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Towards an Intelligent Ontology Construction Cost Estimation System: Using BIM and New Rules of Measurement Techniques

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Abstract : Construction cost estimation is one of the most important aspects of construction project design. For generations, the process of cost estimating has been manual, time-consuming and error-prone. This has partly led to most cost estimates to be unclear and riddled with inaccuracies that at times lead to over- or under-estimation of construction cost. The development of standard set of measurement rules that are understandable by all those involved in a construction project, have not totally solved the challenges. Emerging Building Information Modelling (BIM) technologies can exploit standard measurement methods to automate cost estimation process and improves accuracies. This requires standard measurement methods to be structured in ontologically and machine readable format; so that BIM software packages can easily read them. Most standard measurement methods are still text-based in textbooks and require manual editing into tables or Spreadsheet during cost estimation. The aim of this study is to explore the development of an ontology based on New Rules of Measurement (NRM) commonly used in the UK for cost estimation. The methodology adopted is Methontology, one of the most widely used ontology engineering methodologies. The challenges in this exploratory study are also reported and recommendations for future studies proposed.

Keywords : BIM, construction projects, cost estimation, NRM, ontology
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