



## **Chapter 1**

# **Perceived Value and Technology Adoption Across Four End User Groups**

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*This chapter explores the role end user perceptions in information technology adoption from the perspective of innovation diffusion theory. It is based on empirical data from a three-year longitudinal study of an information system implementation in an engineering organization. Data were collected on six different applications and their adoption by four categories of end users: engineering managers, project engineers, professionals, and secretaries. The data indicate a substantial variance across time, user categories, and applications in terms of adoption rates and perceptions of technology. The managerial implications of the results are that differentiated implementation strategies focused on specific end user categories are likely to be more successful than a single broadbrush strategy for all users. The results also suggest a framework for predicting technology adoption in the long run, based on initial adoption rates and user perceptions of technology.*

## **INTRODUCTION**

The introduction of technological innovations is fraught with many difficulties and uncertainties. Innovations based on information technology are the most challenging because they interact with end users in a variety of different ways and can lead to many different outcomes: some intended, some unintended. Problems with user acceptance of seemingly well-designed and sound information systems have been observed since the early days of

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information technology (Lucas, 1975). Despite our growing body of knowledge, these problems continue to persist (Keen, 1981; Markus, 1983; Benjamin and Blunt, 1992; Markus and Benjamin, 1996).

The issues of user acceptance have been explored from several different research streams, including organizational change and innovation diffusion theory. This chapter examines technology adoption from the latter perspective. The aim of this study is to examine how adoption rates and perceptions of technology vary across different applications and end user categories over time. The applications are part of an integrated office information system; the users are members of an engineering organization within a large high technology firm. The study explores the role of initial adoption rates and perceptions of technology in predicting the eventual outcome of the diffusion process. It differs from previous studies in three major ways. First, the study explores adoption of six different information system applications instead of a single innovation. Second, the locus of adoption is on groups of end users defined by their job categories. Past diffusion studies have been confined exclusively to either individual adopters or large organizational aggregates regardless of adopter job functions. Finally, the study is longitudinal, covering a three-year time period, in contrast with pre/post-test designs and retrospective studies.

Knowing how different workers perceive information technology and how these perceptions affect their adoption rates is important because it helps managers design more effective implementation strategies and offers guidance for management intervention. This knowledge is also important for providers of various Internet-based products and services for developing effective marketing strategies.

### **THEORETICAL BACKGROUND**

The findings from implementation research suggest that the most critical problems are not technical, but are related to organizational and implementation issues (Cheney and Dickson, 1982; Mankin et al., 1984; Markus and Keil, 1994). As a result, technical system characteristics have attracted less interest among information systems researchers. Recently Yetton et al. (1997) examined the influence of both system characteristics and implementation process on system success. They found that the characteristics of the innovation are critical for low task interdependence innovations, while the implementation process is more important for high task interdependence systems. Innovation diffusion theory recognizes that while the technical attributes of the innovation per se may be not significant, *perceptions* of technology do matter and are important factors influencing technology adoption.

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