ISSUES AND CHALLENGES IN IMPLEMENTING

BIM

BUILDING INFORMATION MODELING

FOR

SME's in The Construction Industry

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The reports is a compendium of discussion and findings which were presented at the SEMINAR AND WORKSHOP ON ISSUES AND CHALLENGES IN IMPLEMENTING BUILDING INFORMATION MODELLING (BIM) BY SMALL AND MEDIUM ENTERPRISES (SME'S) IN THE CONSTRUCTION INDUSTRY

Sincere gratitude to the participants of the reports published here in the workshop for their brilliant and innovatives ideas.

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PREFACE

This report presents the summary of the activities, outcomes of the seminar and workshop on the "Issues *and Challenges in Implementing Building Information Modelling (BIM) by SME's in the Construction Industry".* The seminar and workshop were held on the 19th of June 2013 at Holiday Inn Kuala Lumpur, Glenmarie, Shah Alam, Selangor. The seminar and workshop were attended by the SME's of various sectors and sub-sectors, academia, private developers, government agencies and consultants. The following are the outcomes of the seminar and workshop.

INTRODUCTION

Building Information Modeling (BIM) is one of the new emerging technologies to be deployed in the design, construction, and facility management in which a digital representation of the building is being created to facilitate the exchange and interoperability of information in digital format. Structured approaches have been utilized in most advanced countries to ensure that their industry players systematically adopt the use of BIM as the principal communicating tools in the construction process. Projects that are planned, designed and constructed using BIM have proven to fully meet the client's requirement, in terms of cost, quality and completion time.

BIM is the methodology of practice which carries the philosophical stand based on the availability of information about lifecycle of the construction project. BIM has emerged as a very powerful method that allows users to create visual simulation of a project and provide a virtual prototype of a building prior to construction.

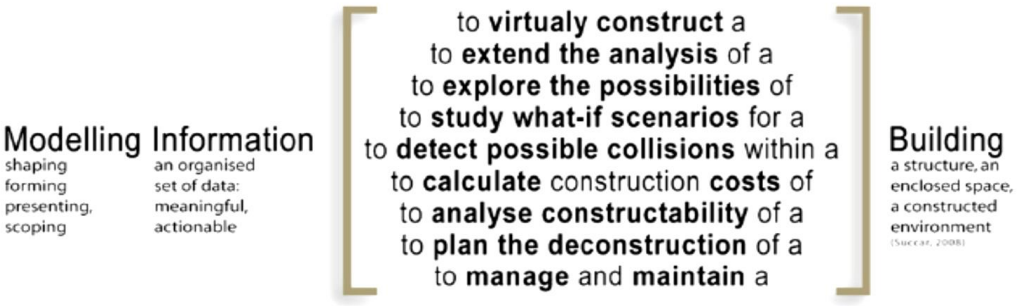
In Malaysia, the progress of BIM mainly driven by private sectors since 2009 and followed by the first government project announced using BIM methodology in 2010, which is the National Cancer Institute (NCI). Understanding the importance of BIM in construction industry, CIDB will complement the efforts by providing a sustainable environment where BIM will survive and thrive. Early efforts includes providing awareness programs and workshops with the industry to gather feedback and comment aimed at charting the way forward for a wider and wiser implementation of BIM. CIDB is also in the midst of establishing the National BIM Committee of Building

Information Modelling in construction Industry in order to coordinate the movement of BIM in the country.

1.0 WHAT IS BUILDING INFORMATION MODELLING (BIM)?

BIM is an integration of process and technology to enable the efficient life-cycle management of facilities. It is a digital integration of previously disparate processes and technologies that allow organisations to support physical and functional requirements in the form of visualisation (Dossick et al. 2009). The considerations include design, procurement, construction delivery methods, construction management, condition assessment, repair, renovation, adaptation, utilization, capital planning and budgeting, life/safety, security, and sustainability. BIM is a virtual representation of a building, potentially containing all the information required to construct the building, using computers and software. Figure 1 illustrates different connotations of multiple BIM terms.

