

that leaders and managers may be two distinct roles, but they are not different types of people.⁷ According to Kotler,⁸ the marketing scholar, as an organization becomes larger and more complex, the importance of managing increases, and as the external environment becomes more dynamic and uncertain, the importance of leadership increases. Influencing plays a big role in leadership. When major changes need to be attained in an organization, authority may not be the only basis of gaining commitment from subordinates, peers, and outsiders. Successful project management requires both project leadership and project management, together called project stewardship.⁹ The top ten list for a successful manager or leader is:

10. Treat everyone with respect;
9. Say good things;
8. Provide an opportunity to gain knowledge *and* learn;
7. Be optimistic and cheerful;
6. Recognize strengths and weaknesses;
5. Develop good communication skills;
4. Recognize commendable efforts that failed;
3. Be fair to all subordinates and never side with anyone;
2. Be assertive and confident; and
1. Like to be around people... an extrovert.

In managing resources, there are five common processes: decision making, exchanging information, influencing, developing, and maintaining relationships. These processes are interrelated in the life of a manager, and a project may demand a mixture of any of them as shown in Figure 12-1.¹⁰

The primary processes shown in Figure 12-1 reflect the daily life of a project manager who is in charge of a project. Making decisions along with the members of the project team and tackling day-to-day problems are an integral part of "firefighting" due to internal and external pressures. Internal pressures may be due to the failure to meet project deadlines or progress expectations. External pressures may be due to government agencies, policies, or supplier problems. Making decisions to control the project scope, cost, schedule, resources, performance, and value of the project is part

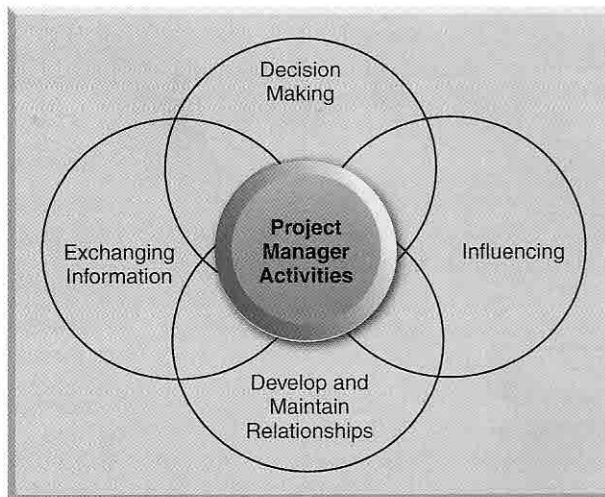


FIGURE 12-1 Primary Process in Project Manager Activities

Source: *Leadership in organizations*. Upper Saddle River, NJ: Prentice Hall.

of a project manager's daily life. Reporting project information as well as receiving information from the project team, customers, users, suppliers and other stakeholders is also the part of the activities of project management. Forming new relationships and strengthening old relationships are another part of a project manager's daily activities. Moreover, a project manager has to influence various people who are related to project success. Managing people effectively promotes easier change management, better management of organizational knowledge, and effective management of project performance and value. Each one of these aspects will be discussed in this section.

People Management

A project manager needs to effectively manage resources assigned to a project. Managing the work hours of designers, builders, scientists, engineers, testers, inspectors, and analysts in the project team is one such activity. Managing people is essentially having the right people with the right sets of tools and skills in the right positions in a project. Managing people in matrix organizations is more complex for project managers because they report to functional managers. Managing labor subcontracts means managing a team led by subcontractors who manage workers. People management encompasses all these aspects. Figure 12-2 illustrates the people that a project manager may have to interact with during a project. These relationships are developed in many ways that include:¹¹

- While talking with people before and after meetings, ceremonies, and social events
- While serving on special committees and task forces;
- While serving in civic groups, advisory boards, and social clubs;
- While attending workshops, trade shows, and professional association meetings;
- While interacting with other project managers, peers and their supervisors, supervisors, and other executives; and
- While interacting with suppliers, subcontractors, customers, users, and user groups.

