

Chapter 1.17

An Overview of Executive Information Systems

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ABSTRACT

An executive information system (EIS) is a software system designed to support the informational needs of senior management. The EIS is characterized by an easy to use and maintainable graphical user interface; integrated capabilities for data access, analysis, and control; analysis and report generation across multiple files; and on-request “drill down” capability. Most existing management information systems provide an enormous quantity of detailed status reports. However, they lack the capability of providing summarized levels of information, in an appropriate format, for higher levels of management. This problem has continued despite the emergence of enterprise resource planning systems. By understanding the concept and functionality of traditional executive information systems, readers will also be

able to better understand how EIS has adapted to meet the requirements of senior management in an enterprise system environment.

INTRODUCTION

Executives are upper-level managers who exert a strong influence on the direction and activities of the entire organization (e.g. McLeod and Schell, 2001). An executive information system (EIS) is a computer-based system designed to support the unique informational needs of these very senior managers. These systems are designed to simplify the user’s interface with the computer, facilitate retrieval and manipulation of data from different sources, and display results in a single presentation. Finally, executive information systems provide the capability to highlight exceptions, and explore data at progressively lower levels of detail.

DOI: 10.4018/978-1-59904-859-8.ch006

The concept of the executive information system can be traced to 1982, when Rockart and Treacy introduced this term to describe an emerging category of information systems. They noted that there are four critical components to the EIS concept. First, there is the *Executive*, the human element in the EIS environment. The executive requires timely information, quick inquiry response, and systemic ease of use. *Information* supports both critical success factor analysis and leading indicators of potential problems. The third component is the *system* architecture that encompasses linkages to the relevant, and the processing of this data into critical information. The final component is the *organizational* structure that manages the databases and systems, and maintains information security. All four components must be integrated for the EIS to be successful.

To do this, an EIS combines two complementary approaches. According to McNurlin and Sprague (2002), “at its heart, an EIS should filter, extract, and compress a broad range of up-to-date internal and external information. It should call attention to variances from plan and also monitor and highlight critical success factors of the individual executive user” (p. 386). This perspective defines an EIS as a structured reporting system to meet the unique needs of executive management. The second fundamental approach of the EIS, as identified by McNurlin and Sprague (2002), is as a human communications support, such that. “the managers make requests, give instructions, and ask questions to selected members of this network to get people going on the desired action” (p. 387). Alter (2002) confirms this by emphasizing the networks of internal and external contacts used to gather information about specific issues of current importance, as opposed to only utilizing formalized information systems.

The terms executive information system and executive support system (ESS) are often used interchangeably (e.g. Laudon and Laudon, 1998). Other authors make a distinction between the two, based upon the fundamental approach used or

emphasized. For example, based on Rockart and DeLong’s (1988) original discussion, Turban and Aronson (2001) further define an executive support system as “a comprehensive support system that goes beyond EIS to include communication, office automation, analysis support, and business intelligence” (p. 308). An important feature, especially to upper-level management, is access to external data. Thus, where core EIS functionality focuses on the processing and presentation of information, an ESS implies other communications support capabilities more oriented toward the second fundamental EIS approach mentioned above. These communications support capabilities may include e-mail, office automation functions like electronic calendars, and linkages to stock market news and industry trends.

Further, EISs were initially developed to support a small set of high-level executives within an organization. These systems normally served up to 10 or 15 senior executives. The success of these initial implementations has led to an expansion of these systems to support mid-level managers with cross-functional information needs. This type of system served up to sixty executives and managers, and has been termed an “extended EIS” In some cases, EIS, have been adapted to the entire organization (McLeod and Schell, 2001). Rockart and DeLong (1988) first observed this migration. For this paper, the term “executive information systems” will be used across this spectrum of applications and levels of use, with consideration of how the EIS concept has evolved in the process.

BACKGROUND

Historically, the traditional management information systems (MIS) within a company have been developed independently of each other. These systems typically supported marketing, manufacturing, distribution, personnel, accounting, order entry, inventory control, and purchasing. They are used to support organizational planning and

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