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AN INVESTIGATION INTO THE IMPACT OF 4D MODELLING ON CONSTRUCTION PROJECT PLANNING

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ABSTRACT

The need to improve project planning and execution has been highlighted by industry professionals, critics and academic researchers as imperative if the UK construction industry is to reform itself and reduce the waste, risks and other myriad of problems associated with it. Suggestions have been put forth over time, through which these improvements can best be achieved. One such suggestion is through the improved use of Information Technology (IT), and in particular, 4D CAD.

This paper is a product of an investigation into the concept of 4D CAD, and its deployment and manner of use within the UK construction industry; with a critical look at the benefit it brings to projects and the barriers limiting its use. Finally, recommendations are put forth, on how best to overcome these barriers and further improve the effectiveness of its use. The research is carried out via interviews with front end users and managers involved with its deployment and everyday use. The data generated and the analysis conducted leads to the conclusion that 4D CAD as a tool is indeed valuable and can have a positive impact on projects, but these benefits come only where it is used appropriately.

Keywords: 3D CAD, 4D CAD, Construction management, Project planning.

1.0 INTRODUCTION

Management of the construction process is crucial in the ever aggressive drive towards ultimate project success (Chau et al, 2003). Planning this process efficiently is the single most important activity which if not carried out effectively and comprehensively, could potentially result in project failure (Henrickson, 2000; Heesom and Mahdjoubi, 2003; De Vries and Harink, 2007). Therefore, expectedly, a lot of effort has been directed by both industry professionals and academics towards achieving an effective and efficient way to adequately plan construction projects successfully (Chau et al, 2003).

1.1 The problems with traditional planning methods

Traditionally, most planning for construction projects is carried out using the critical path method (forthwith referred to as CPM) (Kenley, 2004; Jongeling, 2006). The process begins with the identification and listing of all the tasks to be carried out and