World Academy of Science, Engineering and Technology
International Journal of Industrial and Systems Engineering
Vol:19, No:11, 2025

A Framework for Building Information Modelling Execution Plan in the Construction Industry, Lagos State, Nigeria

Authors : Tosin Deborah Akanbi

Abstract : The Building Information Modeling Execution Plan (BEP) is a document that manifests the specifications for the adoption and execution of building information modeling in the construction sector in an organized manner so as to attain the listed goals. In this regard, the study examined the barriers to the adoption of building information modeling, evaluated the effect of building information modeling adoption characteristics on the key elements of a building information modeling execution plan and developed a strategic framework for a BEP in the Lagos State construction industry. Data were gathered through a questionnaire survey with 332 construction professionals in the study area. Three online structured interviews were conducted to support and validate the findings of the quantitative analysis. The results showed the significant relationships and connections between the variables in the framework: BIM usage and model quality control (aBIMskill -> dMQ, Beta = 0.121, T statistics = 1.829), BIM adoption characteristics and information exchange (bBIM_CH -> dIE, Beta = 0.128, T statistics = 1.727), BIM adoption characteristics and process design (bBIM_CH -> dPD, Beta = 0.170, T statistics = 2.754), BIM adoption characteristics and roles and responsibilities (bBIM_CH -> dRR, Beta = 0.131, T statistics = 2.181), interest BIM barriers and BIM adoption characteristics (cBBIM_INT -> bBIM_CH, Beta = 0.137, T statistics = 2.309), legal BIM barriers and BIM adoption characteristics (cBBIM_LEG -> bBIM_CH, Beta = 0.168, T statistics = 2.818), professional BIM barriers and BIM adoption characteristics (cBBIM_PRO -> bBIM_CH, Beta = 0.152, T statistics = 2.645). The results also revealed that seven final themes were generated, namely: model structure and process design, BIM information exchange and collaboration procedures, project goals and deliverables, project model quality control, roles and responsibilities, reflect Lagos state construction industry and validity of the BEP framework. Thus, there is a need for the policy makers to direct interventions to promote, encourage and support the understanding and adoption of BIM by emphasizing the various benefits of using the technology in the Lagos state construction industry.

Keywords : building information modelling execution plan, BIM adoption characteristics, BEP framework, construction industry
Conference Title : ICTBM 2025 : International Conference on Technology and Business Management
Conference Location : San Francisco, United States
Conference Dates : November 01-02, 2025