CHAPTER ONE: WHAT IS PROJECT MANAGEMENT?

Review Questions

1. Motion picture project
   a. Novelty: *Derivative.*
   b. Technology: most likely *Low-tech;* possibly *Medium-tech* if involves advanced or new special effects or digital photography.
   c. Complexity: *Assembly*; possibly *System* is film is produced simultaneously at different locations, to be integrated later.
   d. Pace: *Regular*, unless film is to be released to coincide roughly with academy awards, in which case *Fast/competitive* or *Time-critical.*

   Landing a planetary spacecraft project.
   a. Novelty: depends: if spacecraft/mission is similar to an earlier version, then *Derivative* or *Platform;* if it is a spacecraft designed for a first-time visit to planet, then *Breakthrough.*
   b. Technology: *Medium-tech,* although portions of project will likely be *High-tech* or *Super- high-tech.*
   c. Complexity: involves a variety systems that must function together—an *Array.*
   d. Pace: *Time-critical* since mission and spacecraft launch must coincide with the relative locations of Earth and the destination planet.

2. The functions are planning, organizing, leadership, control, and change.

Planning is determining what needs to be done and how to do it. It involves setting goals and finding ways to achieve them within the constraints of available resources and environmental forces.

Organizing is deciding how the work will be accomplished. It involves (1) hiring, training, and assembling people into an organization with appropriate authority and responsibility relationships; (2) creating policies, procedures, reporting patterns, and communication channels; and (3) acquiring and allocating facilities, materials, and other resources.

Leadership is directing and motivating people toward objectives. It is the ability to influence the work performance and behavior of individuals and groups.

Control is tracking costs, schedules, and other performance measures, comparing them to goals and standards, and taking necessary corrective action. Information systems are used to collect data and report progress.

Change involves altering work activities to meet goals, or altering the goals themselves to adapt to changing forces in the environment.

Different managers' jobs carry different responsibilities depending upon the functional area and managerial level. Some managers devote most of their time to planning and organizing, others to controlling, others to directing and motivating.

At one time or another, project managers perform all of these functions. At the beginning, all projects must be planned and organized; goals must be set, work defined, schedules and budgets prepared, people hired, resources acquired, and everything organized to

begin the work. Then, as the project begins, people must be motivated and directed to work toward project goals. Throughout the project, work, costs, and schedules must be monitored. When problems or slippage occur develop the manager must take corrective action. Changes are always needed to schedules, budgets, work tasks, the work force, or to the goals of the project itself.

3. Characteristics of a typical project include:
   (1) It has a single, definable purpose or end-item, specified in terms of cost, schedule, and performance requirements. The purpose and requirements differ for every project.
   (2) It utilizes skills from different professions and, sometimes, organizations; it involves technology and interdependencies that introduce new and unique problems.
   (3) It is unique and requires that things be done differently than before. It is a one-of-a-kind activity.
   (4) It is unfamiliar. It may encompass new technology and involve elements of uncertainty and risk.
   (5) It is a temporary activity, to be accomplished within a specified time period. Once the goal is achieved, the project organization is altered or disbanded.
   (6) It follows a process of several distinct phases during which tasks, people, organizations, and resources change from phase to phase.

4. Characteristics of project management:
   (1) One person--the project manager--heads the project organization. Unlike functional managers, who work within the chain of command and whose jobs tend to be more permanent, the project manager operates independently of the normal chain of command: when the project ends, so does the project manager's job.
   (2) The project manager unifies all efforts to achieve project objectives. Other managers tend to focus on "pieces" of the effort (their functional specialty) and less on the "big-picture."
   (3) Several functional areas often perform the work. Work in non-projects is usually performed within one functional area.
   (4) The project manager and project team are responsible for integrating the efforts of the functional areas working on the project. "Integration" is thus a key element of project work. Work done within a functional area seldom requires integration since, as one unit, it is already integrated.
   (5) Functional managers are responsible for individual work tasks within the project; the project manager is responsible for integrating and overseeing the start and completion of all tasks combined.
   (6) The project utilizes resources to produce an end-item at a certain time and cost, while functional must units try to maintain a constant pool of resources. This causes conflict between the project and functional managers over how much of the resources should be allotted to the project.
   (7) A project often has two chains of command--one vertical, one horizontal--wherein people have to report to both a project manager and a functional manager. In non-project activities there is typically only one chain of command--vertical--and one person to report to.
   (8) Members of the project team and supporting functional units share decision-making,

accountability, outcomes, and rewards. In non-project work, responsibility and rewards are confined to people within functional areas.

