Abstract

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Scan-to-Building Information Modelling vs. HBIM in Parametric Heritage Building Documentation

This paper introduces some studies developed regarding the Greco-Roman Museum at Alexandria, in Egypt. The heritage building was built by Dietriche and Steinon and had 11 halls were completed in 1895 and opened by Khedive Abbas Helmy II. The museum embodies many elements of the Italian Renaissance, including the columns, the entablature, and the pediment, as well as a staircase of white marble in the front façade, follows the Doric order. The museum was surveyed using terrestrial laser scanning to produce a model with high detail level translated into an HBIM prototype. The Scan-to-BIM approach was obtained with a generation of semantics and components proper of Dietriche and Steinon's architectural grammar, first of all defining the object, then geometry, and then their parameterization. This method of modelling the Museum’s main facade, used to better understand the architectural composition of the volumes, producing particular hypothesis on its form according to the architectural patterns books, to understand the restrictions of the method and the perception of a research that goes from a digital survey to the HBIM model.