

The Impact of Bim Technology on the Whole Process Cost Management of Civil Engineering Projects in Kenya

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Abstract : The study examines the impact of Building Information Modeling (BIM) on the cost management of engineering projects, focusing specifically on the Mombasa Port Area Development Project. The objective of this research venture is to determine the mechanisms through which Building Information Modeling (BIM) facilitates stakeholder collaboration, reduces construction-related expenses, and enhances the precision of cost estimation. Furthermore, the study investigates barriers to execution, assesses the impact on the project's transparency, and suggests approaches to maximize resource utilization. The study, selected for its practical significance and intricate nature, conducted a Systematic Literature Review (SLR) using credible databases, including ScienceDirect and IEEE Xplore. To constitute the diverse sample, 69 individuals, including project managers, cost estimators, and BIM administrators, were selected via stratified random sampling. The data were obtained using a mixed-methods approach, which prioritized ethical considerations. SPSS and Microsoft Excel were applied to the analysis. The research emphasizes the crucial role that project managers, architects, and engineers play in the decision-making process (47% of respondents). Furthermore, a significant improvement in cost estimation accuracy was reported by 70% of the participants. It was found that the implementation of BIM resulted in enhanced project visibility, which in turn optimized resource allocation and facilitated the process of budgeting. In brief, the study highlights the positive impacts of Building Information Modeling (BIM) on collaborative decision-making and cost estimation, addresses challenges related to implementation, and provides solutions for the efficient assimilation and understanding of BIM principles.

Keywords : cost management, resource utilization, stakeholder collaboration, project transparency

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