UNIVERSITI TEKNOLOGI MARA
College of Built Environment

Poster Book

IIIDBEEX 2023

20 JANUARY 2023

International Invention, Innovation & Design Exposition for Built Environment and Engineering 2023

College of Built Environment
UiTM Puncak Alam
20 January 2023 I Friday

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CONCEPTUAL FRAMEWORK OF CONSTRUCTION PROFESSIONALS' BIM COMPETENCIES ASSESSMENT

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1. INTRODUCTION

Need for disruptive technology

BIM

Building Information Modelling

- Real-time collaboration
- Greater visibility
- Better decision making

2. PROBLEM STATEMENTS

The **uncertainty of the current construction professionals' BIM competency** level (Othman et al., 2020)

The **absence of an assessment tool** to evaluate the level of **BIM competencies** (Memon and Rahman, 2014; Ishak and Fadzil, 2021)

3. OBJECTIVES

To illustrate the **conceptual framework** in developing **BIM Competencies Assessment Tools** for construction professionals.

4. RESEARCH METHODOLOGY

Literature Review - Narrative

A defined literature search from January 2011 – January 2023

- **Identification**: Google Scholar (n=15,100); Science Direct (n=1,057); Academia (n=4,587)
- **Screening**: Citation screened after duplicated removed (n=40)
- **Eligibility**: Full-text publications reviewed for potential inclusion (n=32)
  - Additional references identified by manual research (n=4)
  - Excluded (n=10)
    - No methods described
    - Importance of journal
    - Number of references
    - Contents Redundancy
- **Included**: Total articles included (n=24)

5. FINDINGS

Elements	Issues	Solutions
People	Absence of BIM knowledge, comfortable with the traditional process, undersupply of BIM competent	Collaboration and training
Process	Scarcity of BIM standards and guideline	Detailed guideline
Technology	High cost of software and hardware	Investment in software and hardware
Policy	No contractual on BIM, Ownership and intellectual property	BIM execution plan, enhance BIM ownership
Information	Absence of information content for site use	Productivity monitoring
Organisation	Resistance towards change, management issues	Top managerial encouragement

LEGENDS

- Current practices of BIM in the Malaysian construction industry
- Proposed Improvement of BIM in the Malaysian construction industry

CONCEPTUAL FRAMEWORK

ISSUES

- Unaware of the current BIM competency level
- Lack of knowledgeable workforce among construction stakeholders
- Lack of enforcement and proper guideline to implement BIM
- Absence of assessment tool in the Malaysian Construction Industry

SOLUTIONS

- Identification of the current level of individual competencies in BIM implementation
- Identification of BIM initiatives that need to be fulfilled by construction professionals in order to be BIM-competent

via

PROPOSED **BIM Competency Framework**

Assessment tool for BIM professionals to be competent in order to involve in project with BIM implementation

Consisted of

PROPOSED **BIM Elements Assessment**

People, Process, Technology, Policy, Information, Organisation

BIM-Competent Initiatives

Results - Align with National Agenda

1. **Twelfth Malaysia Plan (2021-2025)**
   - Leverage mechanization through the utilization of disruptive technology to expedite project completion
   - Promote green and resilient city tools
2. **National Construction Policy 2030**
   - Integrate BIM in all construction projects to improve quality, and productivity and minimize inefficiencies
3. **Construction 4.0 Strategic Plan (2021-2025)**
   - Shaping the construction industry in preparation for Construction 4.0
4. **PWD Strategic Plan (2021-2025)**
   - Achieve BIM implementation up to 50%-80% of project in Malaysia

6. NOVELTY

Assist in narrowing down the gap in BIM implementation

Supporting the initiatives of increasing productivity in construction projects through innovative technologies.

7. CONCLUSIONS

The conceptual framework developed is to illustrate and assist in developing the BIM Competency Framework to identify existing problems that lead to incompetent construction stakeholders and the activities that could improve the competency of construction professionals in the BIM organisation. Hence, it is expected to be able to reflect the Government's aim to promote successful BIM in the Malaysian construction industry, especially in terms of people, process, technology, policy, information, and organization.

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