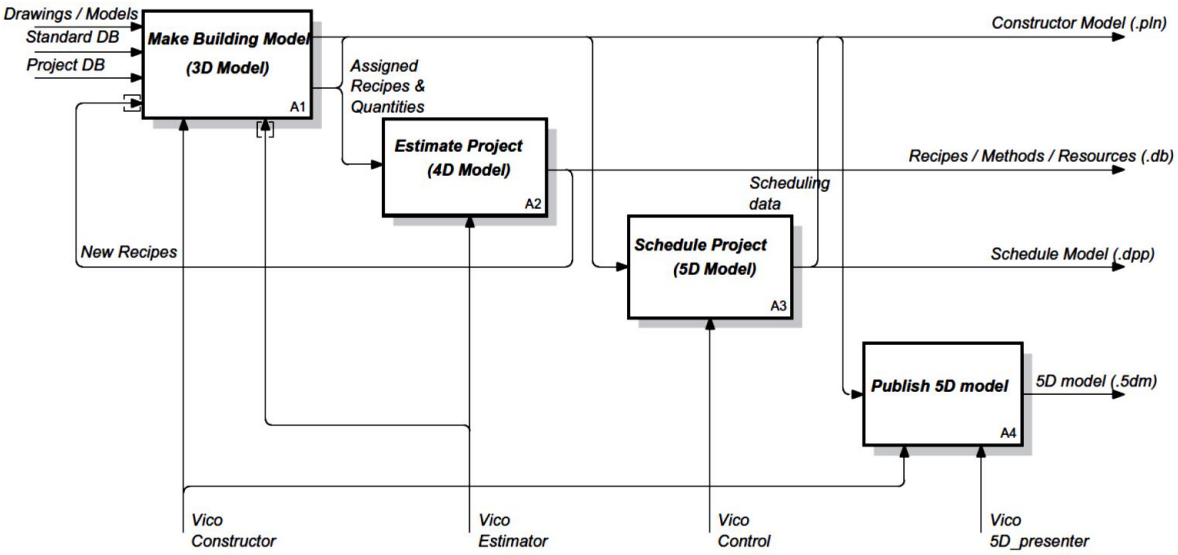
Figure 1: Connotation of multiple BIM terms



Source: (Bilal Succar, 2008)

BIM integration could be build up from 5D modelling environment that embraces building geometry (3D), cost (4D) and schedule of construction (5D). Figure 2 shows the flow and tools on how BIM was integrated become a complete model. BIM encompasses of all phases of construction from designing, analysis, construction, operation and data management. BIM technology provides a platform for each key player to have effective communication before the construction start. BIM also could be modelled up to 6D and 7D which provide sustainability and facilities management and asset management.

Figure 2: Illustrate BIM integration from several tools into integrated (5D) model



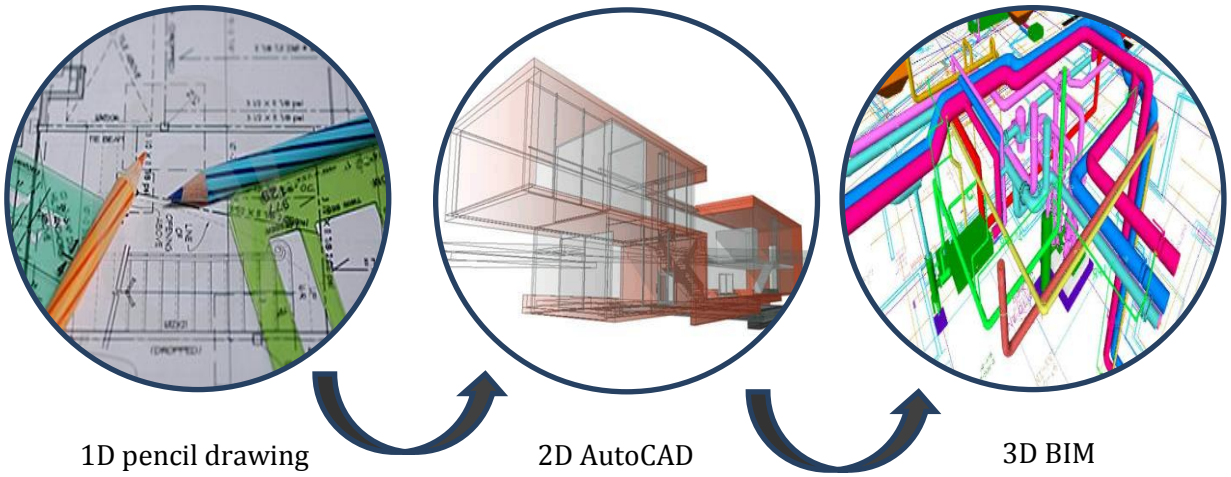
Several wide ranging of benefits of BIM has driven the industry toward BIM deployment. The following are some of the benefits:

- Precise and consistence data
- Design visualization
- Effective coordination
- Multi-user collaboration
- Improved productivity, communication and quality
- Energy efficiency and sustainability

2.0 EVOLUTION OF IT IN CONSTRUCTION

The evolutions of IT in construction changes rapidly as industry grow to be more sophisticated. Starting from the use of paper traditionally, today's technology had evolved to Vector CAD as the first generation; then object CAD which is "smart" object with properties added and currently BIM. Figure 3 illustrates the evolution of BIM. BIM is capable in represent envision of entire building as smart object with endless possibilities for algorithms that govern its behaviour and associated information.