(9) When a project ends, it is disbanded and people return to their functional units or are reassigned to new projects. Functional areas are permanent and operate on a continuous basis.

(10) Projects can originate at different places anywhere in the organization. In non-project organizations the work of functional areas tends to originate in only certain areas, such as product development, advanced planning, and so on.

(11) Project management requires support services such as personnel evaluation, accounting, and information systems. Projects create their own staff to provide these services, or they rely upon staff departments to provide them.

5. Since projects often involve the efforts of multiple units within and outside the organization, traditional reliance upon the vertical chain of command for authority and communication is time consuming and is ineffective. In project organizations a horizontal hierarchy (managers and workers in different units and at different levels associating directly with each other) is used to reduce red tape and expedite work. This enables personnel in different units to form highly integrated project groups.

Given the temporary nature of projects, an organization working on a stream of projects must be flexible enough to adjust to the shifting requirements of different projects. Project organizations have flexibility because they are created from the resources needed to best achieve project goals.

Finally, by having someone in the role of project manager, project management insures that someone is held responsible and accountable for the project. This emphasis on project goals instead of functional goals is a major feature distinguishing project and functional management.

6. Elements of project management probably first appeared in the major construction works of antiquity—temples, fortresses, roads, etc. These techniques were later improved and modified for usage on other construction projects, such as shipbuilding. The commonality among construction works is that they involve special organizations of labor, facilities, and material resources created for the purpose of doing one job.

Early in the 20th Century industrial managers found that techniques used in construction could also be used for planning and controlling large scale, non-construction product development jobs. During World War I the Gantt chart--a production scheduling and monitoring tool--was introduced. Thirty years later, the first "network" display was developed for describing and planning industrial processes.

Project management as a distinct organizational form emerged during World War II where, in the urgency to develop and deliver sophisticated weapons and organize massive task forces, pure project forms of organization were created.

By the 1950s, the size and complexity of many projects, especially large weapons systems projects, had increased beyond the ability of existing methods to plan and control them. To help stem enormous cost and schedule overruns, two new network-based planning and control methods were developed, PERT and CPM. Advances in computerized data processing systems made it possible to use these network methods in the management of large-scale projects. PERT/Cost methods were developed to integrate scheduling and project cost accounting techniques; in the 1960s these methods came into widespread usage on DOD/NASA

contracts. At about the same time the formal role of project manager began to appear in projects.

Throughout the 1960s, techniques were developed to help plan and manage project resources. In the 1970s, the concept of "earned value" came into widespread usage. Both led to better planning, more reliable performance measurement, and improved forecasting of project cost and completion dates.

The last three decades have witnessed increased computerization of project management. Today a large variety of project management software programs are available to help plan and control projects of all sizes. Projects of extraordinary size and complexity are commonplace, their management made capable thanks to by project management software.

7. When to use project management.
   (1) Magnitude of the effort: when a job requires substantially more people, capital, equipment, etc. than are usually employed. Undertakings such as facility relocations, corporate mergers, installing new information systems, or developing and placing new products on the market are examples.
   (2) Unfamiliarity: when the job is different from the ordinary and routine; when the job requires that different things be done, that the same things be done differently, or both. For example, modernizing a plant calls for non-routine efforts such as revising the facilities layout, modifying and replacing equipment, retraining employees, and altering work procedures. Project management brings together all functional areas for one-of-kind undertakings such as this.
   (3) Changing environment: the organization exists in highly competitive and dynamic environments such as computers, electronics, chemicals, biotechnology, aerospace, or communications. Changing environments present new opportunities and new challenges. Organizations must be creative, innovative, flexible, and capable of rapid response. Project management provides the flexibility needed to deal with turbulence, ambiguity, and new opportunities in the environment.
   (4) Interrelatedness: the job requires horizontal relationships between many different areas to expedite work and reconcile conflicts. Project management links together and coordinates the efforts of multiple functional areas, outside subcontractors, vendors, and customers.
   (5) Reputation of organization: failure of the job will result in financial ruin, loss of market share, damaged reputation, or loss of contracts. The project manager, with the assistance of a support group and project team, can do much to reduce the problems in large, complex undertakings.