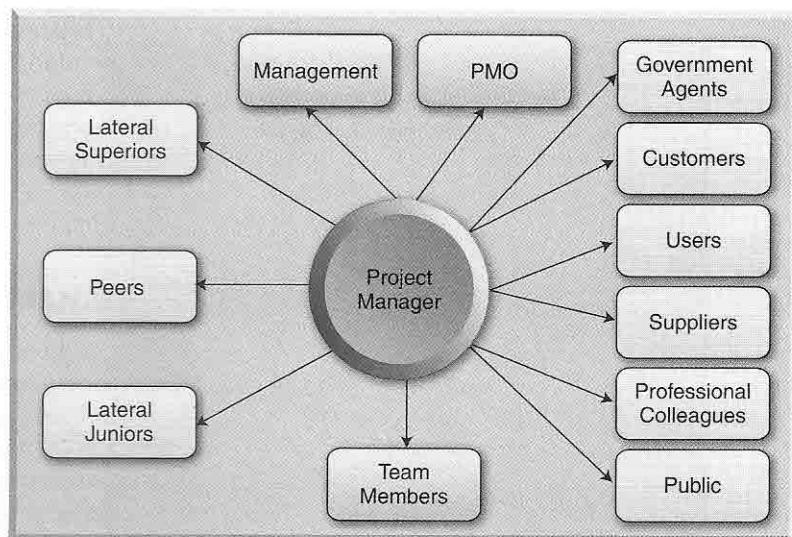


FIGURE 12-2 Project Manager's Network of Relationship

Source: Permission from Yukl, G. (2010). *Leadership in organizations*. Upper Saddle River, NJ: Prentice Hall.

TABLE 12-3 Possible Roles and Responsibilities of a Project Manager

Role	Responsibilities
Planner and Organizer	Devise plans, develop schedule, develop budget, allocate resources, develop policies and procedures, and execute projects
Decision Maker	Make decisions on schedule, cost, scope, and resources even under uncertainty
Monitor and Controller	Monitor and control project success factors
Spokesperson	Communicate with stakeholders on the progress of the project
Coordinator	Communicate with company executives, functional managers, peers, and subordinates; meet schedules, solve problems, achieve project scope and objectives, and maintain smooth relationships with peers; mediate conflicts between individuals
Consultant	Keep up with current technology developments; be the "go-to" person for a project
Administrator	Maintain all project records and documents; perform basic administrative duties as authorized; analyze information and communicate with all stakeholders periodically
Supervisor (if given the authority)	Facilitate training, develop team skills, and provide input into team member performance evaluation

A manager needs to work with many stakeholders of a project and typically works long hours. Managers seldom find a break in workload during a project and typically have requests for information and direction from many people who interact with them. They engage in a variety of fragmented tasks and activities with many interruptions, and many activities may seem to be more reactive than proactive.¹² Table 12-3 illustrates all major activities of a project manager.

Managers need to know that people make projects successful. Management effectiveness includes managing, developing, motivating, involving, and engaging people to perform their job effectively and efficiently. In fact, managing people makes a lot of difference in project success.

Leadership

Leadership in projects is an important part of human resource management and is essential in the successful management of projects. First of all, in order to be a leader, a project manager has to understand the power of influencing people. It is important for project managers to understand the complex world of relationships and processes in their organizations. Power involves the capacity of a person, say a project manager, to influence another person or persons, for example, his or her subordinates. As we discussed in Chapter 11, authority is different; authority is the legitimate right to establish work rules to be followed by subordinates. Power changes due to the changing conditions and changing coalitions. Power is influencing people, and the outcome of the influencing may be commitment, compliance, or resistance. Therefore, influencing depends upon the targeted person or persons and the environmental condition when attempted by a project manager. There are five different types of power:

- Reward power: The targeted persons comply in order to receive rewards;
- Coercive power: The targeted persons comply in order to avoid punishments;

- Legitimate power: The targeted persons believe that they are obligated to obey;
- Expert power: The targeted persons comply believing that the project manager has special knowledge; and
- Referent power: The targeted persons comply to gain the project manager's approval.