Figure 3: BIM and the evolution



3.0 ISSUES AND PROBLEMS TO IMPLEMENT BIM FOR SME'S

Government as the biggest property holder perceived BIM as an important tool for them in managing their property in the future. Thus the government of Malaysia had set to implement BIM for their projects by the year 2016. It is foreseen that the industry players are required to understand and able to use BIM. Application of BIM is essential to drive the industry towards sustainable construction which underlines long term affordability, quality and efficiency.

There is increasingly awareness and keenness among the consultants and large construction companies on deployment of BIM. However the involvement among the small, medium enterprise contractor (SME's) in adopting BIM seem to face problems and require attention from the government. The path in implementing BIM must be planned comprehensively prior implementation. The issues and challenges faced by SME's sector needs to be identified, addressed and solved.

4.0 THE SEMINAR AND WORKSHOP

Realising on the potential problems that could face by the SME's, the Construction Industry Development Board (CIDB) Malaysia had organised a seminar and workshop entitled *Issues and Challenges in Implementing Building Information Modelling (BIM) by SME's in the Construction Industry* which was held on the 19th June 2013 at Holiday Inn Kuala Lumpur, Glenmarie, Shah Alam, Selangor. The purpose of this seminar and workshop is to discover issues and challenges faced by SME's in adopting BIM. The following are the objectives:

- To disseminate knowledge and idea on BIM implementation
- To discuss issues and challenges of successful BIM implementation
- To brainstorm ideas on BIM strategy for SME
- To chart the way forward in BIM implementation
- To showcase and obtain feedback from CIDB BIM Portal and information exchange platform

The participants were the SME's of various sectors and sub-sectors, academia, private developers, government agencies and consultants. There are 100 participants attended the workshops which were grouped into ten; each group comprises of various sectors (i.e., SME's contractors; consultants, academia and government agencies). Three (3) main themes were set out as topics for discussion are:

a) Barriers in implementing BIM (Restraining force)
b) Potential Solution
c) Benefits of BIM (Driving force)

5.0 SME'S DEFINITION

Small and medium-sized enterprises (SME's) can be defined variously by different supporting agencies. Specific definition of SME's for construction was establish for consistency and comparability of data across sectors. Construction sector generally defined as a small and medium enterprise in services is an enterprise with full-time employees not exceeding 50 or annual sales turnover not exceeding RM5 million (National SME Development Council, 2005). Table 1 shows specific definition of construction sector in SME's.

Table 1: SME's definition in Construction Sector

Type of enterprise	Definition	Remark
Micro enterprise in services	Is an enterprise with full-time employees of less than 5 or with annual sales turnover of less than RM200,000	Classified as G1 contractor
Small enterprise in services	is an enterprise with full-time employees of between 5 and 19 or with annual sales turnover of between RM200,000 and less than RM1million	Classified as G1-G3 contractor
Medium enterprise in services	is an enterprise with full-time employees of between 20 and 50 or with annual sales turnover of between RM1 million and RM5 million	Classified as G4-G5 contractor

6.0 FOCUS GROUP DISCUSSION (RESPONDENT)

BIM becomes more important and expected to be execute by government at year of 2016. It is foreseen that the industry player are required to understand and able to use BIM in the future. Understanding on BIM is essential to drive the industry towards sustainable construction which underlines long term affordability, quality and efficiency. This seminar and workshop aim to discuss on the issues and challenges face by SME's in adopting BIM.

7.0 WHY CHOOSE SME'S?

SME's involvement is vital and survey conducted by the United Nations (1993) has found that SME's play significant role in the economic and social structure of developed countries. SME's was chosen due to the sub sector need to adapt rapid changes in technologies and boat construction engineering to remain competitive. Current awareness on BIM among SME's will spur the construction towards full BIM deployment. SME's which mostly consist of contractor and sub-contractor needs to have the skill and understanding on BIM. BIM will change the way of interaction between each construction players. Project delivery method will require the contractor and sub-contractor to use BIM to its full potential as a coordination tool. Therefore, SME's awareness on BIM is important and this will enhance the skill and understanding of BIM among SME's.

8.0 THE FINDINGS

The following are the findings recorded from the group discussion. Figure 4 show interrelationship between barriers, solution and drivers toward BIM implementation for SME's.

8.1 The Barriers in Implementing BIM

Table 2 displays the inter-related key variables stated by the participants contributing to barriers in implementing BIM in construction. Among others, cost has showed the highest percentage (26.2%), followed by IT components (23%), time (16.4%), and readiness (14.8%). Meanwhile, knowledge (8.2%), technology (8.2%) and information (3.3%) were amongst the lowest barriers recorded. Hence, these variables are compiled under the four heading of barriers in BIM implementation. These are cost, system requirements, lack of knowledge and readiness to change.

