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Chapter XXI

The Role of Project Management in Technology Literacy

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Abstract

This chapter discusses the modern discipline of "project management" and the role of this discipline in technology literacy. Professional organizations that foster this literacy area are discussed as well as the coverage of this field in the academic community.

Introduction

A key component in technology literacy involves the management of technology resources. In industries that "build things," that management of technology is largely encompassed within the discipline of Project Management. Project Management is "the application of knowledge, skills, tools, and techniques to the project activities in order to meet or exceed stakeholder needs and expectations from a project" (Duncan, 1996). A project is defined as "a temporary endeavor undertaken to create a unique product or service" (PMI, 2000). In such industries, the first-level management job for a technical person is typically in a "project manager" role.

Background

Despite ongoing innovations in Project Management, many projects fail; in some industries, particularly information technology (IT), most projects still fail. A Standish Group study found that only 16% of all IT projects come in on time and within budget (Cafasso, 1994). Field (1997) discovered 40% of IS projects were canceled before completion. The problem is so widespread that many IT professionals accept project failure as inevitable (Cale, Curley, & Curley, 1987; Hildebrand, 1998).

Project Management in Professional Organizations

A number of professional organizations have developed around the world to address and foster this specific discipline. Most notable is the Project Management Institute (PMI, www.pmi.org), with about 140,000 members worldwide. Other major international organizations are the Association for Project Management (APM) and the International Project Management Association (IPMA) (Morris, 2001). These organizations have recognized that there is a distinct skill set necessary and level of technology literacy for successful project managers, and the organizations are devoted to assisting their members in developing, improving, and keeping current in these skills (Boyatzis, 1982; Caupin, Knopfel, & Morris, 1998).

The Project Management Institute has developed an index of project management skills and knowledge called the "Project Management Body of Knowledge" (PMBOK). The PMBOK has been developed through several iterations over many years; the first version was developed in 1976 (Cook, 1977). The latest version (PMBOK 2000) was released for certification testing beginning in January 2002 (PMI, 2000). It defines nine *knowledge areas* (KAs), which are organized into 37 *processes*. The processes are grouped into five *process groups* (PGs). This is illustrated in Figure 1 (PMBOK, 1996; Duncan, 1996). The KAs represent the technology literacy necessary for effective project management: scope management, time management, cost management, risk management, quality management, human resources, communication, and procurement.

PMI and the other international project management organizations each have a certification program, and for PMI the designation for the most important certification level is Project Management Professional (PMP). To obtain PMP certification an individual must have 4,500 hours of documented project management experience over a period of six years, have a BS-level college degree, and pass a rigorous four-hour examination. The first PMP exam was given in 1984 to about 30 people, and today there are over 30,000 PMPs worldwide (Foti, 2001).

These professional organizations recognize that while there is a large set of common technology literacy among industries, each industry (and each government sector) has its own specialized extensions in both the breadth and depth of this body of knowledge. PMI has a new book (PMI, 2002) that details the way project work is typically organized