Project managers possess behaviors that allow them to influence targeted persons. Generally there are four types of tactics: impression management tactics, political tactics, proactive influence tactics, and reactive influence tactics. Impression management tactics include offering praise, ingratiation, and self-promotion. These tactics can be seen as manipulative as successes are overplayed and failures are underplayed. However, this tactic can be used sparingly to build confidence among project team members and motivate them for better performance. Political tactics include influencing the agenda of a meeting to include a project manager's own issues, influencing the decision makers to use criteria that will bias the decisions in favor of the project manager, or selecting the decision makers who will promote and defend the project manager's interests. However, the project managers in an organization need to use caution as some political tactics may include deception, manipulation, and abuse of power.¹³ Simple requests made by project managers with legitimate power are often carried out by team members. However, in cases when requests are not carried out, a proactive influence such as rational persuasion may be used. Reactive influence tactics are used to resist unwanted influence attempts or to modify requests to be more acceptable for the target person.¹⁴ Of all these tactics, proactive influence tactics work best for a project manager. The four types of proactive influence tactics that work well are rational persuasion, inspirational appeal, consultation, and collaboration. Rational persuasion, as the name suggests, uses explanations, rationale, logical arguments, and evidence and facts to illustrate and argue proposals and requests. Inspirational appeals generate emotional requests that link the target person's hopes, ideals, values, and desires. Consultation with the target motivates the target person to participate in meetings and get involved. Collaboration tactics are used by offering a target person some necessary resources or assistance. Project managers need to have a strong influence over their supervisors, and this influence will gain them respect from peers and subordinates.¹⁵

Leadership Behavior for Establishing People Management

A project manager needs to support project teams throughout a project, develop team members by mentoring, and recognize individual team members' contributions. The traits and behaviors of a project manager will be discussed in this section.

Trait refers to a variety of individual attributes including personality, temperament, needs, motives, and values. Personality traits include self-confidence, being an extrovert, emotional maturity, and energy level. Needs and motives are desires that influence attention to information and guide, energize, and sustain behavior. Values of right or wrong, ethics, fairness, justice, honesty, freedom, equality, loyalty, and excellence influence a person's perception and choice of behavior.

There is a general taxonomy with five trait categories,¹⁶ which correspond to all the traits needed by a project manager (shown in Table 12-4).

In addition to these traits, technical skills, business skills, interpersonal skills, and conceptual skills are important for a project manager. Technical skills include knowledge about the project subject, the processes, and the equipment for conducting specialized activities. Business skills include knowledge about the organization, its products, and its services. The technical and the business skills may be acquired, and an effective project manager will be able to obtain the information, retain it, and use it as and when needed. Interpersonal skills or social skills include knowledge

TABLE 12-4 Trait Categories and Traits for a Project Manager

Personality Traits Category	Specific Traits
Dominance and Sociability	Leadership Extrovert High energy Want to be in charge
Conscientiousness	Hardworking Dependable Personal integrity Strong desire to succeed
Agreeableness	Cheerful and optimistic Sympathetic and helpful Warm and easygoing Compassionate and friendly
Adjustment	Emotional stability High self-esteem Self-control Good under pressure
Openness	Curious and inquisitive Open-minded Learning oriented Willing to change Creative and risk takers

about human behaviors and group dynamics. This includes the ability to understand the feelings, attitudes, and motives of others. Moreover, communications is one of the key factors in interpersonal skills. The team members and others in the relationship network of a project manager will be more likely to cooperate with a charming, tactful, and diplomatic project manager. Conceptual skills include good judgment, intuition, creativity, and the ability to manage uncertainty. Conceptual skills such as cognitive complexity; a combination of analytical ability, logical thinking, concept formation, inductive reasoning, and deductive reasoning; is needed in planning, organizing, and problem solving.