Table 2: Inter-related subjects that contributes to barriers in implementing BIM

Key variables	Frequencies	Percentage%
Cost	16	26.2
Time	10	16.4
IT (software, hardware, computer)	14	23.0
Readiness	9	14.8
Knowledge	5	8.2
Technology	5	8.2
Information	2	3.3

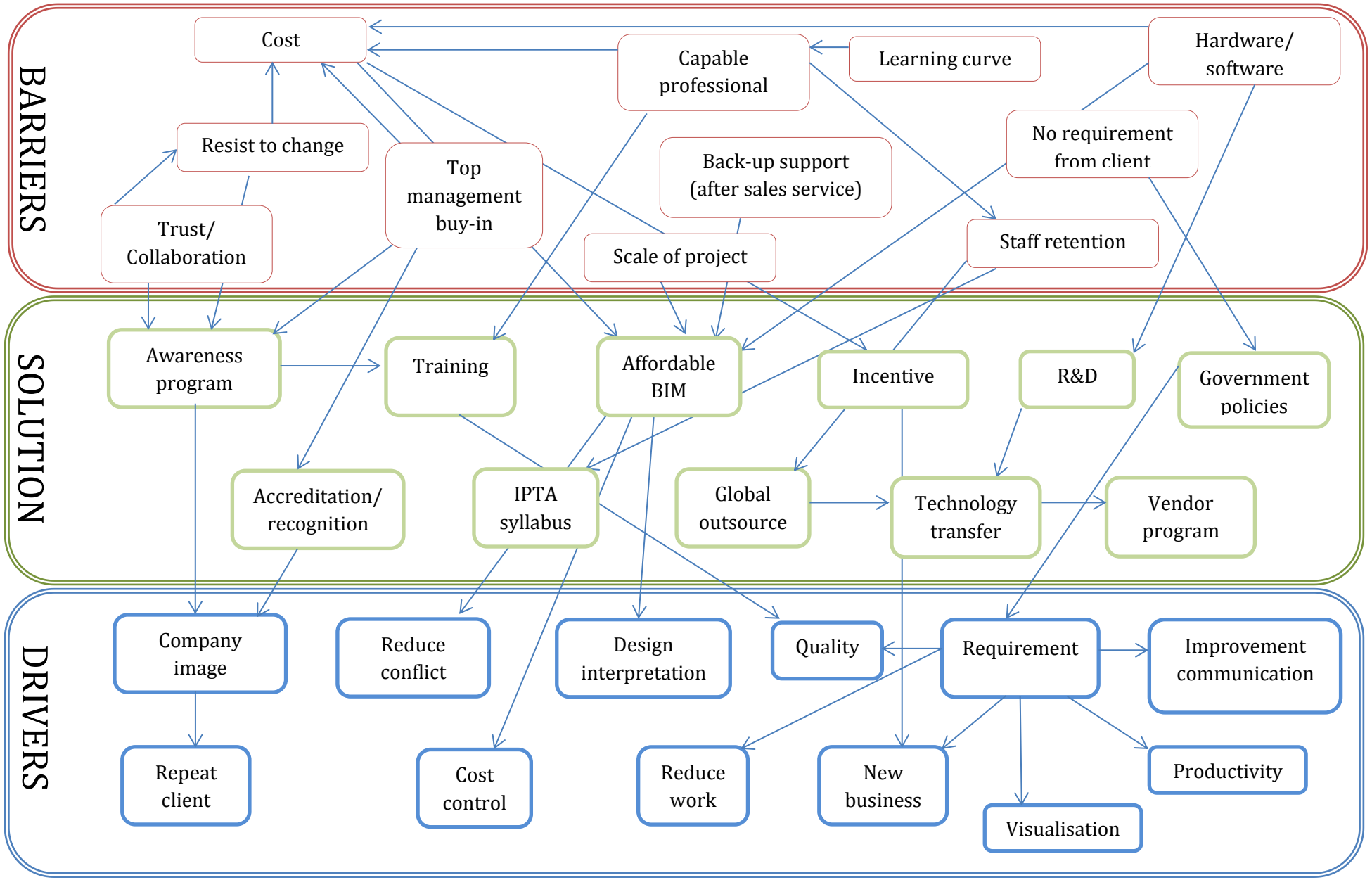


Figure 4: Interrelationship between barriers, solution and drivers toward BIM implementation for SME's.

8.1.1 Cost

Most of the workshop participants agreed that cost would be one of the main barriers for SME's to adopt BIM in construction. To realise the BIM application, SME's are required to invest in the following:

- Providing hardware and software for BIM
- Enrolled staff for training
- Employ BIM capable personnel
- Obtain certifications and licences
- Additional overhead costs

Having invested for BIM application there is still no assurance that the SMEs could secure for a job. The possibility of recovering ROI is uncertain since the initial capital outlay to implement BIM is high and could affect the project cash flows.

