

Chapter 16

The Diffusion of Internet Technology in Rural Minnesota: An Empirical Study

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ABSTRACT

The research problem for this study was to determine to what extent organizational size, organizational complexity, and organizational social ties impacted the creation of an organizational Web page and its relative time of adoption among the organizational members of the chamber of commerce in a small city in Minnesota. The research utilized a cross-sectional design, with data being gathered via a self-administered mail survey. A total of 173 surveys were completed and returned for a response rate of 48.60%.

Two independent variables were statistically significant in predicting whether an organization would have a Web page: 1) organizational size measured by the number of paid employees; and 2) organizational complexity indexed by the number of unique job descriptions, physical locations in Minnesota, and physical locations in other states. The results of this research provide practical information to formal organizations considering the adoption of an organizational Web page.

INTRODUCTION

Three theories provided the foundation for this study: network theory, Everett M. Rogers' ([1962] 2003) diffusion of innovations theory, and Peter

Blau's (1970) structural differentiation theory of formal organizations. Each of these theories contributed to a theory of diffusion developed by these authors. The goal of this research study was to determine whether the propositions developed in this theory of diffusion provided a reasonable

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basis for describing the diffusion of Web page technology.

BACKGROUND

The adoption of a specific technology – a Web page – by organizations in a rural setting is the focus of this research study. In this section of the chapter, two tasks are accomplished. First, concepts critical to this study are defined. Second, key independent and dependent variables that have been identified in the literature in prior diffusion studies are described.

Critical Concepts

There are three concepts critical to this study: 1) innovation; 2) diffusion; and 3) ideal types. These concepts are defined in the following sections of this chapter.

Innovation. A review of the literature indicates varying perceptions among researchers about the concept of innovation itself. “It seems to us that we have, at the moment, only a slender thread of agreement or commonality among the writers on innovation. That thread of agreement is one to which we have already referred: the agreement on the nature of the process” (Becker and Whisler, 1967, pp.467). Indeed, innovation is described as a “process” by a number of researchers (Evan and Black, 1967; Feldman, 2002; Knight, 1967; Landry et al., 2002; Mirvis et al., 1991; Shepard, 1967). These researchers also believe that innovation occurs over a period of time.

Despite many researchers viewing innovation as a process, there is variation in their actual definitions of this phenomenon. A number of researchers make the distinction between “invention” and “innovation.” Becker and Whisler (1967) felt that innovation was a process that followed invention. Innovation and invention were viewed as separate and unique processes, in terms of their timing and location, by these researchers. Knight (1967)

pointed out that innovation could relate to any change which was new to a particular organization, not necessarily new to society. Mohr (1969) summed up the difference between invention and innovation by noting, “Invention implies bringing something new into being; innovation implies bringing something new into use” (p. 112). Smits (2002) pointed out that excellence in producing an invention and excellence in producing a given innovation are two very different things. Shepard (1967) makes an interesting point that innovation can also be not doing something. “... [I]t is an innovation if an organization learns not to do something it formerly did and proceeds to not do it in a sustained way” (p. 470).

Many researchers also equate innovation with economic benefit. Archibugi and Iammarino (2002) point out that innovations are becoming increasingly costly and rapidly obsolete. This obsolescence provided incentive, they theorized, for innovators to commercialize or sell their innovations in increasingly larger and larger markets. Dispersion of an innovation via commercialization perhaps alludes to the increasing globalization of the marketplace. A positive economic outcome can serve as an incentive to innovate Feldman (2002) believed. She noted, “Innovation is the ability to blend and weave different types of knowledge into something new, different, and unprecedented that has economic value” (p. 49). Evan and Black (1967) argued that the innovation process within organizations is necessary for long-term survival due to pressures placed upon the organization by its surrounding environment.

Some researchers have distinguished between “radical” and “incremental” innovations. Dewar and Dutton (1986) viewed “radical” innovation as those that involve fundamental changes and that are a clear deviation or alteration from current practices in the organization. Shepard (1967) pointed out that it is typically in times of organizational crisis that radical innovations are adopted; “... [T]he uncertainty and anxiety generated by the crisis make organization members eager to

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