The top levels of management have to coordinate many varied activities, higher complexity of relationships to manage, and unique problems that they may not be able to solve be solved. The middle-level managers implement policies and goals established by the top-level executives. The lower-level managers are responsible for implementing those policies and maintain the workflow within the organization. For a project manager, the required skill level is dependent on the type of project. For example, project managers who have to sell their products to their customers as well as perform general project management duties need to possess higher technical skills than project managers who perform only typical duties. In this situation, the project managers who have to sell products need to act more like middle- to top-level managers. There are three specific types of behavior for building relationships. The project managers in an organization will develop great interrelationships by building these key relationship-oriented behaviors. The support involves being considerate to others,

accepting others for what they are, and being concerned about others' feelings and needs. This is essential in building interpersonal relationships. It is easy for a team member to be satisfied with the job when working with a project manager who is very supportive to his or her ideas, and friendly, and cooperative. Higher job satisfaction of team members may be accomplished by such behavior and results in less stress, less absenteeism, and less turnover.¹⁷ A project manager has to develop the team as well, which involves enhancing their skills and helping them toward the advancement of their careers through coaching and mentoring. Developing team members benefits the project manager, the team members, and the organization. For a team member, the benefit is acquiring better skills and career advancement. For the project manager, it is acquiring a reliable, skilled team member. The organization gains a committed, better performer. Project managers need to recognize their team members and show their appreciation for good performance, achievements, and contributions to project success. Usually awards, praise, and ceremonies to reward the performer are used as the forms of recognition. The project manager needs to show appreciation to people who have worked hard even in the case of failed projects. Specific relationship-oriented behaviors make effective project leaders.¹⁸ Table 12-5 illustrates guidelines for leadership behavior for establishing people management.

TABLE 12-5 Guidelines for Leadership Behaviors for People Management

Traits	Description
Supporting Behavior	Say good things and do not say things behind others' backs Be polite and considerate Treat everyone with respect Be patient and give clear instructions and explanations Express confidence Be sympathetic when a team member is upset Provide assistance when needed Help with personal problems
Developing Behavior	Coach team members by suggesting ideas and explanations Provide constructive feedback Suggest the best tasks that are appropriate for a team member Provide opportunities to succeed Help to learn how to solve a problem instead of providing the answer
Mentoring Behavior	Help team members to identify their strengths and weaknesses Help team members to acquire necessary skills and knowledge Encourage team members to be trained Provide opportunities to learn Provide helpful career tips Promote their reputation Support their ideas in public Serve as a role model
Recognizing Behavior	Recognize all important contributions and achievements Be fair to everyone and never side with any one team member Recognize and reward all efforts

Effective Communications

Project management involves communication at all organizational levels and across the entire relationship network as shown in Figure 12-2. Communication is crucial to project success. A project manager needs to manage a project team by holding meetings, communicating with all stakeholders verbally as well as using written documents and reports, influencing people, resolving conflicts, exchanging ideas, and making decisions. All these activities require effective communication. In this section, we will discuss the goals of communication, how to communicate using oral and written communications, and barriers to interpersonal communication.

Communication is an effort between two parties involving the exchange of information, which must be understood clearly by both parties. The information can be conveyed orally, in writing, or by using graphics and multimedia. The information is expressed as thoughts, ideas, words, phrases, clichés, facts, or figures and needs to be meaningful to the receiver and conveyed effectively to be understood. Project managers have to communicate with all the people in their relationship network throughout the lifespan of a project. The effectiveness of communication is determined by one's ability to make others understand either by verbal or written means. Despite the format, it is necessary that all messages be aimed at communicating the exact meaning and intent and producing some kind of action, change, response, or feedback.

During the planning of a project, a communication plan needs to be created. Small projects essentially need only a plan to have regular meetings. A larger project may bring together many people from many departments from various geographic locations. A communication plan to accommodate all involved people, coordinate their efforts, share project information, resolve project problems, and report progress has to be created and implemented.

