Assessing the Impact of Information Centers on End-User Computing and Company Performance

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As company investment in end-user computing (EUC) grows so does the need for the organization to provide end-user support and training; encourage resource sharing; establish mechanisms for management and operational control over data resources, systems quality assurance, and resource acquisition. To satisfy these needs, many organizations have established information centers (IC). ICs have been shown to be very dynamic organizations which are continuously evolving and vary dramatically from company to company in terms of location, resources available, and the types of services provided. This study surveyed 215 organizations to assess present shifts in EUC and IC activities, as well as the impact of IC performance on EUC overall company effectiveness and payoffs from EUC. The results show among other things that in many organizations the EUC support burden is being shifted to IS departments, to outsiders, and to the end-users themselves; that EUC support is indeed a requirement for overall EUC effectiveness and for the company to derive payoffs from the EUC investment.

The wide proliferation of end-user computing (EUC) has been widely reported [Van Kirk, 1995; Caginalp, 1994; Burrows, 1994; Igbaria, Pavri & Huff, 1989]. The explosion has happened in the United States as well as overseas [Anonymous, 1994]. The growth in EUC is a world-wide phenomenon occurring in Japan [Patton, 1995] as well as in Europe [Preston, 1994]. When Computerworld surveyed the 100 organizations rated as having the most effective use of computerized information systems, these organizations were found to already have, on the average, 35 PC/workstations per 100 employees, with the top 25 organizations having an average of 44 PC/workstations per 100 employees [Sullivan-Trainor, 1988].

As end-user computing becomes pervasive in most organizations, its diversity grows along different dimensions, including the types of applications, types of end-users, levels of end-user computer literacy, etc. Contrary to early expectations, end-users do not become independent, instead, they increasingly demand better equipment, more training, coaching, consulting, technical support, etc. Many authors have recognized that the expansion in end-user computing activities within large organizations requires substantial investment in personnel and facilities for support [Igbaria, Guimaraes & Davis, 1995; Van Kirk, 1995; Guimaraes, 1986; Leitheiser & Wetherbe, 1986; Guimaraes, 1984a]. The large number of organizations that have established Information Centers (IC) attests to their importance in supporting end-user computing activities. The American Management Association [1988] reported that 58 percent of the large companies surveyed already had a discrete unit to support end-user computing.

Very clearly, ICs have evolved over time [Guimaraes, 1984b] and are continuing to change [Guimaraes & Igbaria, 1994]. The most recent (1990) survey by Crwth Computer Courseware has 65 percent of respondents reporting their IC’s role as changing in some way. Respondents are evenly divided about whether their IC’s role is rising or decreasing. Forty
percent reported some functions being shifted to other parts of the organization and that training, product specialists and application development are understaffed and overworked. Most organizations (58 percent) are keeping active IC organizations, 6 percent have disbanded their IC as inappropriate to their needs, 34 percent do not have one and presently have no plans for one, and 2 percent will establish an IC in the near future [Crwth, 1990]. It is widely held that one of the main motivators for the continued proliferation of EUC has been the length of the visible and invisible systems backlog within organizations. In an analogous fashion, some of the burden for end-user computing support is increasingly falling on IS and user departments, away from understaffed centralized IC [Crwth, 1990]. Similar interpretation of the Crwth survey is reported by Roberts [1991], and a dramatic impact of end-user computing on IS department objectives and organization has also been reported by others [Hildebrand, 1991; Juneau, 1991].

While the title for EUC support groups will vary from organization to organization, the term IC has become widely recognized. Despite its wide recognition, the term IC stands for EUC support groups performing a wide variety of tasks, organized as a separate organizational unit or located within MIS departments or user departments. Such variety in IC deployment alternatives naturally raises several questions: How are IC’s changing in terms of their size and the tasks they perform? Are IC’s an obsolete form of EUC support organization with fading importance and increasing risk of disbandment? What do users think about the effectiveness of the support provided by their IC? Based on these ratings, is there a “best way” to set up an organization’s IC? What are the payoffs from EUC to the organization? Does IC performance have significant positive impacts on organizational EUC support and management? Most important, does effective EUC support and management provide improvements in company payoffs? The major objective of this study is to address these questions based on empirical evidence collected from a broad collection of business organizations.

**Theoretical Background**

This section outlines the study’s basic hypotheses, the rationale for the proposed relationships, and the selection of measures used. As shown in Figure 1, the basic hypotheses in this study are: **(H1) IC performance is directly related to overall company EUC support and management effectiveness**; and **(H2) EUC support and management effectiveness is directly related to company payoffs from EUC**. The literature contains numerous reports which either implicitly or explicitly promote these hypotheses.

**EUC Support and Management Effectiveness**

As the level of EUC activities in an organization grows, so does the need for some types of control (i.e. acquisition policies and procedures, sharing of resources, quality of systems and information) and end-user support [Igbaria, Guimaraes & Davis, 1995; Sherman, 1994; Lee, 1986; Zmud, 1983; Guimaraes, 1984a; Thompson, Higgins & Howell, 1991; Guimaraes & Ramanujam, 1986]. Leitheiser & Wetherbe [1986] proposed the notion of service support levels as “formal divisions of responsibility between end-users and MIS departments” as the basis for effectively managing EUC in organizations. The idea hopefully will lead to several advantages to the organization: freedom of choice for end-user managers, focusing of IS department’s attention on providing service to end-users, reduction of “finger pointing”, a structured approach for supporting end-users, incentives for end-users to follow established guidelines and procedures, and better means for coordinating EUC activities.

Starting in the early 1980s and steadily increasing, a variety of support mechanisms became available to the end-user community in many organizations, and the level of support was directly related to the level of control exercised by IS departments [Guimaraes & Ramanujam, 1986]. Information Centers were being strongly recommended as necessary for EUC management and support [Dotson, 1982; Guimaraes, 1984a, 1984b]. In those days, however, less than 60 percent of Fortune 500 companies, and less than 8 percent of all US companies, had “established a minimal set of microcomputer policies” [Zmud, 1983]. A list of EUC support and management activities was collected from the literature [Guimaraes, 1986] to provide a measure of how well an organization is performing in this area. The items include: resource acquisition, planning, management and control, LAN management, training, consulting, help desk, development with specific package and technical support/maintenance. The determinants and consequences of job satisfaction among IC personnel were studied by Guimaraes and Igbaria [1993], including a comparison of IC versus IS personnel in terms of the same variables [Guimaraes & Igbaria, 1992].

**IC Performance**

To provide the support needed for effective EUC, many organizations have established an IC [Guimaraes & Igbaria, 1994; Crwth, 1990]. On the other hand, in the last few years some organizations have disbanded their IC’s [Crwth, 1990] thus suggesting an alternative way of managing EUC. This ambiguity needs to be promptly addressed since, as organization investment in EUC resources, activities and support increases, so does the need for assessing the IC’s performance.
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