Chapter 5
A Project Staffing Model to Enhance the Effectiveness of Knowledge Transfer in the Requirements Planning Phase for Multi-Project Environments

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ABSTRACT

When the systems analysis phase produces faulty requirements, it can often be traced to the failure of the requirements determination team and the client to communicate effectively. This failure is frequently a consequence of inadequate knowledge of the client’s domain possessed by the development team. This paper presents concepts and procedures designed to facilitate communication between requirements determination teams and clients across a full set of IS projects with potentially differing priorities. A systematic framework for staffing requirements determination teams is provided. The importance and interdependence of two types of knowledge, explicit and tacit, to the success of the requirements determination phase is extensively explored. A metric for explicit knowledge coupled with a model that captures the impact of various levels of tacit knowledge upon the acquisition rate of explicit knowledge serve as key inputs to our Project Staffing Model. The appropriately weighted area under an explicit knowledge curve captures the totality of explicit knowledge. Summing such values, weighted to reflect project importance, provides a mechanism for evaluating alternative staffing assignments. An illustrative case highlights implementation issues and suggests procedures when uncertainty exists concerning key inputs. A research agenda is recommended for the estimation of factors required by the analysis.

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INTRODUCTION

A continuing problem in the IS field is the large number of projects that are deemed by the client to be failures. “Despite good faith efforts by organizations, analysts, and users, a majority of systems are either abandoned before completion or fail to meet user requirements…” (Browne & Rogich, 2001). As far back as the 1960s it has been recognized that a major reason for system failure is that more often than not the requirements determination phase produces faulty requirements (Davis, 1998; Vessey & Conger, 1994; Wand & Weber, 2002; Zmud et al., 1993). It has long been known that for many projects this can be traced to the failure of the requirements determination team and the client to communicate effectively during the requirements gathering phase (Churchman & Schainblatt, 1965; Kaiser & King, 1982; Bostrom, 1989; Agarwal & Tanniru, 1990; Holtzblatt & Beyer, 1995). Thus even if the client has full knowledge of how his or her business operates, and even if the IS team has full knowledge of the technology required for the project, that does not by any means guarantee success, because communication between the two parties may not be effective. To a substantial degree this failure to communicate is a consequence of inadequate knowledge of the client’s domain possessed by the development team (Churchman & Schainblatt, 1965; Byrd et al., 1992). A number of methods designed to improve communication between end users and system developers during the requirements analysis phase of the systems development effort have been proposed, including semantic structuring (Marakas & Elam, 1998), and collaborative elaboration (Chin et al., 2005). Similarly, Bloom’s Taxonomy helps facilitate communication by helping the questioner employ a critical thinking approach to his/her questioning strategy. Bloom’s Taxonomy has been shown to be extremely successful in teaching systems analysis (Yadin, 2007). It has also been successfully employed by the accrediting organization AACSB to help business school professors improve their ability to communicate and learn. As a result, it might be more intuitive for many business school graduates who work in systems development.

Traditionally, IS consulting firms or internal IS groups simultaneously undertake multiple projects for a disparate set of clients. This paper presents a set of concepts and procedures that are designed to facilitate communication between requirements determination teams and clients so as to enhance the likelihood that in some overall sense the full set of IS projects will be completed successfully. The focus is on staffing these projects so as to facilitate knowledge transfer between these parties. The material presented should be of value to IS management having the responsibility to staff and then manage coincident, multiple IS requirements determination teams in either external or internal systems development contexts. IS management is aware of the need to assign personnel resources to the requirements determination teams so as to assure to the greatest degree possible successful completion of these projects. This implies that although the most critical projects may receive a disproportionate share of available resources, in general no project can receive an ideal allocation. The usual process is to staff each project with a mix of senior and experienced personnel and relatively inexperienced personnel with the importance of the projects factored into such assignments. Although some IS management does a good job of balancing the needs of multiple projects, the process is frequently ad hoc. In light of the high failure rate noted above, a more systematic approach is appropriate and desirable.

Most research related to requirements determination has focused on techniques and procedures to ensure the success of this phase in the context of a specific project (Marakas & Elam, 1998; Zmud et al., 1993). Our work, however, provides a systematic framework for selecting that staffing composition, from among a set of possibilities, for the requirements determination teams. The goal is to maximize the likelihood of success across the set of projects to be undertaken by maximizing, from...