The Accountant's Contribution to Executive Information Systems

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Accountants can contribute to corporate strategy by participating in the design and operation of strategic information systems. Executive Information Systems (EIS), computerized systems that support top management in their strategic decision making, are one example. During the development of an EIS, accountants can assist in the identification of a sponsor, in cost/benefit determination for the initial proposal, in the analysis phase which will identify management’s information and processing needs, and in locating information during the design phase. After the system has been implemented, accountants often serve as on-going Knowledge Providers. In addition, accountants, serving as EDP Auditors, can design and review internal controls to safeguard the sensitive data utilized by EIS and help ensure data accuracy which is so critical to the development of proper corporate strategy.

Those who make strategic decisions for an organization have unique information needs that differ from lower-level decision makers because of the unstructured nature of their decisions, the scope of their decisions, and their level of authority (Stambaugh and Carpenter, 1992). These decisions are often one-time, ad hoc, unpredictable, and sometimes made on an emergency basis (Turban, 1993). The dynamic nature of such decisions has made it difficult, in the past, to support upper-level decision makers with computerized information systems. Instead, in most organizations, the class of middle management was built to function as human information systems.

In the last few years, a new type of information system, Executive Information Systems (EIS), have emerged for purposes of supporting senior management in their strategic decision making tasks. Factors which have led to the evolution of Executive Information Systems include: the need to reduce the large corps of middle-managers (Goldfarb, 1990), progress in computer technology to the point where computerized information systems that can support the decision-making requirements of upper-level managers are now possible (Miller, 1989), the increased computer literacy of corporate executives today (Roberts 1993), and the increased complexity of decision-making in today’s global economy (Miller, 1989). Approximately 1,000 EIS were in use worldwide in 1991, with about 600 in the United States and 100 in Canada (Hopkins, 1991). EIS are expected to be one of the biggest software growth markets of the 1990s (Bird, 1991).

The purpose of this paper is to discuss the role of accountants in the development and management of executive information systems. The first section will provide a short description of the possible functions of EISs and the technology used to accomplish these. Section two will discuss the development of an EIS and accountants’ roles in this process. The third section will present some ideas on accountants as on-going knowledge providers. The fourth section will discuss EISs from the EDP Audit point of view. The fifth and final section will summarize by presenting several causes and preventions of EIS failures and accountants’ roles in failure prevention.

The Functions and Technologies of EIS

In order to facilitate company-wide strategic decisions, information systems built to support executives must contain a wide variety of readily available information and provide extremely fast and flexible access to these data. Since EISs are “an emerging technology”, no standard, universally accepted definition exists for them as yet (Giordanella, 1989). However, EIS can be described by their a) objectives, b) their capabilities, and c) their technological features.

Objectives

The combination of objectives for each EIS is unique since these systems are designed to meet the needs of individual organizations (Yeo, 1991). A few of the more common objectives include: helping an executive make strategic and competitive decisions, keeping track of the overall business operation, facilitating communications between executives, and reducing the time spent on routine tasks (Miller, 1989).

Capabilities

This multiplicity of objectives leads to a wide variety of capabilities for EIS. However, there are some capabilities which are standard in all EISs. Simplistic user interfaces, a wide variety of data, flexible processing capabilities and graphical output facilities are examples of the more common features.

Because of the nature of executive users, EISs must provide interfaces which are easily learned and utilized (O’Brien, 1991). Executives seldom have the time or inclination to adequately train in the use of high-technical computer systems. In order to support strategic decision making, extensive information from both inside and outside of the organization must be gathered or accessed to support both quantitative and qualitative analysis. This knowledge must be extremely accurate and is very sensitive from a security standpoint. Processing capabilities must provide the ability to search, ad hoc, through information and compare between factors, companies, divisions, years, or industries. Other pre-programmed processing procedures, such as presentation sets or briefing books, must also be available (Minear, 1991). Finally, output in an EIS is typically visual and is often graphical in nature, showing trends and other images, although underlying numbers are usually available in “Drill-Down” form (Minear, 1991).

Technology

Due to the nature of these systems and their data access needs, the information used by EISs is usually stored in databases, either within the EIS application itself or in other accessible systems. Most EIS interaction is performed from microcomputers, although the system itself may reside on any type of computer platform. Networks, both LAN and WAN, are commonly used to facilitate the interaction of these various platforms. Telecommunications, along with E-Mail capabilities, have become an integral part of most EIS. Today, most EISs are implemented using one of many software packages available, which provide extensive capabilities for tailoring the system to a company’s particular specifications. There are also many add-on features available from various

Table 1: Users and Uses of Executive Information Systems

1. CIGNA Corporation, a health care and insurance provider has an EIS that their Employee Benefits Division makes available to customers for information concerning available products and services (Burkan, 1992);

2. North American Aircraft division of Rockwell International Corp. uses an EIS to deliver business reports and graphics to executives (Armstrong, 1990);

3. Hertz uses an EIS to assess market share in contested areas and facilitate pricing decisions (Stambaugh and Carpenter, 1992);

4. Mead Corporation uses their EIS as a corporate information system providing critical success factor analysis to all levels of management (Roberts, 1993).

5. Other uses include:
   a. facilitating TQM programs,
   b. overcoming data-sharing problems for geographically dispersed corporate divisions,
   c. linking executives together for communications purposes,
   d. information mining for marketing purposes.