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IT project management control and the Control Objectives for IT and related Technology (CobiT) framework

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Abstract

Motivated by scarce academic consideration of project management control frameworks, this article explores usage, value and structure of frameworks with a focus on the popular Control Objectives for IT and related Technology (CobiT) construct. We attempt to add to an empirically validated structure of internal control over IT project management by including CobiT's views on the intended domain of content. Results from the empirical survey indicate that the metrics suggested by CobiT are regarded as feasible and important by project management professionals, and are regularly used in controlling practice. Experience, regularity of significant projects and the size of the hosting organisations, however, seem to be stronger moderators of success rates than the use of a management control system with or without support of CobiT. CobiT's suggestions are of generic nature and in particular useful for programme performance management. The latent dimensions of project quality on process and activity levels were not validated and gaps to other project assessment models were identified.

Keywords: IT project management; IT project performance management; CobiT; Programme management; IT controlling

1. Introduction

As organisations worldwide constantly strive for competitive advantage, major tools in pursuing their objectives are well functioning projects and resulting project organisations (Lindkvist, 2008; van Donk & Molloy, 2008). Management control of project progress throughout their lifecycles is becoming increasingly recognised for its importance. Recent findings highlight that management control influences task completion competency and, thus, project management performance (Liu et al., 2010). Internal management control is seen as an attempt to optimise employee behaviour in a way that allows the achievement of organisational goals (Flamholtz et al., 1985). Henderson and Lee's (1992) study revealed a positive relationship between the adoption rates of management control and project management performance. In traditional project management, managers concentrate on monitoring project progress against schedules and budgets. More contemporary approaches embrace a variety of variables of control at different levels and stages of the project process, e.g., user contributions, project team task completion competency, and individual project team's performance (Liu et al., 2010). According to Bryde (2003), 65% of the subjects in his study utilise "methods for managing the meeting of specified project objectives". Business practice and a fast growing audit and consulting industry are already relying on extensive control frameworks to provide assurance that business objectives are being met and compliance issues tackled. These frameworks are often driven by IT governance objectives which play a prominent role in fostering IS project success (Bowen et al., 2007). One well established example is the Control Objectives for IT and related Technology (CobiT) framework (ISACA, 2008) which is extensively used to control IT related strategies and operations and to support legal compliance with regulative requirements such as those from the Sarbanes Oxley Act or Basel 2 (Hardy, 2006; Kordel, 2004). CobiT was developed by the Information Technology Governance Institute and its associated Information Systems Audit and Control

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Association. CobiT and other systems for management control refer to best practice guidelines. However, up to date they have received very limited empirical and theoretical support from academia despite their extensive use in organisations in particular for IT, operational and compliance audits (Ridley et al., 2008). The accounting and information systems domains seem to lack an empirically validated theory of internal control that identifies metrics that determine good control (Tuttle and Vandervelde, 2007). It can be reasoned that organisations adopt control frameworks without investing the considerable time and resources to question the validity of the constructs and dimensions for the subject task and taking into account the specific organisational needs and culture. For this article we chose to focus on two main goals: To explore use and success of control frameworks with a special consideration of the IT project management chapter of the mentioned CobiT framework (i); and to investigate use and implications of individual metrics following suggestions from CobiT (ii). We develop a critical position against the unconditional usage of generic frameworks which is supported by actual project success rates. The research objectives of this article will thus provide insights on success and validity of a popular IT project performance management construct and its metrics, which were cross referenced into other assessment structures and models. Results and insights should therefore also be of value to other related studies. The next section will give more theoretical background. This is followed by the research methodology and a section showing how the CobiT project management sub-structure relates to comparable models from literature. Consequently, findings from the empirical survey according to the given research objectives are presented. The last section concludes the article.

2. Theoretical background

2.1. Measuring project success

It is commonly agreed that projects have a definite start and end, consist of different lifecycle stages, develop progressively and pursue deliverables or objectives (Gray and Larson, 2008; Maylor, 2005; Project-Management-Institute-Inc., 2004). The time dependent nature of projects needs to be accounted for in assessing and controlling their status. In the context of project management the meaning and choice of metrics remain an active area of research, are difficult and no clear-cut definition of successful and failed projects is available (Agarwal and Rathod, 2006). The classic view of the project management literature defines three major success factors of IT projects: costs, time and quality. These interdependent factors are commonly known as the Iron Triangle and are regular subject to critics as projects could also be affected by other factors such as methodologies, tools, knowledge and skills as reflected in resource and capability based research (Teece et al., 1997; Zahra and George, 2002). In a quantitative survey of projects in construction, the Iron Triangle was extended with 55 performance attributes of which commitment, coordination, and competence were identified as the key factors for success (Jha and Iyer, 2007). Atkinson defines another extension of success criteria summarised in his Square Route (Atkinson, 1999). Additional factors cover an information systems view, and organisational and individual stakeholder benefits. Atkinson assumes that the wide application of the Iron Triangle as sole success criteria in project management has resulted in a biased measurement of project management success. He states that using the Iron Triangle of project management creates a type II error meaning that something is missing. His additions to the Iron Triangle would reduce the level of type II errors in measuring success rates. The importance of tying project success to stakeholder perceptions in particular referring to the customer is also highlighted by other scholars in the field. De Wit, for example, defines successful projects as those that “meet technical performance specification and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people in the parent organisation, key people in the project team and key users or clientele of the project effort” (DeWitt, 1998). Tukel and Rom (2001) define project quality as “…meeting customer's needs fully for the end product, reducing the reworking of non-conforming tasks, keeping customers informed of the progress of the project, and changing the course of work to meet the customer's emerging requirements.” Criteria can be classified as success criteria, performance drivers and outcome measures. Some authors consider this taxonomy while others do not. Overall, research suggests that in order to measure project success a wider set of metrics needs be applied, which measure time, costs, quality and the diverse benefits for the delivering organisation and the stakeholders. While time, costs and quality are project characteristics or constraints which are normally predefined and known at the beginning of the projects, other criteria can emerge in the course of projects such as certain capabilities to the delivering organisation which can be utilised in future projects. As discussed above benefits vary across different stakeholders. An exact definition of metrics measuring the diverse benefits to the stakeholders remains elusive and ambiguous. We add to literature by providing new insights into the selection and use of project management metrics for controlling project success.

2.2. Management control over projects and CobiT

The area of management control has gained recent attention by new legal requirements, e.g., as imposed by the US Sarbanes–Oxley Act in 2002 (US-Congress, 2002) connected with the announcement of the Public Company Accounting Oversight Board's (PCAOB) Auditing Standard No. 5 (AS2) in 2007 (PCAOB, 2007) which forces organisations to implement internal control frameworks and provide evidence for their effectiveness for financial reporting. Local adaptations and derivations in other countries and regions are similar although in general lighter approaches to the same problem of tackling fraud in financial reporting. Accordingly responsibilities of the board of directors for IT Governance and overall supervision of an organisation's information management initiatives have amplified the need for management control systems (O'Donnell, 2004). The Control Objectives for IT and related Technology (CobiT) framework (ISACA, 2008) represents a widely recognised international control framework to address the current IT governance issues in particular related to project management (Boritz, 2005). It is used by auditors, IT managers and consultants to evaluate the state of internal control