Available online at www.sciencedirect.com

ScienceDirect

International Journal of Project Management 33 (2015) 623 – 637

International Journal of Project Management

www.elsevier.com/locate/ijproman

Construction project control in the UK: Current practice, existing problems and recommendations for future improvement

Yakubu Olawale [a,*], Ming Sun [b]

[a] Engineering Systems and Management, School of Engineering and Applied Science, Aston University, Birmingham B4 7ET, UK
[b] School of the Built Environment, Heriot-Watt University, Edinburgh EH14 4AS, UK

Received 18 July 2014; received in revised form 14 September 2014; accepted 7 October 2014
Available online 6 November 2014

Abstract

The aim of this study is to address the main deficiencies with the prevailing project cost and time control practices for construction projects in the UK. A questionnaire survey was carried out with 250 top companies followed by in-depth interviews with 15 experienced practitioners from these companies in order to gain further insights of the identified problems, and their experience of good practice on how these problems can be tackled. On the basis of these interviews and syntheses with literature, a list of 65 good practice recommendations have been developed for the key project control tasks: planning, monitoring, reporting and analysing. The Delphi method was then used, with the participation of a panel of 8 practitioner experts, to evaluate these improvement recommendations and to establish their degree of relevance. After two rounds of Delphi, these recommendations are put forward as "critical", "important", or "helpful" measures for improving project control practice.

Keywords: Project control; Cost control; Project overrun; Project management practice; Project success; Good practice

1. Introduction

Project based practice is common for many organisations in different industrial sectors, from an oil company developing an exploration site, to an investment bank installing a new IT system; from a technology company developing and launching a new type of mobile phone to a marketing consulting company helping a retailer with the launch of a new marketing campaign. One of the distinguishing features is that projects are normally required to complete within specified timeframe and an allocated cost budget. On the other hand, there are many uncertain factors that have potential impact on time and cost during project delivery. In the construction industry, which mainly deals with one-off projects, the influence of uncertainties is more prevalent, necessitating the need for effective management control. According to Baguley (2008), controlling is part of management and can generally be defined as an implicit part of managing. In a project context, control is one of the major tools of project management; this is clearly indicated in most widely accepted definitions of project management such as those by the Association for Project Management (APM, 2006) and Project Management Institute (PMI, 2008). "Project control can be defined as the application of processes to measure project performance against the project plan, to enable variances, to be identified and corrected, so that project objectives are achieved" (APM, 2010).

In terms of construction projects, time and cost are two of the essential areas that stand out when it comes to control (Cooke and Williams, 2004). Ruskin and Estes (1995) highlighted that project cost control is about assuring that work elements within a project are accomplished within their respective budget. Hence, in construction projects, which normally involve a significant amount of cost investment; it is absolutely important to control cost in the interest of both the contractor and the client. The control of time on the other hand is also often referred to as schedule control. According to

* Corresponding author.
E-mail addresses: y.a.olawale@aston.ac.uk (Y. Olawale), m.sun@hw.ac.uk (M. Sun).

http://dx.doi.org/10.1016/j.ijproman.2014.10.003
0263-7863/00/

Heldman (2005), it involves determining the status of the project schedule, determining if changes have occurred or should have, and influencing and managing schedule changes. Chang (2002) found that the reasons for cost increases are normally also the reasons for time extensions. Hence this study is devoted to studying cost and time control together in the argument that it is difficult to separate these two concepts. Despite the existence of numerous studies in this broad area, there has been a dearth of studies specific to improving the construction project control process in practice. Studies like Cornick and Osbon (1994), Egbu et al. (1998) and Akintoye and Fitzgerald (2000) did not focus on the construction project control practice in totality but only on part of the process such as techniques and estimating. Paradoxically, industry reports have either implicitly or explicitly acknowledged the need for a study in this area. For example, the Egan (1998) report highlighted the need to examine current practice in the construction industry and the scope for improving it, while the 'Managing the Risk of Delayed Completion in the 21st Century' report (CIOB, 2008) explicitly stated that "while it is apparent that some projects are managed very well in the UK, it has to be recognised that the quality of time-management on construction projects is generally poor" with room for improvement. These sorts of clamours and coupled with a lack of recent research on the overarching practice of project cost and time control in the UK construction industry have necessitated the need for a study from this particular perspective. On this basis, this study sets: (1) to explore how cost and time of building construction projects are controlled by professionals in practice in the UK in order to unearth the prevalent processes and the deficiencies surrounding project control in practice; and (2) to use the findings of the study to recommend how the project control process can be improved.

