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Chapter XXII

Developing Technology Applications: Effective Project Management

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Abstract

This chapter discusses the difficulties organizations have experienced when attempting to develop a new information technology application. The reasons for these difficulties are examined. A methodology for teaching a Software Project Management course that prepares students for conducting a successful project is presented in detail. The author hopes that educators will find the concepts and techniques presented useful and incorporate some of them in their courses.

Introduction

The literature related to the software development area is replete with case histories of software projects that have had major cost overruns, repeatedly missed deadlines, and even outright abandonment. Clearly, there is a need for providing those who will

eventually be responsible for such projects with the concepts, techniques, and methodologies to bring their software projects to successful conclusions. The purpose of this chapter is to demonstrate a methodology for providing students with the experiences that will assure that they have the ability to develop the knowledge and skills necessary to become an effective member of a software development team. The basic approach is that of having students become members of a team responsible for developing a new software system in response to a request for proposal from a client.

Specifically, the student teams play the role of consulting firms and are required to perform all of the tasks required in a software development engagement for a client.

Background

One has only to review texts in the area of Project Management related to systems development to realize that new system development failures tend to be the rule rather than the exception. In his book *Project Management for Business and Technology*, Nicholas (2001) devotes an entire chapter to "Project Failure, Success, and Lessons Learned." Mantel, Meredith, Shafer, and Sutton (2001), in their book *Project Management in Practice*, state that a failure may occur when a project no longer meets the cost/benefit criteria. One of the major causes of a project no longer meeting the cost/benefit criteria is the lack of accurate project time and cost estimation techniques. For example, although one may find an estimation methodology presented in a favorable light in one book, for example the COCOMO (Constructive Cost Model), discussed by Jeffrey (1987) in *Critical Issues in Information Systems Research*, that model is not given strong support by Kemerer (1997) in *Software Project Management: Readings and Cases*.

The above implies that an improved educational experience would enhance the effectiveness of the Project Management performance of Management Information Systems program graduates. The objective of this chapter is to propose a course with the content and format that would provide MIS students with that educational experience.

Main Thrust of the Chapter

Course Approach

Those offering courses in Software Project Management and courses with similar titles, such as Software Engineering, typically use a case study approach to introduce students to the various phases through which a software development project progresses. The instructor must decide upon: (a) the source of a case that will have all of the features desired, (b) whether to have each student responsible for a case or to have the students form teams, (c) if a team approach is used whether each team should be assigned the same