

The Impact of Building Information Modelling (BIM) Strategies in Energy Sustainability Elements to Sustainable Campus Using PLS-SEM Approach

ABSTRACT

This paper establishes a structural relationship between BIM strategies in eleven (11) energy sustainability elements divided into management and technical aspects that impact a sustainable campus. The work established thirteen (13) benchmarks for independent variables and one (1) dependent variable. The exploratory research design used in this study led to the structural model development being the central focus of the study. A judgmental sampling technique was used to distribute a questionnaire survey among local engineers, assistant engineers, and technicians in Kota Kinabalu, Sabah, Malaysia. The research population survey employed 78 returned questionnaires. The analysis used Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the hypotheses. The result indicates that the management and technical aspects of Energy Sustainability Elements (ESE) significantly impact sustainable campus with path coefficients of 2.447 and 5.032, respectively. Furthermore, the findings have revealed that Hypothesis 1 and Hypothesis 2 were all positive and significant at the 0.05 level, indicating that these two hypotheses are valid and supported. This study provides valuable information and insights for Malaysian universities to achieve a sustainable campus by adopting building information modeling (BIM) strategies in the context of energy efficiency.