2. Literature review

A thorough literature review has revealed that existing studies on project control can be broadly divided into three categories: (1) those on the negative consequence of ineffective project control, such as delay and cost overrun; (2) those on development of project control techniques and models that can improve the cost and time performance of projects; and (3) a small number of studies on project controls in practice. Each of these is discussed in the following sections.

2.1. Project delay and cost overrun

It is understandable that more studies concentrated on delays and cost overruns because these problems have been widely acknowledged the world over. In the UK for example, a survey carried out by the Chartered Institute of Building (CIOB) revealed that on the whole complex construction projects in the UK are likely to be finished more than six months late (CIOB, 2008). A year earlier Hoffman et al. (2007) investigated 332 facility projects funded by the US Air Force and found that 72% were not completed within the specified benchmark (time) goals. Odeck (2004) investigated the statistical relationship between actual and estimated costs of road construction in Norway and found the mean cost overrun as 7.88% noting that cost overrun is more predominant in projects than cost savings. Kumaraswamy and Chan (1998) found a mean percentage time overrun of 9% and 17% for government and private building projects respectively in Hong Kong. Aibinu and Jagboro (2002), through a questionnaire survey in Nigeria, revealed that average time overrun of building projects could range from 59.23% to 92.64% depending on the value of the project. Shehu et al. (2014) carried out a survey of 359 completed projects in Malaysia and found that 55% experienced cost overruns. Flyvbjerg et al. (2003) also found that 90% of infrastructure projects experience cost escalation. It was noted that cost overrun of infrastructure projects appears to be a global phenomenon, with the research showing cost escalation of projects existing in the 20 countries (across five continents) studied.

In addition to the magnitude of cost and time overrun, many studies also embarked on identifying the causes of delays and cost overruns revealing a variety but often similar issues. For example, issues to do with design changes and poor change control have been identified as a major cause of cost and time overrun (Al-Momani, 2000; Assaf and Al-Hejji, 2006; Hsieh et al., 2004; Kaliba et al., 2009; Kaming et al., 1997; Koushki et al., 2005; Kumaraswamy and Chan, 1998). Sun and Meng (2009) proposed a taxonomy on the basis of synthesis of existing studies, which provides a comprehensive overview of possible causes of project change. Allied to design changes is the issue of clarity of scope which was found by Cheng (2014) as the leading influencing factor of cost overrun of construction projects. Financing and payment issues also seem to be a common theme identified as possible cause of delay and cost overrun (Abdul-Rahman et al., 2006; Assaf et al., 1995; Frimpong et al., 2003; Kaliba et al., 2009; Mansfield et al., 1994). Inaccurate estimates of cost and/or duration are also one of the most frequently identified causes of project overrun (Jennings, 2012; Lee, 2008; Mansfield et al., 1994; Shane et al., 2009). Finally, the issue of planning optimism and deficiency has also been widely reported as one of the factors causing delay and cost overrun (Assaf and Al-hejji, 2006; Chang, 2002; Hseih et al., 2004; Kaming et al., 1997).

2.2. Project control models and techniques

The majority of the studies devoted to the development of project control models and techniques have mostly developed computer based project control systems incorporating quantitative project management concepts such as earned value analysis (EVA) (Acebes et al., 2014). A common motivation for these studies is the desire to make project control models more easy to use in practice, as stated by Jung and Kang (2007), Kaka (1999), Kim and Liu (2007), Benjaoran (2009) and Marco et al. (2009). Another common motivation that has informed the development of project control models is the need for integration. For example, Alshawi and Hassan (1999), Gorog (2009) and Cho et al. (2010) developed different models that integrated the schedule and cost information with resource