. Closing remarks

The construction industry needs to react and to modernize within the capacity and knowledge acquired. It is timely that the Malaysian construction industry examines the initiatives taken by the UK construction industry and to learn their experiences. Like in the UK, efforts to modernise the industry started back in 1998 under recommendation of Rethinking Construction report. As a preliminary research, this paper underlines key efforts taken in Malaysian Construction Industry Master Plan (CIMP 2006-2015) and Rethinking Construction in the UK to identify research gaps. Based on a comparison analysis, the research found that the Construction Best Practice Programme (CBPP) is an interesting area to be explored and learned by the Malaysian construction industry which looks into the transfer of best practices. Though there are many areas could be tapped from the Rethinking Construction initiatives, this paper will focus on the transfer of best practices mechanism. This paper review the initiatives need to be taken on board by the Malaysian construction industry as the way forward to modernise the Malaysian construction industry through innovation and exemplars from Malaysian Construction Industry Excellence Award (MCIEA)'s achievers as the catalyst of change. This paper will not draw any conclusion but rather a preliminary research proposing a conceptual framework for transfer of best practices for the Malaysian construction industry as the way forward to modernise the Malaysian construction industry through innovation and exemplars from MCEIA's achievers as the catalyst of change. This would emulate the success of CBPP under Rethinking Construction initiative in the UK. Expert workshops and quantitative industry survey will be conducted in near future to validate and further improve the framework. The results (best practices) obtained will be innovative that will enhance and improve the performance and quality of the construction and will be disseminate through various medium. It is hoping that the framework will be used to encourage innovation through sharing of best practices for modernisation of Malaysian construction industry. On the other hand, the perspective in UK and Malaysian construction industry will provide some ground for benchmarking and technology transfer exercise in the future. Malaysia can learn much from UK's experience in term of promotion and initiatives.

Acknowledgement

The authors would like to thank Construction Industry Development Board (CIDB) for providing grant for this study. The framework develop in this paper will be further improve and it will be implemented in Malaysia construction industry under Construction Research Institute of Malaysia (CREAM) research grant 2010.

Reference

Argote, L.; Ingram, P. (2000) Knowledge transfer: A Basis for Competitive Advantage in Firms, *Organizational Behavior and Human Decision Processes* **82.1**: 150-169

Booz Allen & Hamilton Inc. (2001) Best Practice Transfer: Unleashing the Value Within, Viewpoint, Booz Allen & Hamilton Inc., New York

Construction Industry Master Plan 2006-2015 (CIMP 2006-2015) (2006), Construction Industry Development Board (CIDB) Malaysia, December 2006, Kuala Lumpur

Construction Industry Development Board (CIDB) (2008), Malaysian Construction Outlook 2008, Presentation by Business Development Division, Construction Industry Development Board (CIDB), August 2008

Cooper, H. M. (1988) 'The structure of knowledge synthesis' Knowledge in Society, **1**:104-126

Constructing Excellence (2009), Never Waste a Good Crisis, October 2009, Constructing Excellence

Clarke, A and Garside, J (1997), The development of a Best Practice Model for Change Management, European Management Journal, **15.5**:537 -545

Jarrar, Y and Zairi, M, (2000), Best Practice Transfer for future competitiveness: a study of best practices, Total Quality Management, **11**: 4-6

Thirwall et.al, 2002, Rethinking Construction ToolKit, IStructE

Department of Trade and Industry (DTI) (1998), Rethinking Construction, Report of the Construction Task Force, London

Lillrank, P. (1995) The transfer of management innovation from Japan. Organization Studies, 1995, **16/6**:971-989.10

Davenport, T.H. & Prusak, L., (1998) Working knowledge: how organization manage what they know. Harvard Business School Press, 1998

Pickard. W., and Golden. S., 1995, A Project To Assist The Department Of Community Trade And Economic Development With Collecting, Analyzing, And Reporting On The Technology And Technology Transfer Needs Of Washington State Companies, Pickard & Murphy, Inc. & The Golden Information Group <http://www.halcyon.com/pickard/cted/ctedttproj.html#RTFToC2>

Kozmetsky, G., 1994: "Letter from the Director" Annual Report, IC2 Institute, The University of Texas at Austin (1994) 4-5.