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# User-Developed Applications and Information Systems Success: A Test of DeLone and McLean's Model

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## ABSTRACT

*DeLone and McLean's (1992) model of information systems success has received much attention amongst researchers. This study provides the first empirical test of an adaptation of DeLone and McLean's model in the user-developed application domain. The model tested was only partially supported by the data. Of the nine hypothesized relationships tested, four were found to be significant and the remainder not significant. The model provided strong support for the relationships between perceived system quality and user satisfaction, perceived information quality and user satisfaction, user satisfaction and intended use, and user satisfaction and perceived individual impact. This study indicates that user perceptions of information systems success play a significant role in the user-developed application domain. There was, however, no relationship between user developers' perceptions of system quality and independent experts' evaluations, and user ratings of individual impact were not associated with organizational impact measured as company performance in a business simulation. Further research is required to understand the relationship between user perceptions of IS success and objective measures of success, and to provide a model of IS success appropriate to end user development.*

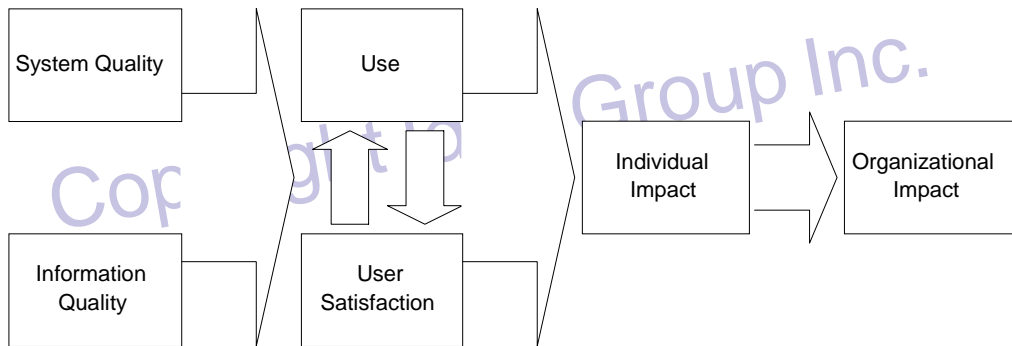
*Keywords: IS success; system quality and user satisfaction; user-developed applications.*

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## INTRODUCTION

User-developed applications (UDAs) are computer-based applications for which non-information systems professionals assume primary development responsibility. They support decision-making and organizational processes in the majority of organizations (McLean, Kappelman, & Thompson, 1993). Perhaps the most important benefit claimed for user development of applications is improvement in employee

productivity and performance, resulting from a closer match between applications and user needs since the end user is both the developer and the person who best understands the information requirements. However, the realization of these benefits may be put at risk because of problems with information produced by UDAs that may be incorrect in design, inadequately tested, and poorly maintained.

*Figure 1: DeLone and McLean's (1992) Model of IS Success*

Despite these risks, organizations generally undertake little formal evaluation of the success of applications developed by end users, instead relying heavily on the individual end user's perceptions of the value of the application (Panko & Halverson, 1996). This raises the important issue of the need to be able to measure the effectiveness of UDAs. In view of the scarcity of literature on UDA success (Shayo, Guthrie, & Igarria, 1999), models of organizational information systems (IS) success can provide a starting point. DeLone and McLean's (1992) model of IS success has received much attention amongst IS researchers (Walstrom & Hardgrave, 1996; Walstrom & Leonard, 2000), and it can provide a foundation for further research on IS success in the UDA domain. This paper describes a study designed to investigate the applicability of an adaptation of DeLone and McLean's (1992) model of IS success to UDAs.

### **DELONE AND MCLEAN'S (1992) MODEL OF IS SUCCESS**

DeLone and McLean (1992) conducted an extensive review of the IS success literature. They found that the suc-

cess of an IS can be represented by the quality characteristics of the IS itself (system quality); the quality of the output of the IS (information quality); consumption of the output of the IS (use); the IS user's response to the IS (user satisfaction); the effect of the IS on the behavior of the user (individual impact); and the effect of the IS on organizational performance (organizational impact).

DeLone and McLean proposed the model of IS success shown in Figure 1. The model makes two important contributions to the understanding of IS success. First, it provides a scheme for categorizing the multitude of IS success measures that have been used in the literature. Second, it suggests a model of temporal and causal interdependencies between the categories.

### **Empirical Support for the Model**

Until recently there had been no complete empirical test of the relationships implied by the DeLone and McLean model. Roldán and Millán (2000) tested the entire model for executive information systems and found support for some of the relationships. Studies of parts of the model, or individual relationships implied by it (investi-

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