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Investigating and prioritizing failure indicators of BIM-based automated construction in Iran using FAHP method

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Abstract

Nowadays, using modern methods for optimization of time-cost-quality in construction projects have gained a great attention from construction engineers and stakeholders. Building Information Modeling (BIM) is one of these new methods which is a process involving the generation and management of digital representations of physical and functional characteristics of buildings. In the present study, the procedure of BIM was analyzed and challenging factors affecting implementation of this method in Iran were investigated. Here, we specified the failure factors in the implementation of BIM system according to experts' opinions and through a questionnaire, and by using the FAHP model, the weight and importance of these factors were determined and also, the factors were prioritized. Results indicated that, in terms of weight, technical issues have the greatest impact. Financial issues and time are at the second and third levels respectively, while training and management has the least impact in BIM implementation.

Keywords: Building Information Modeling (BIM); Fuzzy Analytic Hierarchy Process (FAHP); Failure Factors; questionnaire.

1. Introduction

Automation technology has progressed in different industries such as aerospace, shipbuilding, automotive, and etc., but its growth in the construction industry has been slow because the current automation and engineering technology is not suitable for large-scale construction products in terms of efficiency and economics. Construction engineers and stakeholders of the project always consider modern methods for developing building projects in order to increase quality, reduce time and thus reduce the costs of the project.