Communication and control in outsourced IS development projects: Mapping to COBIT domains

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ABSTRACT

Internal control over information technology (IT control) in complex outsourced information system development (ISD) projects is an ambiguous and sensitive issue. In this study we bring together Information Systems and Accounting perspectives to investigate how internal controls are incorporated into existing communication practices in outsourced ISD projects. The paper proposes that tools used for client-vendor communication are capable of supporting some of the IT control functions governed by the COBIT framework. In addition, it analyzes the influence of project complexity on the performance of communication tools as informal IT controls. Perceptual field data for the analysis were collected from project managers through an online survey instrument.

The findings suggest that control objectives and types of project complexity are each supported by different communication tools. The level of support varies across communication tools categories and control objectives. Early analysis of a project's complexity can help with selection of communication tools which reinforce project support of control objectives while improving communication between client and vendor.

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1. Introduction

Information system (IS) control is an important consideration for both the *product* and *process* of system development. Section 404 of the Sarbanes Oxley Act of 2002 focused much attention on controlling the *product* – the collection, manipulation, storage and reporting of business data – on the part of a company's management and its auditors. This paper looks at controlling the IS development (ISD) *process* – and specifically concentrates on communication-enabled control in complex development projects that involve an outsourcing arrangement. Does the type of communication tool chosen in an outsourcing relationship matter–from both IT control and communication effectiveness perspectives? Two kinds of complexity – project complexity and communication complexity – are studied to see how each reflects the usefulness of the project team's communications tools.

Implementation of an information system is a complex and ambiguous process which can transform the face of the organization but can also lead to serious financial consequences if it is not managed or controlled well (e.g., Wailgum, 2009). A recent study of complex ISD projects found that one in six experienced cost overruns averaging 200% and time overruns of 70% (Flyvbjerg and Budzier, 2011). While not all development overruns reach this level of excess, most project managers would attest that budgets and deadlines are oftentimes surpassed.

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Development of large, complex information systems is highly likely to be contracted to an external provider. Partnering with an outsourcing vendor lowers the riskiness of the undertaking because the vendor provides the knowledgeable staff and project management skills the project requires. However, control over the development process becomes increasingly challenging when these project team members need to communicate across organizational borders. In the U.S., Sarbanes Oxley Section 404 requires organizations to assess the effectiveness of their internal control structure and procedures. When the ISD process is outsourced, companies also need to factor in additional reporting standards[1] in order to monitor the level and quality of control over work performed by the vendor.

The challenges of monitoring control within IT organizations have confronted auditors for decades. IT auditors frequently rely on a well-structured IT governance framework (specifically, COBIT) to guide ISD and to monitor the controls adopted for the development process. COBIT (originally, Control Objectives for Information and related Technology) is a comprehensive framework that provides guidance on effective management and documentation of IT activity, while recognizing the need to support innovation and creativity in developing new products and solutions (ISACA, 2012). Based on best control practices, COBIT provides an internally consistent conceptual model for assessment of IT-related control (Tuttle and Vandervelde, 2007). The framework is frequently referenced in IT audit guidelines published by the Information Systems Audit and Control Association (ISACA), and widely used by the community of IT audit practitioners. The newest version, COBIT 5 was positioned to fit with the assessment requirements of SSAE 16 and other standards to aid in its application to assurance practice. COBIT addresses "the increasing dependency of enterprise success on external business and IT parties such as outsourcers…" (ISACA, 2012), which suggests that it affords a suitable structure within which to situate our study of communication and control.

The interorganizational nature of outsourced work increases importance and complexity of project management and communication practices (e.g., Bosch-Rekveldt et al., 2011). These complex knowledge and communication-intensive environments call for control systems combining formal and informal mechanisms (Choudhury and Sabherwal, 2003; Kirsch, 1997). Such mechanisms encompass written or unspoken project policies and procedures, scheduled or ad hoc meetings, adoption of project-specific or familiar communication and record-keeping technologies, and many others. Each formally or informally adopted mechanism may contribute to a repository of the project's content as well as enable sharing of progress, concerns or documents among members of the team. As both the project repository and the process under which progress is achieved are subject to scrutiny as part of the IT audit, it becomes particularly important to assess all of the documentation and communication methods the team adopts.

In this study we examine the informal control mechanisms embedded in the client-vendor communication tools adopted for use in complex outsourced ISD projects. We unearth patterns of tool use corresponding to the control domains in the COBIT framework. We also assess how differences in project complexity relate to the choice of communication tools made by project teams. A field survey of project managers belonging to the international Project Management Institute resulted in a usable data set about 432 large-scale outsourced ISD projects, complete or nearing completion. This large sample provides strong evidence of the patterns of control associated with communication practices adopted by client-vendor teams.

We draw on the COBIT framework to operationalize the use of communication tools for specific control purposes. We find that the flexibility of well-suited communication tools and their involvement in every step of the project makes them useful for some control activities covered by COBIT, especially risk management and performance assessment, which are central to an outsourcing relationship. More extensive use of communication tools for control purposes is linked to more effective communication between the client and vendor. In particular, Web-based communication tools (such as shared online documents, Wikis and discussion forums) appear to be underutilized by interorganizational teams and are perceived as the least beneficial for control purposes, but their support of control objectives increases as the projects become more complex.

These results confirm the need for auditors to assess not only formal but also informal methods of control in an outsourcing arrangement, as they play an important role in the ISD process. The results also speak to how communication methods and tools should be carefully chosen to provide control over outsourced processes even as they assist team members in their functional responsibilities. IT management should become aware of how the choice and use of technology-based tools can assist them in providing evidence to support the control assurance process.

The paper is structured as follows. The next section provides an overview of the interplay between control and communication in complex outsourced projects, and presents the hypotheses to be addressed. The study methodology and data collection are discussed next. The paper concludes with a discussion of findings and suggestions for future research.

2. Background

2.1. Control research in the accounting and IS literatures

Given the pervasiveness of large-scale, complex ISD activity in companies, and the increasing awareness of the importance of control in managing these processes, it is not surprising that IT control has attracted the attention of researchers in both the accounting and IS domains. That said, we note that accounting and IS researchers traditionally study control through different lenses. Relative to this study, control of outsourced IT projects has drawn significant attention among IS researchers. IS research on control focuses on outsourcing aspects such as contractual and relational governance (e.g. Heiskanen et al., 2008), the role of formal and informal control in complex inter-organizational settings (e.g., Tiwana, 2010; Weiner et al., 2015), and control in

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[1] Statement on Standards for Attestation Engagements (SSAE) No. 16 and globally, International Standards for Assurance Engagements (ISAE) No. 3402 require outsourcers to provide a service auditor's report on their system of IT control to the client organization (ISAE 3402, 2016, p.338).