IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, March 2023
Impact Factor: 7.301

An Empirical Study on Significance of BIM Adoption in Various Stages of Project Lifecycle

Arighnan G[1] and Sindhu Vaardini U[2]
Post Graduate Student, M.E Construction Management, Department of Civil Engineering[1]
Assistant Professor, M.E Construction Management, Department of Civil Engineering[2]
Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India

Abstract: *BIM adoption can be done in different stages of the project life cycle, from the Pre-Construction phase to post-Construction phase. This paper provides an overview of BIM adoption in different stages of the project life cycle and highlights the benefits and challenges associated with each stage. The Preliminary stage is pre-construction, BIM can play a significant role in improving the accuracy and efficiency of the design and planning processes. The secondary stage is construction which involves the use of BIM for coordination, sequencing, and construction management. The final stage is post-Construction operation, where BIM can be used for operation and maintenance. The paper describes the benefits of BIM adoption, including improved project performance, reduced errors and rework, and enhanced decision-making. The study identifies the adoption of BIM in different stages of the project lifecycle, including conceptual design, detailed design, construction & Operation and maintenance & Project closure phase discusses how BIM can be applied in each stages of the project.*

Keywords: BIM-Building Information Modelling, Project lifecycle

REFERENCES

[1]. Nawaz, A., Su, X., & Nasir, I. M. (2021). BIM Adoption and its impact on planning and scheduling influencing mega plan projects-(CPEC-) quantitative approach. Complexity, 2021, 1-9.
[2]. Arrotéia, A. V., &Melhado, S. B. (2020). BIM in the pre-construction phase: an infrastructure project case study. In Proc. 37th CIB W78 Information Technology for Construction Conference (CIB W78), São Paulo, Brazil (pp. 156-167).
[3]. Hamma-adama, M., Kouider, T., & Salman, H. (2020). Analysis of barriers and drivers for BIM adoption. International journal of BIM and engineering science, 3(1).
[4]. Sinenko, S., Hanitsch, P., Aliev, S., &Volovik, M. (2020). The implementation of BIM in construction projects. In E3S web of conferences (Vol. 164, p. 08002). EDP Sciences.
[5]. Ullah, K., Lill, I., & Witt, E. (2019, May). An overview of BIM adoption in the construction industry: Benefits and barriers. In 10th Nordic conference on construction economics and organization (Vol. 2, pp. 297-303). Emerald Publishing Limited.
[6]. Razali, M. F., Haron, N. A., Hassim, S., Alias, A. H., Harun, A. N., & Abubakar, A. S. (2019, November). A review: application of Building Information Modelling (BIM) over building life cycles. In IOP Conference Series: Earth and Environmental Science (Vol. 357, No. 1. 012028). IOP Publishing.
[7]. Ahmed, S. (2018). Barriers to implementation of building information modeling (BIM) to the construction industry: a review. Journal of civil engineering and construction, 7(2), 107-113.
[8]. Marefat, A., Toosi, H., &Hasankhanlo, R. M. (2018). A BIM approach for construction safety: applications, barriers and solutions. Engineering, Construction and Architectural Management, 26(9), 1855-1877.
[9]. Mesároš, P., &Mandičák, T. (2017, October). Exploitation and benefits of BIM in construction project management. In IOP Conference Series: Materials Science and Engineering (Vol. 245, No. 6, p. 062056). IOP Publishing.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, March 2023
Impact Factor: 7.301

[10]. Hafeez, M. A., Vukovic, V., Chahrour, R., Kassem, M., & Dawood, N. (2016, March). Identifying Current BIM Practices in Qatar and Proposing a Framework for Whole Life Cycle BIM Processes. In Qatar Foundation Annual Research Conference Proceedings (Vol. 2016, No. 1, p. EEPP3066). Qatar: HBKU Press.

[11]. Vozzola, M., Cangialosi, G., & Turco, M. L. (2009, September). BIM use in the construction process. In 2009 International Conference on Management and Service Science (pp. 1-4). IEEE.

[12]. Okakpu, A., Ghaffarianhoseini, A., Tookey, J., Haar, J., Ghaffarianhoseini, A., & Rehman, A. U. (2022). Risk factors that influence adoption of Building Information Modelling (BIM) for refurbishment of complex building projects: Stakeholders perceptions. InternationalJournal of Construction Management, 22(13), 2446-2458.

[13]. Jaaron, A. A., Hijazi, I. H., & Musleh, K. I. Y. (2022). A conceptual model for adoption of BIM in construction projects: ADKAR as an integrative model of change management. Technology Analysis & Strategic Management, 34(6), 655-667.

[14]. Li, L., Yuan, J., Tang, M., Xu, Z., Xu, W., & Cheng, Y. (2021). Developing a BIM-enabled building lifecycle management system for owners: Architecture and case scenario. Automation in Construction, 129, 103814.Chicago

[15]. Quoc, T. N., Van, T. N., Ngoc, D. T., & Xuan, A. P. (2022). ADOPTION OF BUILDING INFORMATION MODELING IN THE CONSTRUCTION PROJECT LIFE CYCLE: BENEFITS FOR STAKEHOLDERS. Architecture and Engineering, 7(1), 5671

[16]. Al-Ashmori, Y. Y., Othman, I., Rahmawati, Y., Amran, Y. M., Sabah, S. A., Rafindadi, A. D. U., &Mikić, M. (2020). BIM benefits and its influence on the BIM implementation in Malaysia. Ain Shams Engineering Journal, 11(4), 1013-1019.

[17]. Alasmari, E., Martinez-Vazquez, P., &Baniotopoulos, C. (2022). A Systematic Literature Review of the Adoption of Building Information Modelling (BIM) on Life Cycle Cost (LCC). Buildings, 12(11), 1829.

[18]. Xu, X., Ma, L., & Ding, L. (2014). A framework for BIM-enabled life-cycle information management of construction project. International Journal of Advanced Robotic Systems, 11(8), 126.

[19]. Jagadeesh, G. M., &Jagadisan, S. (2019). Investigation of BIM adoption in India. International Journal of Engineering Research and Technology (IJERT), 8(11), 252-258. Jagadeesh, G. M., &Jagadisan, S. (2019). Investigation of BIM adoption in India. International Journal of Engineering Research and Technology (IJERT), 8(11), 252-258

[20]. Salvi, S., Patil, M. A., Mhetre, M. S., Patil, M. Y., & Shinde (2018) M. A. A Review: Lifecycle Assessment of a Building by Using BIM.

[21]. Cepa, J. J., Pavón, R. M., Alberti, M. G., Ciccone, A., &Asprone, D. (2023). A Review on the Implementation of the BIM Methodology in the Operation Maintenance and Transport Infrastructure. Applied Sciences, 13(5), 3176.

[22]. Liu, Z., Lu, Y., Nath, T., Wang, Q., Tiong, R. L. K., &Peh, L. L. C. (2022). Critical success factors for BIM adoption during construction phase: a Singapore case study. Engineering, Construction and Architectural Management, 29(9), 3267-3287.

[23]. Bui, N., Merschbrock, C., &Munkvold, B. E. (2016). A review of Building Information Modelling for construction in developing countries. Procedia Engineering, 164, 487-494.