# Chapter VIII
# Bringing the User into the Project Development Process

**Daniel W. Surry**
*University of South Alabama, USA*

## ABSTRACT

*The goal of any product is to be used. In a very real sense, people judge the success or failure of any product by the extent to which it is used by intended users in their daily practice. Understanding a product from the perspective of the end-user is one of the most important and often overlooked keys to the success of any project. Many products suffer from a lack of widespread utilization because developers and managers often have a deterministic view of the relationship between technology and users. This deterministic view leads to an over reliance on technical specifications as the driving force in the end users' decision to adopt and use a product. However, a wide variety of human, organizational, social, and cultural factors also affect the acceptance and use of any product. Any organization, even those in the most highly technical and advanced fields, is, in reality, a dynamic example of a sociotechnical system in which people and machines interact, negotiate usage, compete for primacy, and generally co-exist. This chapter will provide a broad theoretical overview of the critical role that end-users play in the adoption, implementation, utilization, and institutionalization of any technology. A number of relevant theories will be discussed, including diffusion theory (e.g., Rogers, 1995), technological determinism (e.g., Ellul, 1967), sociotechnical systems (e.g., Volti, 2006), and utopian and dystopian philosophical perspectives (e.g., Rubin, 1996). In addition to a theoretical overview, this chapter will provide practical recommendations for developers and managers who wish to increase the utilization of their products by bringing the user into the development process. The practical recommendations will include a discussion of Ely's (1999) conditions that facilitate the implementation of innovations. These conditions include developing a sense of dissatisfaction with the status quo, providing sufficient time to become familiar with*

*a new technology, and generating meaningful commitment to the project by upper level managers. Also included in the practical recommendations will be a brief discussion of various organizational components that enable the introduction of innovations (Surry, Ensminger, & Haab, 2005). These components include the development and maintenance of an adequate infrastructure of supporting technologies, an emphasis on shared decision making, and ongoing support systems. Other recommendations to be discussed in this chapter will be derived from rapid prototyping models of development (e.g., Tripp & Bichelmeyer, 1990) and recent surveys of user-centered design methods.*

## THEORETICAL OVERVIEW: END USERS AND PROJECT DEVELOPMENT

Most people would likely agree that understanding the needs, skills, behaviors, and attitudes of end users is a desirable part of the product development process. However, it is also likely that most people do not know the underlying theoretical reasons for understanding the end users. While there are many reasons for understanding the end users, including the refinement of product features and the development of supporting documentation, by far the most important reason is to increase the effective utilization of the product within the desired context of use.

There are many theories about how to increase the utilization of products. Many of these theories focus on the development of highly effective and efficient products as the key to increasing utilization. While no one would argue that the creation of effective and efficient products is an important goal of the development process, it is not sufficient to ensure widespread or effective utilization. In fact, there are many examples of technically superior products that have not found wide use. One of the most interesting historical examples is the case of highly precise methods of mass production in the early years of the Industrial Revolution (Morris, 2005). Even though the use of precision machinery reduced costs, shortened production cycles, and made interchangeability possible, the method was resisted by many, especially in England, because of existing social norms, resistance to innovation, and opposition from traditional craftsmen and guilds (Morris, 2005).

The preceding example illustrates how technically superior products are not always rapidly or widely adopted by users. It provides anecdotal support for the idea that product developers must have an understanding of how their products will affect users both practically and emotionally. In addition to anecdotal support, there are a number of theoretical and philosophical stances that strongly support the importance of understanding a product from the users' perspective.

Ample theoretical support for including users in the product development process can be found in the cluster of theories related to the diffusion of innovations. For example, diffusion research has shown that users go through a process of fact finding, persuasion, decision, and confirmation before adopting a new product (Rogers, 1995). Because the adoption and use of a new product is a process, not an instant decision, the more time users have to learn about, try out, and interact with a product prior to its introduction, the quicker the product can be adopted and utilized. A key part of this innovation adoption process is re-invention (Rogers, 1995). Re-invention is the phenomenon of user initiated modifications to a product following adoption in response to practical necessities, unique or evolving work conditions, and other factors. If re-invention can take place during the development process, as opposed to post-development, then creative, unique, or desirable features can be included in the initial version of a product and, therefore, enhance adoption and facilitate use.