

**THE EFFECTIVENESS OF BUILDING INFORMATION
MODELING IN SRI LANKA CONSTRUCTION
INDUSTRY**

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Declaration

I hereby affirm that this dissertation report is an outcome of my own effort for the best of my knowledge and it contains my own work done for the fulfillment of requirement for the higher degree of Master of Science in Construction Project Management. It does not include any written material previously submitted for the award of any preliminary degree, higher education or published by any other person or institution except where acknowledgement and references are made in the text.

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Dedication

I would like to dedicate
This thesis,
To my Parents, Husband and Son,
For their eternal love, affection and encouragement
Which strive me to
Make my dream a reality,
And the teachers, who lead me
To the path of success and honour.
Without their inspiration and guidance
I would not be able
To pass through the tiring process of this research.

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Abstract

Building Information Modeling (BIM) is one of the latest emerging technologies in the Architecture, Engineering, and Construction (AEC) industry. It is an application to reproduce the real building process facilitating to manage projects conveniently. This can be developed from 2D drawing up to 7D as modelling, scheduling, estimating, sustainability and facility management respectively. It is vastly used to handle complex projects in order to its enormous benefits namely faster project delivery, reduction of risk, time and material waste, enhancing sustainability and better building life cycle performance and more likely to become an industrial standard worldwide in future.

However, BIM is not much popular in local construction industry yet. Mostly, the top management is on the horns of dilemma in view of adopting BIM in their projects. This research addresses this contemporary need of figuring out whether a developing country like Sri Lanka is beneficial by adopting this technology in construction.

The study strived to investigate the BIM awareness and adoption level of Sri Lankan Construction Industry, the potential of BIM to solve common construction issues and the barriers to adopt BIM locally and last of all, concluded recommendations for proper BIM implementation. Data was collected via a questionnaire survey targeting the stakeholders of top tier construction projects. It was analysed applying hypothesis testing using Mann Whitney U test values and relative important index method. The analysis was focused on the influence of identified factors such as experience level and BIM usage in solving major construction issues. Further, it ranked the significance of internal and external barriers for BIM implementation in the vicinity.

Results of the analysis revealed that BIM usage minimizes encountering major issues in construction industry and facilitates the smooth flow in construction work independently from the work experience. Unawareness of BIM was ranked as the top most barrier in its implementation.

The findings of this study provides an inspiring guide for AEC industry practitioners in Sri Lanka to make the right decision while considering the implementation of BIM technology in their projects.

Keywords: Building Information Modeling, AEC industry, Hypothesis Testing, Mann Whitney u test, Relative Important Index

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LIST OF ABBREVIATIONS

| Abbreviation | Description |
|--------------|--|
| AEC | Architecture, Engineering and Construction |
| BIM | Building Information Modeling |
| CAD | Computer Aided Design |
| CPM | Critical Path Method |
| IPD | Integrated Project Delivery |
| RII | Relative Important Index |

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