World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:13, No:07, 2019

Building Information Modeling-Based Information Exchange to Support Facilities Management Systems

Authors : Sandra T. Matarneh, Mark Danso-Amoako, Salam Al-Bizri, Mark Gaterell

Abstract : Today's facilities are ever more sophisticated and the need for available and reliable information for operation and maintenance activities is vital. The key challenge for facilities managers is to have real-time accurate and complete information to perform their day-to-day activities and to provide their senior management with accurate information for decision-making process. Currently, there are various technology platforms, data repositories, or database systems such as Computer-Aided Facility Management (CAFM) that are used for these purposes in different facilities. In most current practices, the data is extracted from paper construction documents and is re-entered manually in one of these computerized information systems. Construction Operations Building information exchange (COBie), is a non-proprietary data format that contains the asset non-geometric data which was captured and collected during the design and construction phases for owners and facility managers use. Recently software vendors developed add-in applications to generate COBie spreadsheet automatically. However, most of these add-in applications are capable of generating a limited amount of COBie data, in which considerable time is still required to enter the remaining data manually to complete the COBie spreadsheet. Some of the data which cannot be generated by these COBie add-ins is essential for facilities manager's day-to-day activities such as job sheet which includes preventive maintenance schedules. To facilitate a seamless data transfer between BIM models and facilities management systems, we developed a framework that enables automated data generation using the data extracted directly from BIM models to external web database, and then enabling different stakeholders to access to the external web database to enter the required asset data directly to generate a rich COBie spreadsheet that contains most of the required asset data for efficient facilities management operations. The proposed framework is a part of ongoing research and will be demonstrated and validated on a typical university building. Moreover, the proposed framework supplements the existing body of knowledge in facilities management domain by providing a novel framework that facilitates seamless data transfer between BIM models and facilities management systems.

Keywords : building information modeling, BIM, facilities management systems, interoperability, information management
Conference Title : ICBIM 2019 : International Conference on Building Information Modeling
Conference Location : Helsinki, Finland
Conference Dates : July 18-19, 2019

Open Science Index, Civil and Architectural Engineering Vol:13, No:07, 2019 publications.waset.org/abstracts/106538/pdf