VERBAL COMMUNICATION Verbal communication plays a big part in managing a project to success. This type of communication brings about the exchange of information in the quickest possible way. Yet, it may not be communicated effectively in many instances because of vocal tones, facial expressions, body language, and gestures. Technical expressions and jargon, phrases, clichés, and unclear pronunciation may interfere with the effectiveness of verbal communication. Technical words and jargon must be clarified to be understood well by the audience. Effective communication needs to be practiced either in one-on-one meetings or in oral presentations and essentially consist of three parts:¹⁹

- Introduction that outlines the content of the presentation;
- Explanation of the presented material; and
- Summary of the presented material.

The introduction should focus on getting audience members' attention and arousing their interest in the topic of discussion; it should include the main idea and the purpose of the to-be-presented material. The explanation that follows the introduction should focus on developing the presentation material with ample examples and analogies. The material needs to relate to the audience, and the language should be crisp, clean, and easily understood. It is always better to be brief and to the point during the presentation; during the following question-and-answer period, explanation can be given in more detail. The presentation should end with a "take-home" message and the idea reiterated in a summarized version.

Meetings should be conducted efficiently, wasting no one's time. They are to share ideas and information, exchange messages, and make group decisions. They are

not a place for expressing personal information and personal interests. Posting a good agenda, inviting all pertinent members, and sticking to the agenda will result in a good and effective meeting. Meetings should be productive, end with conclusions, and address all items in the meeting agenda. The minutes of the meeting should be written clearly and accurately and sent to all stakeholders of the project. Table 12-6 provides tips for conducting effective meetings.

WRITTEN COMMUNICATION Reports, e-mails, plans, proposals, and all other documentation related to a project are part of written communication. The aim of written documents is to make the reader understand the material clearly. They also serve as records for the future. Written communication is important if the topic of discussion is complex, if there is a need to record the content, or if further action is required. The major steps for written communication are shown in Figure 12-3.

TABLE 12-6 How to Conduct Effective Meetings

Period	Activities
In Preparation for the Meeting	<ul style="list-style-type: none"> Decide on the purpose of the meeting Plan how to accomplish objectives Develop meeting plan (when, where, who, what) Identify meeting leader Prepare and distribute agenda Set up the meeting area and test all equipment in advance
Beginning of the Meeting	<ul style="list-style-type: none"> Start on time Introduce the meeting leader Allow team members to introduce themselves Ask for a volunteer timekeeper and recorder Review, change, and prioritize agenda Establish time limits for agenda items Review prior meeting action items
Meeting Etiquette	<ul style="list-style-type: none"> Raise your hand and be recognized before speaking Be brief and to the point Listen without bias Understand conversation and avoid side conversation Respect others' opinions Avoid personal agenda Make sure the group stays focused on the agenda and issue discussed Have fun and do what is good for the organization
Ending Meeting	<ul style="list-style-type: none"> Develop action items including responsible persons and when they will be accomplished Summarize the meeting Establish time and date for a follow-up meeting if necessary Evaluate the meeting End on time
After Meeting	<ul style="list-style-type: none"> Prepare and distribute meeting activity report and the minutes of the meeting Follow up on action items

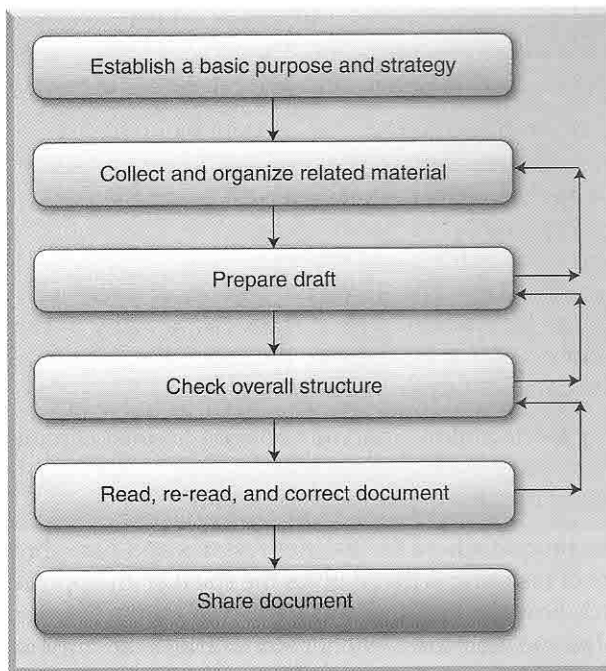


FIGURE 12-3 Written Communications Strategy

The project team should establish the basic purpose of the written document and ensure that all relevant information and the rationale are captured. This strategy also reflects the intent of the document and how to relay the information to the intended audience, which should be known. According to Drucker,²⁰ communications should be in the language and terms of the receiver.

