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Electronic Commerce Application Development: A Comparison of User and IT Professional Perspectives

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Abstract

Based on the theory of reasoned action and previous research identifying differences in beliefs between IS specialists and IS users, this paper outlines a proposed study to investigate differences/similarities in beliefs of users and developers in the context of electronic commerce application development projects. The authors are currently in the process of collecting data to address research question posed in this proposal.

Introduction

The fact that users and IS specialists have different expert knowledge is the fundamental reason it is desirable to include both groups in systems development projects. However, these same differences have been suggested as a leading cause of systems development failure (Ackoff, 1967; Churchman and Schainblatt, 1965; Cushing, 1990; Newman and Noble, 1990; Newman and Robey, 1992; Robey, et al., 1989; Robey, et al., 1993). Different backgrounds, training, language, situational or other power, and many other factors lead IS specialists and IS users to hold different beliefs about the development process and their interaction with one another(Cushing, 1990). Differences between users and IS specialists in attitudes, beliefs, value sets, and cognitive orientations have been proposed as plausible explanations for friction during systems development (Cushing, 1990; Kaiser and Srinivasan, 1982). Research focusing on the effects of differences between users and IS specialists have found that beliefs may be moderated by situational and other attenuating factors that may be controlled by managers (Kaiser and Srinivasan, 1982; (Olson and Ives, 1981; Tait and Vessey, 1988). In particular, one study concluded that the most significant finding was the lack of agreement between the users and the information systems manager regarding the appropriate extent of user participation (Ives and Olson, 1984). This finding illustrates the need for understanding and identifying differences in beliefs, attitudes, and experiences between users and IT professionals prior to a development project's start to allow managers to take prescriptive action to improve the project's likelihood of success. The importance of identifying and attempting to reduce the negative consequences of differences between users and IS specialists have been addressed in other areas of systems development, but never within the Electronic Commerce (EC) application development domain.

This issue is especially important in the e-commerce arena. A survey of 100 InfoWorld readers about their company's e-business initiatives found that nearly 80% had e-business projects in place and the same number reported that their firms considered these projects to be a high priority or critical for the success of their organization. On the other hand, another survey of (Dineley, 2000) 300 firms reported that most firms do not know "how to make effective e-commerce projects happen" (Fogarty, 2000). Many of the reasons cited for the failure of EC projects are similar to traditional systems development projects. For example, Treagus (2000) asserts that as web sites have "extended beyond communications into the delivery of e-commerce services and customer-facing IT systems," many (EC) projects continue to fail because they do not meet "customer needs." Similarly, others (Liebmann, 2000) argue that although overall quality of a Web site in terms of factors such as interface design, links to back office applications and rich content is important, adding nifty features that allow customization based on individual customer needs can motivate a customer to make a purchasing decision. In fact, e-business projects "face the same demands, pressures and risks as any other kind of IT development project, but to a greater degree" (Yourdon, 2000). The fundamental difference between IT development and e-business system is its "potential to cause a fundamental change in an organization's business strategy"(Yourdon, 2000).

Theoretical Foundation

The beliefs of individuals are thought to be the initial determining factor influencing their behavior (Fishbein and Ajzen, 1975). According to the Theory of Reasoned Action, beliefs influence attitudes that in turn influence behavior. If this theory holds, it would be expected that users' and IT professionals' beliefs toward information systems and the systems development process would influence their attitudes toward the development process and their behaviors during this process. Differences in these beliefs may cause conflict, ineffective communication, or other dysfunctional behavior during this interaction. As such, these beliefs and the differences between users and IS specialists beliefs may represent important antecedents to their interaction during the development process. In general, this body of work suggests that the same differences between users and IS specialists that make their interaction during systems development desirable, influences the beliefs they hold toward the development process. Further, these beliefs, and the differences between these beliefs, may represent important factors or conditions that management may control prior to the development process. This research project attempts to empirically identify the relevant beliefs of users and IT professionals, and the differences in these beliefs, toward the EC application development process.

Research Question

Based on the review of prior research and the Theory of Reasoned Action, interaction between users and IT professionals during e-commerce application development may be influenced by their beliefs regarding the activities to be performed. It is proposed that differences in these beliefs are a cause of friction or conflict during the EC application development process. Therefore, the research questions to be addressed by this study can be stated as:

1. What are the beliefs of users-clients toward the EC application development process?
2. What are the beliefs of IT professionals toward the EC application development process?
3. Are there differences between users' beliefs and EC developers regarding the critical factors associated with EC application development?
4. Do user perceptions of EC initiatives in general differ from IT professionals?

Research Design

To address the above research questions, a survey instrument has been developed to measure both the users' and the IT professionals' beliefs about the EC application development process. This survey is based on prior research performed to identify a comprehensive set of factors believed to impact the systems development process (Havelka, et al., 1998). The questionnaire is composed of 30 scales measuring various aspects of an e-commerce application development project. The survey data is being collected through a web site and preliminary results indicate no significant problems associated with the instrument. The sampling frame is segregated into two groups. The first is composed of users that have had some experience with the EC application development process. The second is IT professionals who have had experience with EC application development projects. The target subjects include employees of firms with ongoing and/or new EC initiatives, employees of smaller consulting organizations and their clients, as well as some of the larger IT consulting companies. The anticipated number of subjects is around 300.

In order to compare the beliefs of users and IT professionals regarding the EC application development process an analysis of variance for two multivariate populations will be performed. This analysis will produce a Wilks' lambda test statistic that yields the F statistic. The null hypothesis of equal ratings will be rejected at a $p <= .05$. Further analysis of the ratings will be performed using individual analysis of variance to test each of the factors separately. Also, an analysis of the data using PROC MULTTEST of SAS/STAT to simultaneously consider each of the pair wise comparisons given thirty factors will be performed.

Conclusion

The proposition that differences exist between users and IT professionals is widely held. What impact these differences have on the EC application development process, if any, is unknown at this time. In this study, the differences in beliefs between users and IT professionals toward the EC application development process will be explored. The identification of these differences should allow project managers the ability to take prescriptive action to improve the likelihood of success for EC application development projects.

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