

## Chapter 5.4

# Exploring the Behavioral Dimension of Client/Server Technology Implementation: An Empirical Investigation

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### ABSTRACT

This paper explores the impact of human factor and organizational behavior on the outcome of information technology implementation projects. Client/server technology implementation is used as the leading case, given the fact that it is a good example of a major paradigm shift<sup>1</sup>. The results draw attention to the importance of end-user interaction and the maturity level of organizations as significant factors in the success and benefits of the project. Client/server projects seem to be more successful, are executed in a more timely manner, and yield greater benefits when end users take an active participation in some of the stages, particularly during the implementation phase.

### INTRODUCTION

Information has become one of the most important assets in today's business world. The threats, business drivers and pressures on organizations in the information age were summarized by Hammer and Champy (1993) as the three Cs — *Customers*, *Competition*, and *Change*. Knowledgeable customers, increasing competition, and constant change have driven organizations to find new ways to respond in order to excel or even survive. At the center of the stage, information technology (IT) holds an ever-increasing role, steering innovation in products and services, enabling new business processes, and linking individuals and organizations.

It comes as no surprise that the impact of IT implementation in organizations has been one of the most important topics in both business and information systems research in the last 30 years. Organizations have increasingly relied on IT to maintain their competitiveness. However, the track record of IT implementation is not very good. In many cases, IT driven innovations have not fulfilled their potential to enhance efficiency and effectiveness within companies, due largely to human and organizational reasons. Benjamin and Levinson (1993) suggest that the benefits of IT are not being realized because investment is heavily biased toward technology and not toward managing changes in process and organizational structure and culture. Among all factors that may undermine an IT project, behavioral issues are perhaps the less well understood. This perspective is the motivating force behind the current work.

The study has two primary objectives: 1) develop a causal model to assess the effect of human and organizational factors on the outcome of an IT implementation project; and 2) empirically validate the model on client-server implementation survey data, given the fact that client/server computing is a mature technology that introduced a major shift from legacy data processing systems.

The following section provides a short overview of IT implementation models and critical success factors, in particular those related to behavioral issues. Next the paper introduces the causal model, describing the hypotheses under consideration. Then the paper presents the client/server case study, depicting the survey data, the statistical methods applied for model validation, the outcome of the statistical analysis and a discussion of the results. Finally, the paper provides a summary, which includes future research opportunities.

## **IT IMPLEMENTATION MODELS AND CRITICAL SUCCESS FACTORS**

There has been plenty of interest in identifying the critical drivers of IT implementation's success and to gauge their impact on how well projects perform. The reasons leading to mediocre and sometimes disastrous results can be viewed from multiple perspectives, including behavioral factors (people and organizational issues), planning, complexity, and technological issues. There is still no general agreement, though, as to the complete set of factors that lead to a successful implementation, and their relationship or order of precedence. This fact suggests that considerable work remains to be done. We cite here some of the available research recognizing that we are just presenting an overview of the extant literature, and apologize for any notable omissions.

Researchers have developed a number of frameworks and models to better understand IT implementation success. Delone and MacLean (1992) propose a model based on six categories of IS success measures: System Quality, Information Quality, Organizational Impact, Individual Impact, User Satisfaction, and IS Use. Seddon (1997) considers three types of constructs: measures of information system quality, measures of net benefits regarding IS use (perceived usefulness, user satisfaction) and behavior with respect to IS Use. The Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989; Venkatesh, 2000; Venkatesh & Davis, 2000) regards perceived usefulness and perceived ease of use as critical factors that influence an individual's technology adoption decision. Somers, Nelson, and Karimi (2003) argue that user satisfaction is one of the most important determinants of IS success.

According to Griffith and Northcraft (1996), less than 10 percent of technology implementation failures stem from technical problems. Instead, most of these failures resulted from human or organizational difficulties. Technological change is always a big issue in any organizational context.

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