Information Resources Management for End User Computing: An Exploratory Study

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Four hypotheses of organizational factors affecting the extent of end user computing (EUC) were investigated by means of a field study. The study encompassed 108 users in 21 organizations. The major findings in the data presented here are that the extent of EUC is closely associated with organizational size, DP resources, top management use, and users needs. A model is presented integrating these factors within a framework of organizational information resources.

Introduction

The nature of information systems has changed dramatically in recent years. Whereas users formerly input data into the data processing center of the organization and then waited passively to receive reports from the center, many of them now either process the data in the center themselves, via communications terminals, or bypass the center completely by processing data locally on personal computers. In this fashion, users in many organizations have become a major component of the organizational information processing system and must be considered by those engaged in information resource management.

Most studies of end user computing (EUC) to date have been largely descriptive in nature, focusing on the nature and extent of the phenomenon. The study described here investigated a number of factors which were hypothesized to affect the extent and hence the success of EUC. The factors examined were size of the organization, resources devoted to data processing and to EUC, the personal involvement of the CEO and second level management, and the motivations of end users.

Theoretical Background

There is, as yet, no single accepted definition of EUC. Elements contained in existing definitions include the ability of users to directly control their computational needs and the use of either microcomputers or timesharing computer services, internal or external, to write programs and to build systems. (Benson, 1983; Cervany...
Thus, end users range from command-level use, through parametric use, to programming (Rockart & Flannery, 1983).

For the purposes of this study, EUC was defined broadly to include essentially any hands-on use of personal computers or computer terminals.

Propositions concerning end user computing, including those studied here, have been suggested and motivated in Ein-Dor and Segev (1988). The propositions are stated in terms of the effects of variables on EUC success, measured by its extent. Following are reproductions of the particular propositions studied here and their motivations.

**Proposition 1. The budgeting of sufficient resources increases the likelihood of EUC success.**

Functional areas in organizations now share the burden of resource allocation for EUC through their investment in EUC hardware and software and in assigning personnel (“Expanding End-User Support,” 1985). Because individual EUC projects tend to be one-person tasks which take less than one week to complete (Rivard & Huff, 1985), one might argue that resource budgeting is not an issue at the EUC project level. Some studies, however, doubt the overall profitability of the organizational EUC effort given the time invested by users/implementors (Alavi, 1985). Thus, budgets, their sources, and responsibility for their allocation become an issue to be studied.

**Proposition 2. The smaller the organization, the smaller the likelihood of EUC success.**

This proposition would seem to have been largely invalidated by the advent of EUC. Given the feasibility of individuals acquiring and developing systems for their own use, no organization can now be considered too small to permit successful deployment of computerized information systems. However, even among small organizations, the largest among them are more involved with the EUC effort (Raymond, 1987), thereby giving rise to the need to examine this issue.

**Proposition 3. The greater the perceived need for EUC and the lower the level of apprehension about it, the greater the likelihood of success.**

This proposition assumes that only individuals motivated to engage in EUC will do so. The question of which motivations are most effective is addressed in this study in only a preliminary fashion and remains to be investigated.

This proposition raises the question of the role of senior executives in EUC. While benefiting from the proliferation of EUC in the form of higher quality reports and increased productivity of subordinates, most researchers believe that senior executives are not tempted to become personally involved in computer use (Alavi, 1985; Couger, 1986; Fersko-Weiss, 1985; Kleinberg, 1986; Lee, 1986). Even so, high levels of management awareness and planning are thought to increase the visibility and success of EUC (Alavi, 1985; Benson, 1983).

**Methodology**

The study was conducted in Los Angeles County, California, in the spring of 1987, as part of an advanced graduate course in the Information Sciences Programs at The Claremont Graduate School. Students were required to choose an organization with known EUC activity to which they had access and which agreed to cooperate in data collection, and to administer a questionnaire to five end users in that organization. The questions which generated the data reported here are displayed in Appendix A.

Part I of the questionnaire related to organizational characteristics, the data processing (DP) department, the organizational deployment of computing facilities, and end user statistics. This section was completed once for each organization. Part II, related to a specific end user and the characteristics of his/her use. The interviewers were asked to complete five such parts for five different users; some students interviewed less than five end users and some organizations were interviewed by more than one student. (The mean number of respondents per organization was 5.14 with a standard deviation of 2.48).

The data gathered by the student interviewers, guided by the researchers and the formal questionnaire, related to 21 organizations and 108 users.

**Sample Characteristics**

As was to be expected in a convenience sample of the type employed here, a wide range of characteristics was exhibited by the organizations and end users included. These are now briefly summarized.

**Industry (Table 1):** nine industries were represented in the sample, with the predominance of govern-