8. The more familiar the undertaking, the more stable the environment, the more standardized the end-item, and the lower the stake in any one particular output, the less need for project management. Repetitive operations or mass production of standardized products and agricultural goods are examples. These are generally more efficiently managed by continuous or lot-size planning and control procedures because there is certainty in the process and outcome, and standardized means of production are quite effective. Unlike projects, where every outcome is unique, repetitive processes do not have to be tailored to fit every unit of output. One-of-a-kind jobs that are small and involve only one or a few individuals also do not need project management because they can easily be tracked and coordinated without it. As the number of people and activities--and the complexity of their interaction--increase, so does the need for

project management.

At some time, all organizations use project approaches. Even in stable, repetitive industries, small, informal projects are always in progress. Examples include the project activities listed in question 11 under "ad hoc committees and task forces." Only when larger or special undertakings arise--such as company mergers, major equipment installations, or a company move--is a more-formalized project group formed.

9. In *pure project management* a complete, self-contained organization is created with all the necessary functional elements within it. Resources are inherent and do not have to be borrowed. Pure project management is typical in large-scale construction projects.

In *matrix management* the organization is created from elements allocated by permanent functional units. The project team shares resources with other, concurrent projects and with the functional areas from which they borrow. Matrix management is used in aerospace, electronics, and systems development projects.

Program management, a topics of chapter 17, is similar to project management except that the activity (the "program") extends over a longer time horizon--five or more years--and may consist of several smaller work efforts, or "projects," coordinated toward program goals. An urban development program may include several smaller projects such as housing rehabilitation, job skill training, and small business consulting assistance. Once the product or service is completed, it is up to program management to insure that it is integrated with other outputs and remains operational for as long as needed. For example, several contractors might produce a satellite and its booster rocket, but it is the responsibility of program management to arrange for the rocket launch and monitoring the satellite so that overall mission goals are achieved.

New venture management is used in consumer-oriented firms for generating products and markets, particularly where the end product is not well defined. A team is created to find new products or markets that fit the organization's skills, capabilities, and resources. Once an idea is defined, the team might design and develop the product, then determine the means for producing, marketing, and distributing it.

Product management is when a single person is given authority to oversee all aspects of a product's production scheduling, inventory, pricing, distribution, and sales. The product manager coordinates and expedites the efforts of manufacturing, distribution, and sales to insure uninterrupted flow of the product from its production to its delivery to the customer. Like the project manager, the product manager communicates directly with all levels, functional areas, customers, and suppliers, and coordinates their efforts so product goals are accomplished.

Portfolio management, a topics of chapter 18, is when a group of projects and programs are clustered together. The purpose of the cluster is to organize the group around some purpose, for example to achieve strategic goals associated with financial returns or organizational purpose. The projects and programs comprising the portfolio are selected such that collectively the portfolio can achieve goals within limited resources. Projects and programs within the portfolio are periodically assessed and cancelled or put on hold if they do not contribute sufficiently to the target benefits or goals.

10. In commercial projects, the project manager usually guides the project through its entire life cycle, coordinating the efforts of the project team with functional areas, subcontractors, and vendors. Once the project is completed, the group is dissolved and the project manager is

without a job. Project managers are thus constantly involved in the process of seeking out projects and preparing proposals.

