Factors Influencing the Successful Utilization of Groupware

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Abstract

In today's highly dynamic and competitive business environment, groupware technology can be one of the best solutions for today's organizations. The key feature of groupware is to help various business processes operate more efficiently with fewer resources. The purpose of this study is to develop a better understanding of the important factors influencing the successful utilization of groupware. To achieve this objective, a model is developed to test the relationships between a variety of variables and groupware usage. By employing the Technology Acceptance Model (TAM), this study proposes that four variables are antecedents of perceived ease of use and perceived usefulness, and have indirect effects on groupware usage through perceived ease of use and perceived usefulness. Survey research methodology is employed. The research hypotheses will be tested using LISREL. The research is ongoing and this paper presents the conceptual framework of the research, the theoretical foundation, and the research hypotheses.

Introduction

Today's organizations need to operate various business processes more efficiently with fewer resources. Increasingly, organizations have turned their attention toward workgroup, or team-based computing to improve productivity (Coleman and Khanna, 1995). Groupware can help today's organizations permitting greater coordination of activities, reducing or eliminating barriers of time and geography, and speeding the decision-making process. Groupware is a class of software products that facilitates communication among people and designated groups. Because groupware is an emerging information technology, there has been very little empirical research focusing on the key antecedents of groupware utilization. This research will investigate factors that influence the utilization of groupware technology.

Theoretical Foundation

This research employs the Technology Acceptance Model (Davis, 1986), which provides the means to understand the user’s adoption and utilization process of information technology and to identify the factors that may influence IT adoption and utilization. Davis (1986) introduced TAM, which is specifically built for modeling user acceptance of information systems. TAM posits that computer acceptance behavior is determined by two beliefs, perceived usefulness and perceived ease of use. The primary purpose of TAM is to provide a basis for tracing the impact of external factors on the two beliefs, perceived usefulness and perceived ease of use, and ultimately IT usage.

Davis et al. (1989) suggested that the attitude-behavioral intention relationship implies that people form intentions to perform behaviors toward which they have positive concerns. The behavioral intention-usage (or behavior) relationship is strongly supported by numerous empirical studies. Both Davis et al. (1989) and Davis (1989) observed that behavioral intention is significantly related to behavior. There are four main insights concerning the determinants of IT use based on the numerous studies on TAM:

a) Perceived usefulness and perceived ease of use have been found to be critical factors and predictors of user intentions.  
b) Perceived usefulness has been found to be a major determinant of user intentions.  
c) Perceived ease of use has been found to be a secondary determinant of user intentions.  
d) User intentions have been significantly associated with system usage.

Research Framework

The research model of groupware usage is depicted in Figure 1 (refer to the last page of the paper). The two variables "attitude toward using" and "behavioral intention to use" are excluded from its original TAM model because the variable of interest is actual behavior (i.e., groupware usage), not attitude nor intention to use. The exclusion of these variables would not affect the validity of TAM because attitude and intention to perform a behavior generally predict the behavior (Davis et al., 1989).
Dependent Variable—System Utilization

Many researchers (e.g., Baroudi et al., 1986) have suggested that system utilization is one of the most frequently reported measures of IS success. One of the most important reasons that a number of researchers have employed system utilization as a surrogate measure of IS success is that it is probably the most objective and the easiest variable to quantify, at least conceptually (DeLone and McLean, 1992). The proposed study employs self-reported use as an outcome variable.

Independent Variables and Hypotheses

The proposed study is designed to identify important factors that are likely to be critical for groupware utilization, not to classify all potential factors.

(1) Computer Experience
A user's computer literacy may critically influence his/her perceptions and/or attitudes toward IS and system usage. A number of researchers (e.g., DeLone, 1988; Levin and Gordon, 1989) have investigated the relationship between computer experience and perception/attitude-behavior. The findings suggest that:

H1a: The more computer experience a user has, the higher his/her perceived ease of use of a groupware.
H1b: The more computer experience a user has, the higher his/her perceived usefulness of a groupware.

(2) Computer Self-Efficacy
Several researchers have explored the relationships between computer self-efficacy and a variety of computer behaviors (e.g., Compeau and Higgins, 1995; Venkatesh and Davis, 1994). Based on prior research, the following hypotheses are put forward:

H2a: The higher the user's computer self-efficacy, the higher his/her perceived ease of use of a groupware.
H2b: The higher the user's computer self-efficacy, the higher his/her perceived usefulness of a groupware.

(3) Vendor Support
The importance of vendor support for successful IS development and implementation has been widely emphasized by several researchers (e.g., Johnson, 1988; Lees and Lees, 1987). The following hypotheses are presented:

H3a: The better the vendor support, the higher the user's perceived ease of use of a groupware.
H3b: The better the vendor support, the higher the user's perceived usefulness of a groupware.

(4) Information Center Support
Researchers on information center (IC) and end-user computing (EUC) studies have emphasized the role of IC for effective utilization of and satisfaction with information technology (Lee et al., 1995). The following hypotheses are presented:

H4a: The better the support provided by the information center, the higher the user's perceived ease of use of a groupware.
H4b: The better the support provided by the information center, the higher the user's perceived usefulness of a groupware.

(5) Top Management Support
The importance of top management support for IS success is widely recognized in the IS literature (Bajwa and Rai, 1994; Jarvenpaa and Ives, 1991; Reich and Benbasat, 1990). Many studies reported that top management support correlates highly with IT success. Based on findings and TAM, the following hypotheses are stated:

H5a: The stronger the top management support, the higher the user's perceived ease of use of a groupware.
H5b: The stronger the top management support, the higher the user's perceived usefulness of a groupware.

Research Methodology

Survey research method is selected because it is well suited to obtaining personal and social facts, beliefs, and attitudes, which are the factors of interest in this research. The list of organizations and individuals with a groupware will be identified through various vendors such as IBM, Microsoft Corp., Netscape Communications Corp., and Novell Inc.

A review of the literature on IS implementation, innovation diffusion, and related areas will be conducted to identify construct definitions and any existing measures for the variables employed in this study. Based on the review, scales will be
formed for each of the constructs. Previously developed and validated instruments will be adopted as much as possible. This is in-line with the notion of cumulative research.

LISREL will be used to test the hypotheses in this study. In addition, a correlation matrix will be employed to analyze the degree of correlation among variables.

**Conclusion and Current Status**

In this ongoing research, we will attempt to investigate the factors that lead to successful groupware implementation through a survey approach. The results of this research will be of interest to and benefit both practitioners and researchers. At this point in time, we are in the process of validating the research model and finalizing the questionnaires. Pilot studies will follow shortly and the full-scale survey will be carried out once the pilot results are satisfactory.

**References**


