

Chapter 10

Streamlining a Design, Manufacture, and Fitting Workflow Within a UK Fit-Out SME: A BIM Implementation Case Study

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ABSTRACT

A 30-month project is presented that is enabled through a knowledge transfer partnership government-funded initiative between the University of Salford and Links FF&E – a design, manufacture, and fit-out SME in the UK. The project is aiming to implement BIM as a catalyst for a lean transformation to streamline processes and operations through the adoption of a case study methodology on a design for manufacture and assembly (DfMA) BIM implementation at Links FF&E. The findings highlight that the challenges for SMEs adopting disruptive technology could be mitigated with a business case that considers the changes on organizational processes and workflows by embedding technologies within the company with the focus on eliminating waste in the processes and adding value.

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1. INTRODUCTION

Small and Medium Enterprises (SME) are predominant in most economy structures. In the United Kingdom (UK) construction industry SMEs represent 90% of the whole industry (Statistics, 2015). To respond to the competitive pressures from low cost international nations, increasing concerns with health and safety, and the sustainability agenda, the UK Government is encouraging innovation for SMEs (Adegoke, Gerard, & Andrew, 2007; Wolstenholme et al., 2009). While the focus tends to be more on product innovation than process innovation, several studies show that the use of business approaches, such as process improvements and knowledge management, can incrementally reduce costs and increase competitiveness for SMEs (Hoffman, Parejo, Bessant, & Perren, 1998; McAdam, Moffett, Hazlett, & Shevlin, 2010).

Building Information Modelling (BIM) is one of the promising approaches that has emerged to improve processes and efficiencies in the construction industry (Eastman, Teicholz, Sacks, & Liston, 2011). In 2011, the UK Government launched its Construction Strategy, which mandated that all centrally procured projects should be utilising BIM from April 2016; driven by deriving full value from public sector construction and the failings to exploit the potential for public procurement of construction and infrastructure projects to drive growth.

This paper presents a BIM implementation at Links FF&E; a UK-based SME that offers the design, manufacture, supply and installation of quality fittings and furnishings for student accommodation. The aim of the project is to ensure that the company has the expertise and capability needed to operate in a BIM environment and to comply with the Level 2 BIM mandate. The project is being delivered through a Knowledge Transfer Partnership (KTP) between the University of Salford and Links FF&E. The KTP is a program partly funded by InnovateUK (a UK government-funded initiative) with the objective of supporting businesses that want to incrementally improve their performance and competitiveness with innovative solutions by accessing and transferring the knowledge and expertise of academia. Enabled through the project, Links FF&E expect that the implementation of BIM will streamline their processes and operations, thereby facilitating the transformation of the organisation to becoming BIM-enabled via the development of a business-wide BIM strategy, and ultimately improving their overall business performance.

2. LITERATURE REVIEW

Proposed Improvements in the UK Construction Industry

In proposing radical improvements in the UK construction industry, Egan (1998) stated that construction should learn from manufacturing and services industries

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