8.1.2 System Requirements (IT)

Most of the SME's contractors claimed that they do not have the technology (hardware and software) and capability to implement BIM. Being a small business and have limited resources to invest in high IT equipment's, the notion of adopting BIM in construction projects is sceptical. The participants also raised the issues of compatibility of the equipment and software that enable communication and data inter-operability between contractors, sub-contractors and other parties. Further to that they appealed of not having expertise to implement BIM. They emphasised that initiatives and supports from the government are crucial. The government of Malaysia need to be ready in terms of infrastructure, data, guidelines and procedures prior enforcing the SME's to gear towards implementing BIM for government projects.

8.1.3 Lack of Knowledge in BIM

BIM is a new tool that many have little or no knowledge about it. The SME's claimed that they have no basic knowledge on BIM. They have experienced manager on work process and information required but lack of IT skill particularly BIM. There are two options of implementing BIM in their organisations. The first option is to train the existing staff, while the second is to employ external expertise. The earlier may require

some times for the related staff to undergo training and obtain certifications and licences. Furthermore, the learning curve and time taken of the staff to understand, apprehend and hands-on of BIM is of the company's concerned. In addition, the staff behaviour of resists changing from normal working procedure to BIM technology could be another possible obstacle. On the other hand, by employing the external expertise could expedite the implementation of BIM. Nevertheless, this option will incur addition overhead to SME's, for the fact that the scarcity of BIM expertise is currently expensive in the market.

8.1.4 Readiness to Change

Readiness to change from traditional to BIM requires high cost of investment, clear consensus as how to implement and use BIM. The resistance to change both at the managerial and operational levels are slow. These could be due to the lack of standardise BIM process and the absent of guidelines for its implementation. On the other hand, the usability and complexity of the software also contribute to the acceptance of BIM among the contractors. Another contentious issue among the industry stakeholders, is who should develop and operate the BIM and how should the developmental and operational costs be distributed.

Despite the productivity and economic benefits of BIM to the SMEs, the in-house technical staff are not ready to be trained, not IT savvy and SMEs' organisations are facing shortage of reliable work forces. To a certain extent, there is a shortage of competent building information modellers in the construction industry. Hence, the participants suggested that, it is the role of CIDB and other related Government bodies such as Public Work Department (JKR) to provide valuable support in the form of seminars, workshop and hands-on training frequently until the industry is conversant with BIM.

8.2 Potential solution

The potential solutions can be categories into two: the initiatives and incentives. The majority of the respondents perceived that government and its agencies need to play the biggest roles as the driving force in ensuring BIM technology will be successfully implemented in AEC industry.

8.2.1 The Initiatives

Table 3: Initiatives to deploy BIM in the future

Initiatives	Elaboration
Awareness and motivation programme	It is very important to note that the readiness, understanding and cooperation of the industry players are vital once the Government plan to introduce new technology such as BIM to the AEC industry. In this regards, a series of awareness and motivation programs such seminars, workshops to be strategically organised by the Government for various levels of industry players. Collaboration with various professional bodies could be one of the good notions in organising the programs.
Provide Training Programmes	The participants suggested that there are two levels of training required to be concurrently implemented in the BIM application. The initial level is during the tertiary education and practitioner's levels. Institution of Higher Leanings throughout Malaysia are suggested to incorporate BIM courses in the syllabus contents to equip graduates to understand, apprehend BIM technology as a preparation for their successful future careers. Subsequently, the training for BIM is to be provided for practitioners in the AEC industry, in particular SMEs. A proper structured BIM courses for various grades of contractors and practitioners would provide industry-required knowledge for BIM implementation. In order to ease the burden and motivate the industry players, subsidies from respective bodies (i.e. CIDB and JKR) are suggested for the comprehensive trainings of BIM.

Preparing for a BIM Standard/ Guideline	Preparing a standard code of practices and guidelines of BIM are pre-requisite to standardise the new output that enable efficient communication and integration among stakeholders. It was suggested that the government should use 'existing international standard' of BIM for construction instead of inventing the new wheel. However, the existing standard needs to be modified and improvised to suit to the local requirements. In addition, the government is to set a threshold to projects that need to adopt BIM.
Certification and Accreditation/ Licences	System of certification and accreditation of qualified BIM contractors that have undertaken training organised by government agencies/ or private sectors are required to motivate and assure other contractors to adopt BIM technology for their projects. As such, competent BIM modellers in construction industry and their demand will exponentially grow with the passage of time.
Setting out a BIM Technology Centre	Since the benefits of BIM adoption is inevitable in the AEC industry, it is crucial for the Government of Malaysia to collaborate with respective bodies (i.e., CIDB and JKR) in providing initial support in the form of establishing 'One Stop BIM Technology Centre' for SMEs. The purpose is to assist, facilitate the first timer contractor to incorporate BIM technology in tendering for new construction projects. Such services could help the SME's to be confident in adopting BIM for their projects. Despite the comprehensive understanding on the *usefulness* of BIM, the SMEs need to have easy access and '*ease-of-use*' on the use of BIM for their projects. Hence, the concept of *pay-per-use* or *periodical license* was suggested by participants to support the implementation of BIM. In addition, free consultation by BIM modellers' software and system could also be part of the services provided at the BIM technology centre.
CIDB Portal	The development of CIDB portal for disseminating BIM information and support services is regarded as a good move to help SME's contractors with greater clarity and appropriate information of BIM. Through the valuable portal, information-