In government projects the project manager is often reassigned during the project, which creates problems for maintaining administrative continuity. Sometimes project managers serve as program managers; they coordinate multiple, related projects that are components of a larger system. Though responsible for checking on contractors' progress, they often have little control over technical matters. Keeping government projects alive is sometimes uncertain since funding is legislatively appropriated.

In military projects the project managers are military officers. Since their tour of duty is limited, they often do not oversee a project for its full life cycle. Thus the military must train, transfer, or promote people with the administrative and technical competence to carry out the job. Civilians are often employed to provide technical support and managerial continuity.

11. Similarities among the projects and project managers in the examples:

SpaceShipOne and the X-Prize Competition

This project exemplifies efforts that utilize a short-time goal (X-prize) to help achieve a longer-term one (develop a new product and technology—a spaceship—for a new market—space tourism). The competition for the X-prize provided the impetus to launch a project that designer Burt Rutan had long dreamed about, and to promote the spaceship's development program to investors, the result being a funding commitment by a wealthy investor. The project is largely conducted by a group of designers and engineers in one company, which is responsible for the design and construction of most of the spaceship and its main subsystems. Only a few main components, such as the rocket motor, are produced by subcontractors. The is guided by Burt Rutan, although, as necessary for any project that entails complexity and risk, it managed by a project manager and—typical of technical projects—a project engineer.

The Development of Product J

Dalian Company exists in a changing, highly competitive industry. It must continuously develop new ideas to survive. Competitors were working on a substitute for the one product which accounts for the majority of Dalian's profits; to retain market share, the company has to develop its own, improved substitute, and beat the competition.

To encourage the development and marketing of new ideas as soon as possible, the company created a special department and project manager role (director) for managing and coordinating development projects. The director is responsible for managing certain kinds of projects or portions of projects. He facilitates, coordinates, and monitors the efforts of all the departments involved in his project. He knows the status of the project at all times and relates this to upper management.

For each product concept, a project team is created of representatives from various functional departments. The director is similar to a "matrix manager" because he manages people from different departments (although these people still report to their functional managers for technical direction). Functional managers make decisions about what is to be done and how, based on guidelines from upper management. The director is also a "team coordinator" since he

has authority to plan, schedule, and budget project matters, but not to directly command the members of the team.

Project Management in Small Projects: Delamir Roofing Company

Like most firms in the construction business, each job for Delamir Roofing Company is somewhat unique and requires assembling a work crew and resources to fit job requirements.

One person, the project manager, has responsibility to see that the job is done well. He prepares budgets, drafts the proposal, sets up all arrangements for work to begin, selects a work crew, supervises work and delivery of supplies, maintains budget records, and reports progress to the home office. He performs the final inspection with the customer and signs-off when the job is completed.

Auditing at CPAone

At the auditing division at CPAone large audits require the expertise of several auditors with various specialties. Given the variety of people, skills, and personalities involved, a project manager is needed to oversee and conduct the audit efficiently.

Every audit begins by assigning the client to a partner. The partner is the "project director" and is responsible for writing proposals, staffing the audit, delegating tasks, and scheduling and budgeting the project. The audit team is a pure project team, created anew for every audit from people with skills best suited to the needs of the audit. The director specifies the completion date and who is responsible for each task. During the audit the project director ensures that work adheres to standards and is completed on schedule.

Nonprofit Fundraising Project: Archdiocese of Boston

This project, three-year campaign to raise $30 million, involved three groups: donors, the Archdiocese Board of Directors, and campaign volunteers. Tasks included identifying, recruiting, and training volunteers, identifying and contacting potential donors, keeping the Archdiocese informed of progress.

The project manager was involved from the start: he prepared the original feasibility study, established a leadership team to recruit and train volunteers, and orgainized the initial "kick off" meeting. For the rest of the project he handled all procedural and organizational matters, and convened frequent meeting to review progress and renew the team's motivation.

