Chapter V

Technical Issues in Implementing ERP Systems

Learning Outcomes

- Understand the fundamentals of relational database management systems
- Be able to define technical terms such as single instance and normalization
- Be aware of how database considerations impact ERP implementations
- Have a general overview of the technical issues in implementing ERP systems
- Become familiar with implementation issues and strategies for ERP systems

Overview

Every ERP system draws upon a vast set of data that describes the entities and relationships in a corporation. The data may reside either in a single database or multiple databases connected to each other using telecommunications networks. The manner in which the entities are structured and how the relationships among them are expressed define the architecture of the database. The architecture,
the networks that connect the databases, and the application software that is used to query the database define how quickly and accurately data can be retrieved. This is not very different from organizing a house. In an organized house, it is possible to find items you are looking for very quickly; wasteful additional expenditure is not necessary as there is no need to purchase duplicates to replace things you have lost. However, we all know that it takes good organizational skills to properly store the items in a house. In addition, if members of the household do not obey the rules and store items in the wrong places, then it becomes difficult to retrieve them. An ERP system requires a similar discipline from members of an organization. The data in the organization must be stored efficiently, not duplicated, and should be available for retrieval quickly. In this chapter, we will discuss the technical issues involved in storing the data in an organization and discuss the concepts that form the basis of database technology. In addition, we will discuss the technical issues that often arise when implementing an ERP system.

**Database**

As we discussed in an earlier chapter, most industries are experiencing a greatly increased pace of change that requires technology, human, and business structures to adapt more rapidly than ever before. Companies need to have the ability to adapt to a changing environment as quickly as possible, which requires that an ERP system be scalable (built in different modules and combined together seamlessly) and flexible (capable of being modified quickly and efficiently). However, it is a major challenge to build ERP systems that can meet a company’s business needs and at the same be scalable and flexible. Even though these attributes are highly important in today’s business environment, it is difficult to build and maintain systems that can adapt to the changes (French, Bell, & Zawacki, 2000). Therefore, it is important that you learn the basics of a database system so that your expectations for the system can be realistic.

A database, by definition, is a collection of information stored in a computer in a systematic way, such that a computer program (e.g., ERP software) can query it to answer questions. The software used to manage and query a database is known as a database management system (DBMS). The purpose of a database is to efficiently store a collection of data.
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