A User-Oriented Model of Factors that Affect Information Requirements Determination Process Quality*

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ABSTRACT

This paper discusses a study by the author to identify factors that affect the process quality of the information requirements determination (IRD) process from a user perspective. A nominal group process was used with three groups of users that have had experience with the IRD process. The results indicate there is a set of factors that users agree impact the quality of the IRD process. A total of 33 factors were identified as critical to IRD process quality. This study should benefit IT users, IT professionals, project managers, and IT researchers. The factors identified may be used to develop metrics to be used to monitor the IRD process or measure its success or quality. For IT researchers, this study offers two primary contributions: 1) identification of the critical factors suggests that there are many variables that have not received attention, and 2) an example of an approach to generate potential variables for further study.

Keywords: software development, information requirements determination, requirements engineering, end-user, process quality

INTRODUCTION

Cost overruns, missed deadlines, inaccurate features, and out-and-out failure still plague the software development industry despite advances in the development process (Adolph, 2000; Bergey, Smith, Tilley, Weidberman, & Woods, 1999; Johnson, 1995; Schmidt, Lyytinen, Keil, & Cule, 2001). One of the primary reasons for these problems is the lack of clear identification and validation of requirements (Bergey et al., 1999). However, a model of the factors that impact information requirements determination (IRD) does not exist to help managers improve information requirements determination process quality. In fact, there is a lack of understanding about what constructs most significantly impact systems development process quality and specifically the IRD process quality. The objective of this study was to identify these constructs and propose a model of these factors that may provide guidance for managers involved with the IRD process and researchers investigating the IRD process.

The primary question addressed by
this study is: What are the factors that affect the quality of the IRD process? Several additional aspects of this question are explored, including: How do these factors affect IRD process quality? Which of these factors can be manipulated or controlled prior to the IRD process to improve quality? In addition, a secondary question is addressed to test the validity of the results: Do users agree which factors affect the quality of the IRD process? If users from different organizations and with different backgrounds agree on a set of factors, this would provide evidence that these factors are applicable to a wider range of development projects and not just to one organization, one type of system, or one type of project.

By addressing these questions, several benefits may accrue. First, if the existence of a set of factors agreed to be important to the IRD process is established, then these factors would be likely candidates for managers or researchers to emphasize (or de-emphasize depending on the nature of the factor) to improve the IRD process. Also, there may be factors that are not considered important by users, indicating areas that may allow more flexibility for managers, or perhaps savings in resources dedicated to these factors.

LITERATURE REVIEW

The systems development process can be viewed as a life cycle with a series of stages or phases, beginning with a request and feasibility study of a new system’s potential and concluding with the implementation of the system. The information requirements determination stage has been recognized as critical due to the ripple effect it has on subsequent stages of development (Browne & Rogich, 2001). Requirements determination has been called “the most critical, yet least understood, phase of systems development” (Hevner & Harlan, 1995). “Eliciting requirements from users and other stakeholders is of central importance to information systems development” (Browne & Rogich, 2001). The IRD stage has been identified as a principal reason for systems development project failure for over 20 years (Browne & Rogich, 2001; Davis, 1982; Vessey & Conger, 1994). As the quality of the IRD stage is expected to impact the quality of the systems development process in later stages (Newman & Noble, 1990) and the quality of the implemented system in terms of the completeness, correctness, and consistency (Yadav, 1985), it is reasonable to propose that efforts to improve the IRD should impact the entire development process and the final system.

Much research has focused on the definition stage of systems development and several reviews of IRD methods are available (Byrd, 1992; Chatzoglou & Macaulay, 1996; Colter, 1984; Taggart, 1977; Yadav, 1983; Yadav, Bravoco, Chatfield, & Rajkumar, 1988). Most of the attention of prior research has been on devising new and improved tools, techniques, and methods to elicit and specify the information requirements for a system, including: more effective prompting techniques (Browne & Rogich, 2001), an ontological approach for evaluating tools to specify requirements for off-the-shelf software (Soffer, Golany, Dori, & Wand, 2001), a framework for integrating non-functional requirements into specifications (Cysneiros, Leite, & Neto, 2001), a distributed prioritization process for gathering requirements from various stakeholders for packaged software (Regnell, Host, Dag, Beremark, & Hjelm, 2001), socio-technical and soft approaches for gathering requirements (Atkinson, 2000), an approach
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Phil Crosby (2012). International Journal of Information Technology Project Management (pp. 1-20).
www.igi-global.com/article/key-success-drivers/65527?camid=4v1a