	rich model can be shared among contractors, sub-contractors and non-professional stakeholders for further decision making.

8.2.2 The Incentives

It is undeniable that majority of SMEs' companies have limited resources and thus, they anticipate few incentives could be given to them by the Government to release them from financial burden. The participants suggested that financial aids such as tax reduction and reduce/ or exempted from CIDB levy for BIM implementers are sought. Other forms of incentives (i.e., recognition to SME's company's implemented BIM; yearly rewards; and special awards) could motivate SMEs to be committed in adopting BIM for their projects. All of these rewards, awards, and certifications would give merit to SMEs contractors and will be further recognized by Government and other professional bodies. These recognitions could help them to secure for future projects following what has been implemented for IBS score or GBI index.

8.3 The Benefits of BIM

The following are the potential benefits perceived by the participants:

Time and Cost Efficiency

Time and cost are two most important factors for investing in new technology such as BIM. It is estimated that by using BIM could possibly increase project profits in terms of early delivery and cost of doing the work. BIM adoption expands from 17% in 2007 to over 70% in 2012 (New McGraw-Hill Construction Report, 2012). Adopting BIM could reduce cost, time management for workforce, reduce wastages and improved customer/client relationships. In addition, BIM encourages integration of the roles of SMEs contractors, sub-contractors, consultants and clients on the project which bring a greater project efficiency as well as harmony among industry players. Nevertheless, to some SMEs BIM is only a theory and to date there is still no conclusive case studies of projects in Malaysia have proven the BIM's efficiency. Despite BIM is seen as innovative way to manage projects and increase economic value, the outcomes is still unpredictable.

Visualisation

BIM Interfacing Model utilizes the design platform from 2D to 3D by having mutual parties for working at the same platform. The use 2D and 3D views in BIM accurately convey information about the design to different audiences. BIM can facilitate the adjustments of the properties of model views to emphasize key elements of their design and hide unnecessary or unwanted detail. It is believed to have less confusion in terms of requirements and deliverables. It will improve collective understanding of design intent. BIM provide the facility to understand drawing efficiently and compile drawing efficiently; the system not fragmented. BIM offers the chance for exploring the design possibilities by considering at the best design because it has many options through visualization. Moreover, by having visualisation tools, it is much easier to renovate and upgrade at the later stage. The usage of visualisation is significant for the speed of project delivery. In addition, all, information and details of the projects can be stored and used in the operation.

Reduce Rework

Implementation of BIM enables identification of 'clash detections' before any construction take place. Thus, appropriate adjustments can be made prior to construction. This particularly important in fixing Mechanical & Electrical and other services works. The possibilities of rework as in traditional method may be eliminated or reduce. Majority of respondents see the potential of BIM to reduce rework as a significant benefit.

Improvisation on Work Program / Schedule / Planning / Productivity

BIM provides a tool for well coordination systematic project management to ensure the high quality of administration, planning and design of a facility been applied. Usually, in project management, misunderstanding will occur among project participants. The planning facility in BIM that provide sharing of information could reduce problems between client, consultants, contractors and sub-contractors. Trust is the pivotal factor to adopt BIM and thus, project participants need to have trust among them and perceive that sharing of information is the way forward for efficiency and improve productivity.

Early Detection of Problems/Reduce Errors

Reduced errors and omissions in construction documents are very important. Virtual design and construction by using BIM creates potential to identify problems earlier in the building process. With inter-operable exchange of models and data, team players can ensure that information is complete and accurate. Most of the respondents in the workshop realize that inter-operability concept is a significant benefit in adopting BIM for their projects, particularly to the SMEs' industries.

8.4 The Way Forward

The government initiatives to introduce the BIM to AEC industry with several additional programmes will accelerate the transformation and learning curve of BIM. Encouraging SME's towards BIM implementation is crucial as this sector can lead the way in this transformation process. Based from the incentive and initiatives provided by government, the SME's should take the opportunities and accelerate their learning curves in BIM technologies as most of the supply chain is poised of SME's.

