



## MANAGING DIGITAL LIBRARIES: THE VIEW FROM 30,000 FEET

# Standard methodology in digital library project management

H. Frank Cervone

*Information Technology Division, Northwestern University Library,  
Evanston, Illinois, USA*

### Abstract

**Purpose** – The objective of this paper is to provide a description of the model for standardized project management developed by the Project Management Institute (PMI), as applied to digital library projects.

**Design/methodology/approach** – Using the PMI model for project management, the paper develops a context for managing digital library projects according to the PMI's standard methodology.

**Findings** – The paper finds that by using a standard methodology increases the likelihood of delivering projects on time and on budget.

**Originality/value** – This paper will be of interest to digital library project managers as it fills a gap in the literature by providing an accessible overview of the major components of standard project management methodology as defined by the PMI.

**Keywords** Digital libraries, Project management

**Paper type** General review

Managing digital library projects is not an easy task. Sometimes, it is easier to discuss what not to do (Cervone, 2004) than to delve into the messy business of running a project according to a well-defined and structured methodology. However, using a structured methodology serves the best interest of our organizations in important ways. Most projects require us to deal with a complex series of interrelated activities involving many different and diverse skill sets (Wysocki *et al.*, 2000) and having a structured methodology is an important step in structuring the project environment.

It was because of the complexity of managing the vast array of issues within a typical project that formal project management methodologies were developed. As these early methodologies were further enhanced, a common body of knowledge began to emerge that could eventually be cast into guidelines for effective practice. Recognizing the important of project management as a career path unto itself, this work resulted in the formation of the Project Management Institute (PMI) in 1969.

### The PMI

But it was the release of the first version of the *Project Management Body of Knowledge*, approximately 20 years ago, that propelled project management into a coherent set of formal practices. Now, in its third edition, the PMBOK® (as it is known) is the definitive guide to project management theory and practice. While the material in the PMBOK can be a bit overwhelming for the new or occasional project manager, and



---

might seem to be a bit of overkill for those working on smaller scale projects, the general concepts and methodology outlined in the PMBOK® are applicable to any size project. Any savvy digital project manager will have, at least, a cursory understanding of the various processes and knowledge areas of the PMBOK®. This knowledge is essential as project managers need to be adaptable and flexible. Because there is no single, best way to manage a project, the skilled digital project manager must understand how to apply the diverse knowledge areas, skills, and processes in varying order and levels of detail, depending on the specific needs of the project.

### Process groups

Within the course of a project, the various activities that occur are divided into five broad sets of interrelated actions and activities. As a project progresses in time, it moves through these various process groups as work is completed. These process groups are defined in the PMBOK® as:

- (1) Initiating processes which focus on gaining authorization of a project or one of its phases.
- (2) Planning processes that define objectives and select courses of action that will be used to effect project goals.
- (3) Executing processes used to coordinate activities, staff, and other resources in order to put the plan into action.
- (4) Controlling processes which provide the context for measurement and monitoring of project results in order to prevent variance from the plan or correct the course of action when a variance occurs.
- (5) Closing processes that formalize the acceptance of the project and bring the project activities to an end.

Within each process group, the project manager must select the appropriate detail level processes from the various knowledge areas in order to meet the project objectives. In total, there are 44 different detail processes within the five process groups. These 44 processes are subdivided into nine knowledge areas. Not every project will use each detailed process defined within a particular knowledge area. Furthermore, the detailed processes tend to be applied to tasks in different ways and in differing order depending on the overall project objectives.

### Knowledge areas

The fundamental basis of project management knowledge is defined within the nine knowledge areas. More formally, the knowledge areas have been defined as project management knowledge and practice in terms of their component processes (Project Management Institute, 2004). The nine knowledge areas are:

- (1) scope management;
- (2) time management;
- (3) cost management;
- (4) quality management;

- (5) human resource management;
- (6) communications management;
- (7) risk management;
- (8) procurement management; and
- (9) integration management.

Scope management processes are used primarily during project initiation. They serve three basic purposes: to ensure that the depth and breadth of the project scope is well defined and communicated, to manage the project while limiting changes during project execution, as well as providing a mechanism for checking work to ensure completeness and accuracy. When scope management processes are used effectively, a project does not spiral out of control due to ever increasing additional requirements or features.

