A Study on Factors Affecting (Building Information Modelling) BIM Implementation in European Renovation Projects

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Abstract : New technologies and applications have radically altered construction techniques in recent years. In order to anticipate how the building will act, perform, and appear, these technologies encompass a wide range of visualization, simulation, and analytic tools. These new technologies and applications have a considerable impact on completing construction projects in today's (architecture, engineering and construction)AEC industries. The rate of changes in BIM-related topics is different worldwide, and it depends on many factors, e.g., the national policies of each country. Therefore, there is a need for comprehensive research focused on a specific area with common characteristics. Therefore, one of the necessary measures to increase the use of this new approach is to examine the challenges and obstacles facing it. In this research, based on the Delphi method, at first, the background and related literature are reviewed. Then, using the knowledge obtained from the literature, a primary questionnaire is generated and filled by experts who are selected using snowball sampling. It covered the experts' attitudes towards implementing BIM in renovation projects and their view of the benefits and obstacles in this regard. By analyzing the primary questionnaire, the second group of experts is selected among the participants to be interviewed. The results are analyzed using Theme analysis. Six themes, including Management support, staff resistance, client willingness, Cost of software and implementation, the difficulty of implementation, and other reasons, are obtained. Then a final questionnaire is generated from the themes and filled by the same group of experts. The result is analyzed by the Fuzzy Delphi method, showing the exact ranking of the obtained themes. The final results show that management support, staff resistance, and client willingness are the most critical barrier to BIM usage in renovation projects.

Keywords : building information modeling, BIM, BIM implementation, BIM barriers, BIM in renovation
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