Using this purpose and strategy, all materials, facts, assumptions, and related information need to be collected and collated to prepare a draft version. During the preparation of the draft version, it may be realized that more data and information have to be collected. It is highly recommended that the project manager use good language with clear expression, build a good vocabulary, possess a strong understanding of grammar, and develop varied vocabulary. Once the draft version is written, the quality of the document should be evaluated and improved if possible. The structure should include an executive summary, introduction, body, summary, conclusions, recommendations, implications, and future work. Spelling, grammar, correct word usage, logical flow of content, and punctuation need to be checked and corrected. If appropriate and based on need, proofreading by a qualified person to ensure the quality of the document is recommended. The document should then be shared with all project stakeholders.

Listening

Listening is the most important component of communications. Effective listening improves mutual rapport, trust, and respect among project team members. While it is easy to listen to superiors at work, many people find it hard to listen to their subordinates, their peers, and their project team members. Effective listening builds and maintains all relationships found in the relationships network. Listening requires clarifying requests and understanding other's interests and is therefore an important factor in project success.

Listening can be both verbal and non-verbal. Verbal listening is understanding what the speaker is conveying through words. Non-verbal listening includes listening to

the intentions behind the speaker's communication, which are communicated through body language, tone, and facial expressions. These two types of listening apply both to the speaker and listener. Body language and what it signals include:

- Making eye contact shows honesty and openness;
- Moving closer to the speaker establishes friendliness and interest in listening;
- Pointing to the speaker shows aggressiveness;
- Sighing shows impatience, boredom, and grief;
- Scratching head or face shows uncertainty;
- Concealing mouth with hands shows uncertainty or dishonesty;
- Leaning back with hands behind head shows superiority or confidence;
- Clenched fists or crossed arms indicate defensive attitude; and
- Rubbing hands demonstrates expectation.

Active listening is a technique that may be used by project managers and must be used with an understanding of non-verbal cues. In active listening, the listener takes an active role in the communications process by applying:

- Restatement technique where the listener restates and paraphrases what is heard. The advantage of restating is that it gives the speaker an opportunity to hear in the listener's words how the message was perceived by the listener; and
- Summary technique where the listener summarizes the important points of what is heard along with non-verbal cues. This technique tells the speaker what the listener thinks was important. If the summary is wrong, then the communicator has an opportunity to clarify the communication.

Good listeners do not interrupt. They listen! They wait until the speaker completes his or her thoughts and then asks questions. They use the active listening technique and give constant feedback by way of a smile or an occasional nod. They respond to ideas without being personal.

Conflict Resolution

Conflicts can happen in any project environment because of the competitive intentions of the people around a person, such as deliberate interference with others' goals,²¹ the emotions, perceptions, and behaviors of other members of the team,²² and the unfairness, spite, and fight of superiors and peers.²³ A project management environment can be full of tension as team members have varied personalities, temperaments, behaviors, intentions, emotions, and perceptions as they work together toward a common goal. There is also a possibility for a misalignment between the corporate goals and the project goals. There may be disagreements between individuals in the team. There can be differences in opinion between multiple factions in a team. The negative outcomes of conflicts are a sense of defeat in demeanor, rift between people, mistrust, suspicion, wrong focus, resistance, and turnover.