Time management processes are primarily used during project planning and while project work is being performed. Time management processes include activity definition, activity sequencing, activity duration estimation, in addition to schedule development and schedule control. Effective time management processes, therefore, are responsible for ensuring that a project is on time and on task.

Cost management processes are used to ensure the project is delivered within the limits of the budget. These processes are used during the planning and execution phases of a project. The four processes within cost management are resource planning, cost estimating, cost budgeting, and cost control. The PMBOK® provides an extensive amount of detail on how each of these methodologies can be used to control and manage costs within projects.

Quality management processes ensure that the work products of the project satisfy the needs identified and documented during the project initiating processes. Quality is a highly visible aspect of formal project management work and is a major focus within the PMI's methodologies. The various aspects of quality as addressed through quality planning and quality assurance. Quality planning processes, used during project initiation, focus on identifying relevant standards for the project, how those standards will be used, and how adherence to standards will be measured. Quality assurance processes are put in place to provide a means for evaluating overall project performance on a regular basis. This is in contrast to quality control processes, which are used to monitor specific project results. All three of these groups of quality-related processes are used during project execution.

Human resource management processes allow the project manager to make the most effective use of people. One of the major purposes of human resource management processes is to define the role of everyone on the project and assign each individual responsibility for various project activities. However, human resource management processes also encompass organizational planning, staff acquisition, and team development issues. Effective use of human resource management processes results in a project that has a competent, committed staff, trained in the necessary areas, that functions well as a team.

---

Communications management processes are used throughout the project lifecycle. The processes in this group provide the project manager and project team with mechanisms for planning project communications, distributing information about the project, reporting on project performance, as well as managing stakeholder expectations. A well-functioning communication management plan will create an environment where staff understand the requirements and needs of projects and are able to meet the needs effectively.

Risk management provides a systematic process for planning, identifying, analyzing, monitoring, responding to, and controlling risks. Perhaps more so than any other area of project management, risk management is difficult because the amount of risk will vary from project to project and discovering risk is sometimes a complex process. Risk management processes run a wide gamut and include risk management planning, risk identification, qualitative and quantitative risk analysis, and risk response planning. At a very minimum, every project should develop a risk management plan (including contingencies) for the major risks identified within a project. In many digital library projects, a light-weight methodology for identifying risk, as described by Cervone (2006), can be used.

Procurement management processes are needed to acquire the goods and services used to perform the work within the project. The goal of procurement management is to optimize budgetary expense and ensure that required regulations and applicable law are observed during the course of the project execution. The procurement management processes as discussed in the PMBOK® conform to US Federal Government practices and are based on the Uniform Commercial Code.

Finally, integration management processes are used to coordinate the various elements of the project. Performed throughout the project lifecycle, integration management allows the project manager identify emergent issues and provide mechanisms for addressing those issues that do arise. A large component of most integration management plans relates to change control. As projects seldom run completely according to plan, it is vital that the project manager has a process in plan to deal with changes. At the very least, the change control plan should address how changes are communicated and approved within the project team as well as how project documents, costs, activities, timelines, and deliverables are modified as a result of an approved change.

### **Putting it all together**

Success in any project, digital or not, has been described as being dependent on four major criteria:

- (1) the system resulting from a project must be acceptable to the customer;
- (2) the system must be delivered according to the agreed upon schedule;
- (3) the system must be delivered within the agreed upon budget; and
- (4) the system development process must have a minimal impact on ongoing operations.

While these criteria are easy to rattle off, they are much more difficult to deliver. However, by using a formal framework such as that found in the PMBOK®, project

managers can better address the major issues in project management. Even if you, as a digital project manager, are not interested in becoming a certified project manager, it is well worth your time to become more familiar with the formal project management process. By doing so, you will become a more effective project manager and lead more effective digital library projects.

#### References

- Cervone, H.F. (2004), "How not to run a digital library project", *OCLC Systems & Services: International Digital Library Perspectives*, Vol. 20 No. 4, pp. 162-6.
- Cervone, H.F. (2006), "Project risk management", *OCLC Systems & Services: International Digital Library Perspectives*, Vol. 22 No. 4, pp. 256-62.
- Project Management Institute (2004), *A Guide to the Project Management Body of Knowledge*, 3rd ed., Project Management Institute, Newtown Square, PA.
- Wyssocki, R.K., Beck, R. Jr and Crane, D.B. (2000), *Effective Project Management*, 2nd ed., John Wiley & Sons, New York, NY.