ABSTRACT

The complex nature of the construction process needs an intensive control and management mechanism in order to manage and process information flow. Current deficiencies in managing construction related information have been highlighted by a range of industry reports, the consensus of which has reinforced the lack of performance in the construction industry. Given this, recent research on the role of Building Information Modelling (BIM) has been proffered as a potential solution for covering these deficiencies, along with improving competitive advantage. Although limited research has concentrated on measuring BIM awareness and use, findings have been somewhat parochial and non-specific. This paper addresses this gap by concentrating on two markets: Turkey and the UK. The aim of the paper is to determine the BIM gap in terms of awareness and use, in order to form a basis for the development of future adoption strategies. A web-based questionnaire was used to mirror the National Building Specification (NBS) survey (previously undertaken) in order to capture data from a new context (Turkey). The descriptive analyses of the findings and a comparison of the two countries are presented. The findings identify significant differences in BIM awareness the influence of which could provide insight for both mature and emerging markets.

Keywords: Adoption, Building Information Modelling (BIM), Comparison, Turkey, United Kingdom (UK)

INTRODUCTION

The construction industry has specific information management needs as a result of its one-of-a-kind product/process/group of partners’ characteristics (Turk, 2006). This need and the importance of Information and Communication Technology (ICT) investments in the Construction Industry have been discussed in several influential reports on the construction industry (Latham, 1994; Egan, 1998; 2002; NSDC, 2010; TMB, 2011; Anson et al., 2009). Given
these challenges, BIM has been advocated as a potential solution to address some of these concerns (Eastman et al., 2011; Froese, 2003; Becerik-Gerber & Rice 2010); especially in such areas as: data interoperability, information quality, collaboration between the projects participants etc.

BIM is argued to have dated back to the 1980’s; however the term “Building Information Modelling” was first introduced in the 1990s and has been subsequently developed and upgraded since then (Eastman et al., 2011; Laiserin, 2002). The development of BIM has progressively embraced a number of technical features (Latham, 1994; Egan, 1998; 2002), in order to not only streamline processes, but also help support information flows etc., using coordinated “structured” and standardised data (Succar, 2009). The term “BIM” has been defined by several authors and a precise all-encompassing definition has yet to be agreed. Given this, and for the purposes of this paper, the following definition is used; “The information management process throughout the lifecycle of a building which mainly focuses on enabling and facilitating the integrated way of project flow and delivery, by the collaborative use of semantically rich 3D digital building models in all stages of the project and building lifecycle.” (Underwood & Isikdag, 2011).

Despite the fact that the technology to implement BIM is readily available and rapidly maturing, the adoption of BIM is still slow (Azhar, 2011; Harty & Laing, 2010). The contribution of a new technology to an industry to support economic growth can only be realised when it is widely diffused and used (Hall & Khan, 2003). Hence, the adoption strategies are of vital importance for BIM as they are for most new technologies. Today, government clients across the globe including the USA, Denmark, Finland and the UK have begun to implement national strategies to establish industry-wide adoption (Bew & Underwood, 2010).

Given that Turkey is one of the main contributors to the global construction industry (ENR, 2012); it is vital that the Turkish Construction Industry embraces such technologies as BIM in order to remain competitive. Moreover, in order to facilitate this adoption it is advocated that an industry wide strategy is needed. Hence, the first step is to identify the Turkish construction industry’s current position in the global market is to determine existing and new trajectories for further adoption and implementation. This paper identifies the level of awareness, use and positioning of BIM in the Turkish construction industry by using a comparative study between Turkey and the UK.

**RECENT ATTEMPTS TO MEASURE AWARENESS AND USE**

Information technology (IT) is regarded as an essential tool for enhancing the competitiveness of the economy of a country as well as improving organisational productivity (Oliviera & Martins, 2011). The level of benefit that can be obtained by using IT is directly proportionate to its level of adoption (Hall & Khan, 2003). On this theme, there have been various attempts to measure the level of BIM awareness and adoption. These efforts have focussed especially on the BIM leading countries (US, UK, Finland, Singapore etc.), which have been driving the BIM agenda. As an overview, some of the recent efforts on measuring the level of BIM awareness and adoption are presented as follows.

Research conducted to measure the business value of BIM in the US (McGraw Hill, 2009; 2012a), emphasised the increase in magnitude of BIM adoption, which was measured as 28% in 2007, 48% in 2009 and 71% in 2012. Further research (McGraw Hill, 2012a) examined North America in five separate parts: West, Midwest, Northeast, South and Canada; noting that in the West of North America had the highest level of BIM adaptation (77%); with Canada at 72% and nearly half (49%) of the BIM users in the US possessed five years and more experience (McGraw Hill, 2012a). BIM usage in the US Infrastructure Market was measured as 46%, and most of them (73%) stated that they started using BIM in the last
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www.igi-global.com/chapter/impact-spatial-filtering-least-cost/63607?camid=4v1a