APPENDIX

List of Participants

NUM	NAME	ORGANISATION
1.	SYAFIQ ZAINAL	ALPHA HERITAGE (M) SDN. BHD.
2.	ISMAR BIN MOHD YUNUS	AR FACTOR RESOURCES SDN. BHD.
3.	NUR DALILAH BINTI MOHD. YUNUS	AR FACTOR RESOURCES SDN. BHD
4.	MOHD ZAKI BIN SUAIDI	BENAREL ENGINEERING SDN. BHD.
5.	RAMLI BIN SAMAD	CEMERLANG TERANG SDN. BHD.
6.	ABDUL AZIZ JAMALUDIN	CEMERLANG TERANG SDN. BHD.
7.	MOHAMAD FAIRIDZ MOHAMAD ARIPIN	CREATIVE VENTURES SDN. BHD.
8.	GARY CHIN	CYFIELD SDN. BHD.
9.	MD NUR ZAKY ZAKARIA	DISB BUILDERS SDN. BHD.
10.	JOHARI BIN HASAN	EMASJADI CONSTRUCTION SDN. BHD.
11.	JUFRI ADI HASAN BIN JOHARI	EMASJADI CONSTRUCTION SDN. BHD.
12.	JULIANA NUR YAZMIN BINTI JOHARI	EMASJADI CONSTRUCTION SDN. BHD.
13.	MOHD KAMARUL REDZA BIN MOHAMAD RAMLI	FARADISSE HIGH SDN. BHD.
14.	MOHAMAD UZIR AHMAD	FASA ABADI SDN. BHD.
15.	SANIAH BINTI HJ ZAINON	FASA ABADI SDN. BHD.
16.	SYAM SYEER MOHAMMAD BIN MUSA	FINESSE CREDENTIAL SDN. BHD.
17.	HJ. AHMAD FATANI HJ. ABDUL RAHMAN	FR ENGINEERING AND RESOURCES
18.	HJ. ALAWI HJ. MOHD KASIM	KALINDA SDN. BHD.
19.	SAUFI SHAZALI BIN ALAWI	KALINDA SDN. BHD.
20.	CHOO CHEW HA	KIM CHONG MAIN SDN. BHD.
21.	HOO KUAN SIANG	KIM CHONG MAIN SDN. BHD.
22.	NOOR RAFIDAH BINTI PITAH	KRISTAL VISUAL SDN. BHD.
23.	HARMY SAM BIN HARUN	MARANG ENGINEERING SD. BHD.
24.	MOHAMMAD HAZIQ BIN HARUN	MARANG ENGINEERING SD. BHD.
25.	FUAD BIN ABDULLAH	MICROCORP TECHNOLOGY SDN. BHD.
26.	MOHAMAD RASHDAN BIN ISA	MICROCORP TECHNOLOGY SDN. BHD.
27.	KAMARUL BIN JAMALUDIN	NZ CORP OIL & GAS
28.	MUGUNTAN A/L GOPAL	OVERSEA LIGHTING & ELECTRIC (M) SDN. BHD.
29.	DANIEL NG PING PING	PEMBINAAN PERNIAGAAN SETIA
30.	CHAN KOK FOO	PEMBINAAN WENG FOO SDN. BHD.
31.	LAI SENG CHOONG	PEMBINAAN WENG FOO SDN. BHD.
32.	MOHD SIDIK BIN SADAR MOHAMMAD	PERFECT BENCHMARK SDN. BHD.

33.	ZAKARIA BIN OTHMAN	PERFECT BENCHMARK SDN. BHD.
34.	ZAINUDIN BIN MOHD YUSOFF	PERFECT BENCHMARK SDN. BHD.
35.	FATIN INTAN SYAZWANI BT HJ. AZINAL ABIDIN	QSE CONSTRUCTION SDN. BHD.
36.	ALI SALIMIN BIN GHAZALI	SEMANGAT SERENTAK SDN. BHD.
37.	AZLAN BIN AZMI	SEMANGAT SERENTAK SDN. BHD.
38.	ANDY YONG THAU WEI	SIM YEOW SENG CONSTRUCTION SDN. BHD.
39.	SITI NURSAHIRA BINTI ROSDI	SUMITTAN SDN. BHD.
40.	NGAI LAI PING	TUNAS ENTERPRISE
41.	YAP WOON LOONG	TUNAS ENTERPRISE
42.	GUNALAAN VASUDEVAN	TUNKU ABDUL RAHMAN UNIVERSITY COLLEGE
43.	ZAHRIZAN ZAKARIA	UNIVERSITI MALAYSIA PAHANG (UMP)
44.	MOHD AFFENDI BIN HARUN	WEALTH MANAGEMENT NETWORK SD. BHD.
45.	MOHD NOR AZMI BIN AMAN	WEALTH MANAGEMENT NETWORK SD. BHD.
46.	SHAFIZA BIN GULAM ALI	WIRIS RESOURCES
47.	AZIZI BIN. OTHMAN	ALPHA HERITAGE
48.	AHMAD SYAZWAN BIN AHMAD	ALPHA HERITAGE
49.	AZAM HAKIMI BIN SHAHADAN	ALPHA HERITAGE

Seminar and Workshop Programme

Table 1 displays the details of the one-day program seminar and workshop program of BIM.