Disaster Recovery Projects

Disasters, almost be definition, occur without warning and have scope and consequences that cannot be completely anticipated. Yet the recovery is very much a project with specific goals that involve many tasks, which must be accomplished through the coordinated efforts of numerous people and organizations—many or most whom have never before worked together. Although each disaster is unique, recovery efforts of all disasters tend to follow a similar sequence of events such as rescue, immediate care and support, and long-term redevelopment. Thus, it is possible to plan for disaster recovery at a high-level; only the details change with each

unique recovery effort, hence each effort needs an experienced big-picture person who can recognize the unique needs posed by the disaster and tailor high-level recovery plans to meet those needs. In the chaos that often follows a disaster, the recovery effort needs a strong central management body (i.e., a project or program manager) to set priorities, to centralize communication and coordinate the effort, and to guarantee effective deployment of resources. Each disaster recovery involves numerous subprojects, each of which is managed to meet the goals and constraints of the overall recovery effort.

Project and Program Management in Government: NASA

NASA relies upon industry to build, integrate, and flight-test hardware, but it uses its own in-house management and technical competence to monitor contractors. Projects call for great diversity of technical and managerial competency, and project management uses the philosophy of "participation"--integrating the technical and managerial competence of industry, academia, and NASA laboratories. NASA uses experts from universities, government laboratories, and its own field installations to assist contractors in tackling problems. This team approach avoids delays caused by working across the boundaries which separate government, commercial, and military organizations. The concept utilizes teamwork, central control, and decentralized execution.

All four kinds of project manager, expediter, coordinator, matrix, and pure project, are found at NASA, but the latter two are the most common. The matrix is preferred for its efficient use of talent and flexibility. Employees are assigned to the project but remain on the payroll of their parent organization and are subject to its merit reviews and promotions. For the largest projects, the pure project form is used. It permits better control, quick location of responsibility, quick reaction from the project team, and simplifies communication.

A dual system of management responsibility is used. One, the project manager, is the official at the field installation responsible for executing the project within the guidelines and controls of NASA headquarters and the field installation. She is responsible for day-to-day supervision, execution, and completion of projects. Although most workers on the project are outside the authority of the project manager, they take directions on project matters from the project manager.

The project manager's counterpart in Washington is the program manager, a senior NASA staff official responsible for developing and administering headquarters' guidelines and controls with respect to the project. He argues for resources within headquarters, monitors project execution, works with organizations participating in the project, relates the project to NASA's broader goals, and testifies to Congress and the President. On large projects, he might oversee just one project. These two people, the project and program manager, and the quality of their relationship determine the success of the project.

CASE 1-1. DISASTER RECOVERY AT MARSHALL FIELD'S

1. The flood response and recovery effort mounted by Marshall Field's was a complex undertaking fraught with significant risks and uncertainties. The risk containment and clean-up processes constituted a project, planning and implementing temporary activities that began with the goal of protecting employees and custom and concluded with the successful reopening of a safe, functional store. The project criteria satisfied included the following:

- The goal of these processes involved achieving a single, definable purpose and was specified along the three dimensions of project work, namely:
  - Performance – ensure the safety of employees and customers before the store re-opened for business.
  - Cost – minimize flood damage to store merchandise and capital investments by carrying out tasks at a total cost less than that anticipated by inaction.
  - Schedule – resume normal operations within one week after the flood.
- The 1992 downtown Chicago flood, unusual in cause, location, scope, and severity, demanded response and recovery activities that were unique to both the city and its downtown businesses. The executed tasks will never be exactly repeated, even in the unfortunate, albeit statistically likely, circumstance of another flooding in the downtown, central business district. Moreover, the organizational personnel concerned in 1992 will likely be different.
- Marshall Field's response and recovery efforts utilized skills and talents from multiple professions and organizations. Internal activities included establishing a team of employees drawn from various appropriate departments along with risk management experts from the parent company, Dayton Hudson. Additionally external coordination efforts entailed integrating the disaster relief efforts of a number of city departments, the Army corps of Engineers, OSHA, and the company's insurance firm.
- Being a unique situation, participants in the flood response were unfamiliar with planning and executing the necessary tasks. Planners and front-line personnel faced significant risks and uncertainties. Some strategic errors were unavoidable. For example, effective response was delayed until someone realized that efforts to pump out the water in basements was futile until the tunnel was sealed from the Chicago River's flow.
- The Marshall Field's flood response and recovery project was a sequential process that moved from response efforts to recovery activities through distinct phases: planning for goal-oriented actions, investigation of problems and evaluation of alternate solutions, execution of project tasks, and finally, evaluation of the project results in terms of continued safety and security for employees and customers, as well as minimization of economic losses.

