Local and telecommunications systems (LTS) constitute an important new technology which is being increasingly deployed in modern organizations. Common applications include factory and office automation, laboratory research, and academic instruction. LTS figure prominently in electronic messaging systems, decision support systems, and, to a lesser but increasingly important extent, expert systems. This paper devotes particular attention to the behavioral and organizational implications of LTS technology. Relevant research issues which especially warrant empirical attention are identified and discussed.

Introduction

Computer users are not ready to tie together their whole organization, because it is a major social change. That means it takes time. They will probably sneak up on it by networking pieces to accomplish specific needs.

They are networking larger and larger parts: a complete office, big laboratories, big factories. Some people say it is too difficult to get various parts of the world to work together, so they are not going to try. But the payoff could be enormous (Olsen, 1988).

The above excerpt from a recent interview with Kenneth Olsen, the President of Digital Equipment Corporation (DEC), points out a paradox associated with the application of network technology to organizational integration: while integration is technologically feasible, it is often resisted for social and psychological reasons. In cases where integration is being achieved, such as airline reservations systems and banking with automated teller machines, the approach typically employed involves the application of local and telecommunications networks (LTS).

As applications of LTS expand, the need to identify and understand the behavioral and organizational consequences of this technology likewise increases. Especially important are the
hidden consequences of computer networking which are often overlooked but nevertheless can have a profound influence on organizational processes. The purpose of this paper is to call attention to the need for research on these non-technical issues and to suggest some basic areas and directions which should be of central concern to the researcher. While the technical issues related to connectivity are indeed important to the management of LTS (Lorin, Ball, & Eloy, 1987), more extensive technical treatments of LTS and LTS management (e.g., Estrin & Cheney, 1986; O’Brien, 1986; Rowe, 1988; Stammer, 1986; Thompson, 1987) generally neglect basic behavioral and organizational issues relevant to the development and use of LTS. Given the major importance which such nontechnical issues have been demonstrated to possess with regard to the success of management information systems in general (Davis & Olson, 1985), these issues are likely to be critical to a realization of the enormous potential of LTS as suggested by Olsen (1988).

Although a number of excellent papers and books have explored the social and psychological consequences of computer networking in various contexts such as computer conferencing and electronic mail (Hiltz & Turoff, 1978; Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Zuboff, 1982), little research focusing specifically on the social implications of local area networks (LANs) is available. While the more general literature on networking can provide some insights regarding LANs, it would be premature to conclude that earlier findings are directly and immediately applicable to local area networking for three reasons: (1) LANs are a relatively recent technological development; (2) local area networking is based primarily on the connectivity of microcomputers (personal computers (PCs) and professional work stations) which are themselves a relatively recent technological innovation in organizations; and (3) recent developments in factory and office automation, computer message systems, group decision support systems, and, to a lesser extent, expert systems have a direct bearing on local area networking. In light of the above considerations, this paper has been written with the intent of exploring the social and behavioral implications of LANs in particular. Recognize, however, that many of these implications are also pertinent to larger telecommunications systems which span wider geographic areas. To avoid potential confusion, implications which we consider to be either more pertinent to LANs or limited exclusively to LANs are specifically noted.

**LTS Themes and Applications**

LTS are solutions to the problem of getting various technological devices used in information processing to communicate together in an efficient and effective manner. LTS are characterized by two basic themes: resource sharing and cooperative communications. Much of the impetus for the development of local area networking as a technology came from organizations which had acquired various items of information technology over time which had been developed and marketed by different manufacturers and vendors. Often the various devices were incompatible, i.e., they did not communicate well (or even at all) together. In addition, it became clear that some resources (such as printers) could be shared by various users to advantage rather than replicating the purchase of the same type of equipment for individual users, thereby reducing the cost of expensive systems to the user. This overall economic advantage is well-stated by Gavish (1986, p.32):
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