Table 1: The Seminar and Workshop Programme

Time	Program
8.30 a.m - 9.00 a.m	Registration
9.00 a.m - 9.15 a.m	Welcoming Address by *Ir. Elias Ismail, Senior General Manager CIDB*
9.15 a.m - 10.00 a.m	Presentation 1 – Introduction on BIM by *Dr. Ahmad Tarmizi Haron, Lecturer at Universiti Malaysia Pahang (UMP)*
10.00 a.m - 10.15 a.m	Coffee Break
10.15 a.m - 11.00 a.m	Presentation 2 – Cost Benefits and Best Practices in BIM Implementation by *Dr. Che Wan Fadhil Bin Che Wan Putra, Managing Director at EMOST Services Sdn. Bhd*
11.00 a.m - 12.30 p.m	Group discussion
12.30 p.m - 2.00 p.m	Networking Lunch
2.00 p.m - 2.45 p.m	Presentation 3 – BIM Portal and Information Exchange Platform for Affordable BIM by *En. Mohd Harris Ismail, Senior Manager at CIDB*
2.45 p.m - 4.30 p.m	Group discussion
4.30 p.m - 5.00 p.m	Wrap up and Workshop Resolution
5.00 p.m - 5.30 p.m	Coffee break/ End of Session

Seminar and Workshop Photo Gallery

Participant registration for Seminar & workshop - Issues and Challenges in Implementing Building Information Modelling (BIM) by SME's in the Construction Industry

Welcoming address by *Mr. Saad Osman*, General Manager CIDB

Presentation 1- Introduction on BIM by *Dr. Ahmad Tarmizi Haron*, Lecturer at Universiti Malaysia Pahang (UMP)

Presentation 2- Cost Benefits and Best Practices in BIM Implementation by *Dr. Che Wan Fadhil Bin Che Wan Putra*, Managing Director at EMOST Services Sdn. Bhd

Presentation 3 - BIM Portal and Information Exchange Platform for Affordable BIM by *En. Mohd Harris Ismail,* Senior Manager CIDB

Participants pay their attention during presentation by the speakers

Q&A Session

Session	Q & A
Presentation 1	***1. Respondent 1*** Respondent agreed with the introduction of BIM because it can produce 3D of overall project and detect clashes and uncertainty in design stage. ***2. Respondent 2*** Respondent had a bad experience with his/her employee whereby once the employee master with BIM, his/her employee moved to another company, which offer, increased of job salary. For solution, speaker gives a solution to UK example whereby a contract for 2 years between the company and employee once employee is given BIM training and counter offer to the employee once the employee has 3-5 years experience. ***3. Respondent 3*** Respondent 3 explains that UTM had already started with BIM syllabus in their programme to create awareness. The speaker adds that UMP also in a collaboration programme for BIM. ***4. Respondent 4*** Respondent informs that, there is no software for the SMM 2 in BIM. The speaker explains that, his company used process mapping to solve the matter since the data base for each company is not the same and used company own programme using Microsoft Excel.

Presentation 2	***1. Respondent 1*** Respondent asked the procurement used to bring contractor to the design stage whereby Malaysia traditional procurement is not suitable with BIM process. Speaker informed respondent to search for independent Project Delivery (IPD) in the website. IPD has produces a lot of new type of procurement in USA which proven successful. In addition, speaker informs that additional procurement/ document parallel to conventional procurement. ***2. Respondent 2*** Respondent asked regarding BIM capability. Speaker informs Malaysian construction can't wait for the government to implement BIM. It should be own their own initiative even though JKR will implement the BIM usage for all government projects starting the year 2016. ***3. Respondent 3*** Respondent 3 shared her knowledge on BIM whereby BIM is important mainly for PPP and Private Finance Initiative projects. Speaker adds that Case study in Dubai has proven that the cost of BIM is 10 per cent from the overall project's profit.
Presentation 3	***1. Respondent 1*** The respondent asked whether the BIM's software in BIM centre is latest and upgraded and accessible to all (main contractor and consultant) Speaker said yes, all the BIM software in BIM centre is upgraded and accessible to all with term and condition applied. ***2. Respondent 2*** Respondent hopes that the BIM software in BIM centre website will not crash and grate full towards CIDB, in CIDB's effort in promoting BIM in Malaysian construction industry