  Large-scale disaster response and recovery efforts such as this fulfill the criteria of project work due to high levels of complexity and outcome uncertainties. Encountering catastrophes involve unique and unfamiliar methods, a creative process that begins with setting a single, definable result, purpose, or end-item that is achieved through temporary activities managed and implemented by multifunctional, multi-organizational, or even multi-national teams and experts.

2. Short-term crisis management typically embodies a management system conducive to the effective implementation of projects. Similar characteristics include the appointment of a project manager, or crisis leadership team, that operates independently of the normal chain-of-command, and therefore requires negotiation with functional managers or experts for support over a limited time. During the crisis or project, numerous support functions such as procurement, personnel evaluation, accounting, and information systems are established. After the project is completed, or the crisis is resolved, the team disbands and support

systems assign staff to other tasks. Crisis and project management involves coordinating, integrating, and controlling cross-functional personnel and other resources towards the attainment of a goal with performance, cost, and time requirements. Crisis and project teams share decision-making and accountability, usually along two chains-of-command – one vertical and functional, one horizontal to meet the project goal, or resolve the crisis.

3. The project leaders, the Dayton Hudson Risk Management team, were delegated with the responsibility of minimizing risks to corporate stakeholders: owners, employees, customers, passers-by, neighbors, and the larger Chicago community. In assuming this role, they worked to protect the economic, social, and health welfare of these stakeholders. Project team members included representatives from the store's facilities, security, human resources, and public relations departments as well as supporting financial, legal, and insurance services. Personnel from facilities would be responsible for minimizing flood damage to capital investments and merchandise, and those from security would be responsible for securing the building during the clean-up efforts. Human resources staff would disseminate vital information to employees and applicants, and the public relations crew would reassure customers and the public that the firm was in control of the situation. Finally, the supporting financial, legal, and insurance experts provided advice and recommendations to Marshall Field's management and the Project Team that would mitigate or contain economic losses.

4. Project management is the preferred system of choice for handling crises like the 1992 flood due to the unfamiliarity of effectively coordinating vast resources and non-routine activities to safeguard biological, ecological, and economic systems from further damage, or to even to reverse damages, on a large scale. The magnitude of such rescues necessitates substantially more resources than are typically used by one department, one organization, or, in some cases, one nation. The interrelatedness of response and recovery activities undertaken by groups that may be working at cross-purposes requires the coordination and leadership of a strong, centralized project management team. Failure to successfully lead a coordinated, multi-functional recovery effort eventuates in further losses to highly valuable systems. Natural or human-caused disturbances to such systems cause instability and present numerous risks and uncertainties. The chain of interdependence between biological, ecological, and economic systems becomes volatile. Failure to act creatively, quickly, and flexibly will result in further loss along the chain. Effective solutions to crises rest upon the shoulders of the responsible party or parties. Failure to plan and control risks and uncertainties inherent in disasters will result in financial ruin, loss of market share, damaged reputation, or loss of stakeholder confidence and support. Project management, undertaken by multi-functional team members and experts, can do much to reduce the risks and uncertainties associated with large, complex undertakings.

5. Eliminating the obviously poor choices, students should narrow down their considerations to a choice between basic project and program. The time span of the Marshall field's response and recovery efforts was short, the store was reopened one week after the flood and, within the year, damaged machinery was repaired and economic recovery tasks for damaged goods were completed. After management was assured that safe and sanitary conditions had been restored, the team was disbanded, although certain individuals, departments, and support

services continued to complete risk-reduction tasks. Therefore, the correct answer is basic project management.

