Drivers of Actual Usage of Building Information Modelling Tools by Civil Engineering Professionals in Construction Industry of Sri Lanka

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Abstract

The construction industry in Sri Lanka is a key driver of the country's economy, contributing significantly to GDP, employment, and infrastructure development. However, the industry faces challenges due to outdated design methods and antiquated technology, hindering efficient stakeholder communication and collaboration, particularly during crucial stages like design. Cloud-based Building Information Modeling (BIM) emerges as a solution, providing a centralized platform for real-time collaboration. BIM is widely recognized as an industry standard worldwide, but its implementation in Sri Lanka's construction industry is still in its early stages. This research, guided by the Unified Theory of Acceptance Model and Use of Technology (UTAUT) and Technology Acceptance Model (TAM), explores BIM adoption factors. A systematic literature review was conducted to identify key drivers through a meticulous analysis of 50 studies: Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Social Influence (SI), Facilitating Conditions (FC), and Behavioral Intention (BI). The conceptual framework, based on TAM and UTAUT, was developed. Analyzing data from 131 respondents via PLS-SEM, the study found positive impacts of SI on BI, as well as impacts of BI and FC on Actual Usage (AU). Moreover, the impact of SI, PU, and PEOU on AU was fully

mediated by BI. Results of this research underscore BIM's significance, offering insights for effective adoption in Sri Lanka's construction projects.

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