

Chapter IV

Enterprise Systems: Innovation, Development, and Advantages

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ABSTRACT

Well-managed information is the basis of any successful enterprise. The current increase in information management capacity generates opportunities for a new stage of development, making it critical for companies to significantly increase information, intelligence and technology management competences to successfully exploit these new opportunities. However, information technology (IT) development has, in many cases, not been balanced by an enhancement of information management competences within organizations. One way of successfully exploiting opportunities is through the business philosophy of Enterprise Systems (ES), defined as organizational arrangements that combine management science and IT to enhance a company's decision-making capabilities. ES have helped streamline business processes and improve the overall performance of organizations. This chapter presents an overview of the development of ES from the 1970s to the present day, and presents an S-curve analysis of the diffusion of ES innovations. The sources of ES innovation are then discussed in terms of enablers (technological, entrepreneurial and venture capital) and drivers (developers and innovators). The differences between vendors in terms of their ES solutions are then briefly presented, and the role of ES in creating a competitive advantage is discussed.

INTRODUCTION

During an interview with Peter F. Drucker by Thomas Davenport, the following dialog was recorded:

Davenport: Do you think that we have benefited from the great pace of technology introduction in our society? I personally feel that our ability to use the stuff advances far more slowly than our ability to create it.

Drucker: There is a lot of room for new technology in the world. But I very much doubt we need more speed. We don't use the speed we have ... Very little of our computing capacity is well used. We need instruments that are simple and cheap. Even most laptops are much more capable than what people need. (Davenport, 1997, p. 50)

ES can be defined as organizational arrangements that combine management science and IT to enhance the decision-making capabilities of companies. ES is more an information system than a computerized application. Computerized applications are software programs designed to facilitate collecting, processing and/or analyzing information, which require suitable hardware and trained personnel to be operated. In contrast, information systems are organic arrangements designed to manage information in an organization, involving personnel; organizational structure; information management processes; and procedures, software and hardware.

Well-managed information has been the base of any successful enterprise. Currently, we are experiencing an extraordinary growth in information management capacity, generating opportunities for a new stage of development of systems to handle this information. Companies need to realize that it is critical to significantly increase information, intelligence and technology management competences in order to effectively develop information management capabilities and

successfully exploit the opportunities. However, IT development has, in many cases, not been balanced by an enhancement of information management competences.

A study of the historical innovation of ES can give some examples of how these trends can converge. In many cases, earlier implementations have increased enterprise information management capabilities and significantly enhanced enterprise performance. Thus, the main objective of this study has been to analyze the evolution of ES innovation to identify factors that have contributed to this phenomenon. To facilitate this understanding, this chapter is divided into four main sections: The first presents an overview of the development of ES over the last few decades, from the 1970s to the present day, and presents an analysis of the diffusion of ES innovations through the use of S-curves. The second section discusses the sources of ES innovation in terms of enablers and drivers. Section three analyzes the factors to be considered when purchasing an ES, and identifies some differences between vendors in terms of their ES solutions. Finally, the advantage of ES in creating competitive advantage is discussed, and some concluding remarks are made.

EVOLUTION OF ES

In this section, we first present a summary of the development of ES over the last few decades. We identify four stages: the first led by MRP, the second by MRPII, the third by ERP, and the fourth by SCM and CRM systems. We then extend this historical account by presenting an S-curve analysis of the diffusion of ES innovations.

Brief History

The first practical efforts in the ES field occurred at the beginning of the 1970s, when computerized applications based on *MRP* methods were developed to support purchasing and production

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