CASE 1-2. FLEXIBLE BENEFITS SYSTEM IMPLEMENTATION AT SHAH ALAM MEDICAL CENTER

1. The case serves as an excellent example of a basic project with attendant characteristics most suitably handled by the implementation of a project management system. Instituting a flexible benefits system at Shah Alam Medical Center entails the installation of new information technology solution with specific performance requirements and a timetable. The system must be completed within 10 months, at which time the team will be disbanded. Although the case skimps on the cost issue, it is reasonable to assume that the Center has established a budget. Meeting these objectives require that plans and budgets be developed, and that team members be assembled from several internal functional areas.

2. The Director's technical and project management background makes her well qualified to lead this multifunctional team towards their shared goal. Also, her acceptance as the project manager by the team members is a good omen for the team's on-going effectiveness. Although some students may note the manager's potential tendency to favor the cost dimension over performance and time variables, they should also note that the probability of cost emphasis is mitigated by the appointment of two team leaders -- one from HR and the other from IS. Granted, selecting a functional-based manager to oversee a multifunctional team likely possesses some risks. Yet, particularly in smaller, traditional organizations, selecting a qualified, non-functional manager for project oversight is simply unfeasible.

3. These conflicting instructions to team members may eventually cause confusion and reduce motivation, unless the project management clearly designates a procedure to follow should project tasks interfere with functional responsibilities of team members. Project management's lead in resolving role clashes needs to be supported by organizational management. The fact that the project manager was given explicit authority over functional managers and project team members regarding all project-related decisions probably will be sufficient for enabling quick and effective resolutions of such conflicts.

4. The outside vendor will provide the necessary expertise and resources that are beyond the core competencies of the contracting organization. The Center had determined that it was more advantageous to obtain a hardware/software system solution from HB consultants than to implement alternatives such as temporarily hiring internal experts or forfeiting the functional responsibilities of current employees. The option of using outside consultants, however, presents certain difficulties for the project manager. The manager must secure contractual agreements that protect the Center's economic, functional, and operational well being. The risks of miscommunication and misinterpretation are higher when cultural and economic factors, outside the direct control of the client, impinge upon internal systems. Therefore, the project manager will need to ensure that a communication system is developed to maximize the external vendors activities toward meeting internal objectives and needs.

Chapter One Test Questions

1. T/F Project management is a new form of management that would not have been applicable to the projects of the past.

2. T/F Project management takes on many forms, but common to all of them are a project leader and a project team.

3. T/F There is no difference between the practices of project management in the government and project management in the private sector.

4. T/F Using the definition in the textbook, programs tend to be smaller than projects, and a project may be comprised of several programs.

5. T/F There is virtually no kind of work that could not be managed best using project management.

6. T/F If an organization has much at stake in a project, and failure to complete it might result in financial ruin, then it would be wise to consider use of project management.

7. T/F Overall, there is not much difference between the practices of traditional management and project management.

8. T/F Whenever work activities are directed at somewhat different or unfamiliar goals that require the cooperation of several persons or groups, project management is usually appropriate.

9. The functions of management generally include:
   (a) planning, assembly, installation, and testing
   (b) planning, organizing, control, and leadership
   (c) leadership, supervision, analysis, and design
   (d) none of the above

10.
10. Check which of the following situations tend to define "project work" (as opposed to traditional, non-project work)?
   (a) ___ work units are specialized and work *independently*
   (b) ___ the mix of tasks being done is *in constant change*
   (c) ___ the work environment is *stable and unchanging*
   (d) ___ most communications are *vertical* (superior-subordinate)

11. Some features of project management are:
   (a) a single person heads the project
   (b) the work focuses on a specific, often unique goal
   (c) the project organization is permanent, regardless of the goal
   (d) all of the above

(e) a and b only

12. Project management is generally appropriate:
    (a) for most any situation that requires hard work
    (b) when the work effort is complex, unique, and uncertain
    (c) when the work effort is highly standardized
    (d) when a high-quality product is desired

Chapter One Test Answers

1. F 2. T 3. F 4. F 5. F 6. T 7. F
8. T 9. b 10. T,P,T,T 11. e 12. b 13. c