

Building Information Modelling (BIM) and Unmanned Aerial Vehicles (UAV) Technologies in Road Construction Project Monitoring and Management: Case Study of a Project in Cyprus

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Abstract : Building Information Modelling (BIM) technology is considered by construction professionals as a very valuable process in modern design, procurement and project management. Construction professionals of all disciplines can use a single 3D model which BIM technology provides, to design a project accurately and furthermore monitor the progress of construction works effectively and efficiently. Unmanned Aerial Vehicles (UAVs), a technology initially developed for military applications, is now without any difficulty accessible and has already been used by commercial industries, including the construction industry. UAV technology has mainly been used for collection of images that allow visual monitoring of building and civil engineering projects conditions in various circumstances. UAVs, nevertheless, have undergone significant advances in equipment capabilities and now have the capacity to acquire high-resolution imagery from many angles in a cost effective manner, and by using photogrammetry methods, someone can determine characteristics such as distances, angles, areas, volumes and elevations of an area within overlapping images. In order to examine the potential of using a combination of BIM and UAV technologies in construction project management, this paper presents the results of a case study of a typical road construction project where the combined use of the two technologies was used in order to achieve efficient and accurate as-built data collection of the works progress, with outcomes such as volumes, and production of sections and 3D models, information necessary in project progress monitoring and efficient project management.

Keywords : BIM, project management, project monitoring, UAV

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