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Potentials of Adopting Ontology Based Building Information Modelling Standard Method of Measurement

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ABSTRACT

Bills of quantities (BoQ) are widely acknowledged as being necessary for effective pre- and post-contract cost control. However, traditional BoQ production methods, are time-consuming, labour-intensive, and prone to errors. Building Information Modelling (BIM) and ontology technologies are emerging as viable solutions to the aforesaid challenge. They can be used to perform automatic quantity take-off/ cost estimation with high efficiency and accuracy. This paper is a subset of a broader and continuing research project and its objective is to provide a generic identification of the potentials of employing ontology-based BIM Standard Method of Measurement (SMM)/ Catalogue. The paper is based on comprehensive review of literature which includes journal articles, conference papers, text books and web trawl. The global use of SMM was highlighted, as well as the existing practise in a few countries. Interestingly, the potentials of adopting ontology based BIM SMM/ Catalogue has been identified as ability to represent human-being-oriented specifications/ SMMs in computer programmes; providing a framework for organising information for a certain domain, providing automatic QTO/ cost estimation due to its reasoning capability based on domain knowledge, and ensuring conformance of BoQ with SMM. The paper concludes that it is necessary to create and implement ontology-based SMM for use in BIM-based QTO/ cost estimation in order to reduce the risk of price uncertainty and provide greater value for the client's money.

Keywords: *Building Information Modelling; Standard Method of Measurement; Ontology*