IMPLEMENTATION OF BUILDING INFORMATION MODELLING (BIM) AMONG CONSTRUCTION PROJECT IN KINTA

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ABSTRACT

Building Information Modelling (BIM) is a new emerging technology to be deployed in design, construction and facility management where virtual representation of the building is being created to facilitate the exchange and interoperability of information in digital format (CREAM, 2014). BIM permeates construction industry is seen as major driver for improvement in term of performance and cost efficiency. However, application of BIM still in infancy stage. Hence, this research objectives are to identify barriers exist in the implementation of Building Information Modelling (BIM) and to determine benefits gained in implementing of BIM amongst construction project. The primary data and secondary data are used to collect the data. The primary data is obtained from questionnaire survey. A total of 92 sets of questionnaires successfully collected from contractors companies who registered under Grade 7 from CIDB at Kinta, Perak. The data collected from respondents has been used to perform statistical analysis by using Statistical Package for the Social Sciences (SPSS). Meanwhile, secondary data can be obtained from resources already existing which is journals, articles, government publications and books. Based on research findings, majority contractor companies agreed that high cost acquire BIM tools, software and hardware is significant barriers in implementing BIM. Furthermore, research has identified that time estimation efficiency can be achieved by contractor if construction project utilized BIM software .

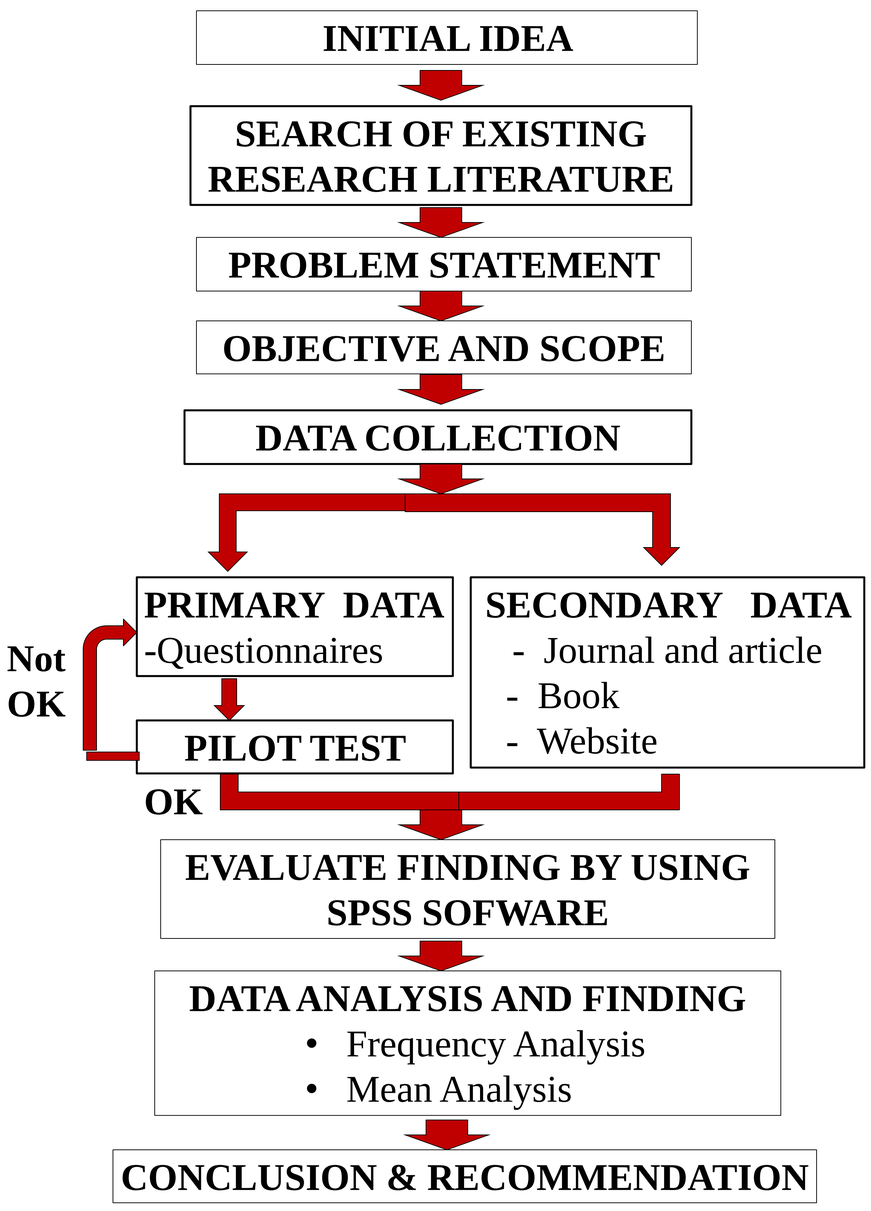
INTRODUCTION

- Construction industry was estimated to contribute 5.5 percent of Malaysia Cross Domestic Product (GDP) by year 2020 based on Eleventh Malaysia Plan.
- Government Malaysia encouraged construction practitioners to apply BIM tool to improve project efficiency and success. However, application of BIM still remain in infancy stage.
- Local construction practitioners have a shaky concept and ambiguous toward potential and benefits of BIM which cause them hesitate to adopt BIM (Karathodoros and Brynjolfsson, 2013)

OBJECTIVES

i. To identify barriers exist in the implementation of Building Information Modelling (BIM) amongst construction project
