MICROCOMPUTER SOFTWARE EVALUATION AND SELECTION STRATEGIES

Ronald W. Hasty, DBA
University of Texas at El Paso

Anthony F. Herbst, Ph.D.
University of Texas at El Paso

Mo A. Mahmood, Ph.D.
University of Texas at El Paso

With increasing numbers of top managers using decision support software packages for high-level decision-making, the lack of organization-wide software evaluation and selection strategies can be costly and detrimental to an organization’s economic and competitive health. The management of an organization should, therefore, provide leadership and support for the development of such strategies. This research takes an important step in that direction by offering a set of guidelines that the management of an organization can follow in providing such a leadership role. A number of points essential to any formal consideration of software to be used in microcomputers or networks are also considered. Organizations interested in an accurate evaluation and selection of appropriate software should carefully consider the guidelines provided.

Introduction
The past two decades have been marked by a failure of American firms to meet competitive challenges in U.S. and world markets. A decline in relative productivity and innovativeness has led to the flight of manufacturing capability, large trade deficits, and unemployment.

Shephard and Starr (1988) argue that it is essential that companies improve the efficiency and effectiveness of all business processes in order to provide a stream of cost and quality competitive goods and services. Firms must change their management procedures to integrate the latest information processing technologies for service and manufacturing systems. They note that “the rapid discovery of new technologies and the integration of managerial responsibilities through information technologies have opened up opportunities for innovative management and organizational structures.” (p. x) Top management must be involved in the strategic and tactical decisions that will lead to the productivity gains necessary to acquire world competitiveness.

Microcomputing is an area where tremendous strides in productivity have been made, but significant potential growth has yet to be realized. It is the thesis of this paper that productivity enhancement through the use of microcom-
puters requires a careful evaluation of the software selection process.

Decreasing cost and increasing capabilities have contributed tremendously to the growth of microcomputers in a wide range of business functions. For example, microcomputers have contributed to the widespread proliferation of end-user computing (Guimaraes, 1986; Karten, 1987; Saarinen, Heikkila, & Saaksjarvi, 1988). Microcomputers are being utilized by business executives for support of their daily activities (Mittman & Moore, 1984). Lee (1986) found evidence of the use of microcomputers by non-managerial professional workers. Microcomputers are even being used in organizations for the arts (Pick & Rutherfurd, 1987). Microcomputers can also be employed in various functional areas as powerful application tools for immediate productivity, such as the use of microcomputers for managing inventory (Edwards, 1985). This type of utilization allows users to bypass the usual delays and high costs of conventional main-frame system development (Hesprich, 1982). Microcomputers can also relieve the corporate Management Information Systems (MIS) departments of their significant backlog problems. In addition to their full programming capabilities, microcomputers allow non-programmers to use different application software packages (e.g., General Ledger, Payroll, Accounts Receivable, Inventory Control, or Word Processing) while taking advantage of shared databases through local area networks.

Microcomputers, especially with the advent of workstations, are here to stay with increasing significance in the work place. Early in this decade, microcomputers were hailed as the latest revolution in the computing area (Curley & Pyburn, 1982; Office of Technology Assessment, 1983; Straussman, 1985). Business Week estimates that 66 million microcomputers are already installed in the United States and 16 million new ones are sold each year ("Computers are Getting More Personal," 1989). This increased presence of microcomputers does not, however, guarantee their effective utilization. Young (1984) estimated that between 20 to 36% of all microcomputers remained unused, a number which may not have changed significantly in more recent years. Along with the phenomenal growth, however, have come problems and issues related to the evaluation, selection, and management of the technology. A survey by Datamation revealed considerable problems and frustrations with microcomputers on the part of MIS managers ("Adventures," 1983). Keen and Woodman (1984) suggested that microcomputers can create as many problems as they can solve. The frustration seems to continue. Several authors (Karten, 1987; Saarinnen et al., 1988) have alluded to the problem of managing end-user computing.

The literature in the MIS area is replete with references to the need for microcomputer hardware evaluation, selection, and management strategies. For example, Potts (1984) and Kahn and Garceau (1984) describe procedures for managing microcomputer installations and environment. Included in these procedures are hardware controls, software controls, environmental controls, and user controls. Raymond (1983) suggests a technique named ELECTRE to evaluate hardware. The procedure is based on multicriteria decision theory. The criteria can be qualitative or quantitative. Harnett (1985) suggested a checklist to prevent computer hardware failure. Included in the checklist are an overall service contract for equipment, warranty coverage, placement of hardware in a secure place, and the daily backup of all information. Based on a survey, Bilbrey and House (1981) suggested a set of criteria to select microcomputers. Included in the list are performance capability, price, availability of maintenance service, ease of op-