ii. To determine benefits in implementing Building Information Modelling (BIM) amongst construction project.

METHODS



RESULTS

1. Summary Response Rate

Response Rate	Frequency	Percentage
Return	92	76.67%
Unreturned	28	23.33%
Total Distributed	120	100%

2. Barriers of BIM Implementation in Construction Project

No	Statement	Mean	Overall Ranking
1	High cost to acquire BIM tools, software and hardware	4.0435	1
2	Lack of client demand for BIM	3.9674	2
3	Lack of training and education regarding BIM	3.7935	3
4	High cost of training to develop people's competency	3.7391	4
5	Lack of determination of BIM data ownership between contractor and sub-contractor	3.6739	5
6	Difficult to exchange electronic data from different software	3.5109	6
7	Lack of collaborative work process among stakeholder	3.4348	7
8	Lack of legal/ contractual agreement about copyright between contractor and subcontractor	3.2826	8
9	Difficult to appoint specific member in controlling entry data and be responsible for any inaccuracies.	3.1522	9
10	Lack of modelling guidelines for integration and management	3.0978	10
11	Reluctant of other stakeholder	2.7065	11
12	Inadequate proof of tangible benefit of BIM in pilot project	2.4565	12
13	Low level of awareness among staff in implementing BIM	2.2283	13
14	BIM implementation give negative impact on current practice	2.1522	14

3. Benefits of BIM implementation in Construction Project

No	Statement	Mean	Overall Ranking
1	Time estimation efficiency	3.8696	1
2	Better design visualization and understanding by creating detailed in 3D model view.	3.6630	2
3	Improve on productivity and quality	3.6413	3
4	Cost estimation efficiency	3.4565	4
5	Confidence in offsite prefabrication	3.1196	5
6	Ensure complete project documentation	2.7391	6
7	Enhance collaboration among stakeholders	2.4239	7
8	Identify the design error through clash detection	2.1848	8

CONCLUSIONS

- The research finding identified that cost is main significant barriers in BIM implementation.
- It can be concluded that time estimation efficiency can be achieved easily by implementing BIM in construction project.

RECOMMENDATION

Future Research

- Researcher can formulate strategy to promote BIM application by benchmarking success factor foreign country
- Increase the number of population

Increase BIM Implementation

- Incentive
- Government department provide training programmes
- BIM seminar and workshops
- Certification and accreditation