A project manager must identify, analyze, evaluate, and manage conflicts. He or she should realize that the perception of what is occurring in the project team may not be shared by all team members and identify whether all group members are experiencing the conflict equally or whether some of the members perceive the level of conflict differently. It is important for a project manager to investigate the validity of the conflict and its perceptions among the team without placing blame on any team member.²⁴ A conflict can be viewed as a sequence of episodes²⁵ that includes:

- Latency: Power differences, different agenda, competition for resources;
- Perception: Because of latency, an awareness of a conflict arises. Some team members may deny the existence of conflict;

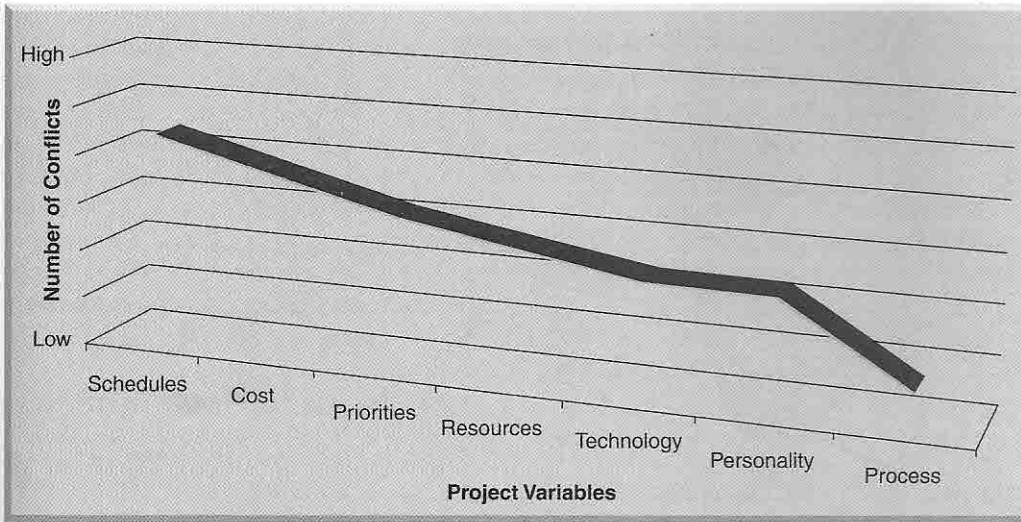


FIGURE 12-4 Conflict Over Project Variables

- **Feeling:** As team members feel stressed or concerned, conflict evolves among individuals or groups;
- **Manifestation:** Open aggression and withdrawals of support show conflicts. Conflicts must be resolved at this stage; and
- **Aftermath:** Once conflict is resolved, the resulting effect is supportive to the project.

Let us discuss where conflicts arise first in project lifespans. If a project manager understands the various aspects of the conflicts with respect to the project lifespan, the detrimental aspects of conflicts can be minimized.²⁶ Figure 12-4 shows various conflicts that can arise as reported by 100 project managers of technology-oriented companies.²⁷ Schedules, priorities, resources, technology, administration, personality, and cost in that order were ranked as conflict intensity in projects. However, in another study the same categories were used and it was identified that the cost was ranked higher by his survey respondents.²⁸ In many projects, the variables of conflicts in various projects tend to be over schedules and costs. Figure 12-4 shows the variables of conflicts in projects in general.

A conflict over schedules can develop over timing, sequencing, or scheduling of project activities. Insufficient project funds and how costs are calculated may lead to conflicts over costs. Conflicts over priorities occur not only between the project team and other support groups but also within the project team. Conflicts over manpower resources are common in many project management environments and can occur between functional and project managers around staffing and over better project team members. Disagreement conflicts are usually over technical issues and specifications. Technology trade-offs and how to achieve performance cause technology-related conflicts. Conflicts due to reporting relationships, interfacing with peers and others in the organization, project scope, administrative support, and policies and procedures are some of the conflicts over project process. Personality conflicts include personal differences. Such conflicts can also be summarized over a project lifespan and Figure 12-5 illustrates sources of conflict by individual phases of a project lifespan. The scheduling and cost dominate during the implementation stages and closure stages of a project as well.

However, conflicts can be managed and resolved. Because resolving conflicts can affect project success, the ability to manage conflicts is one of the most important skills

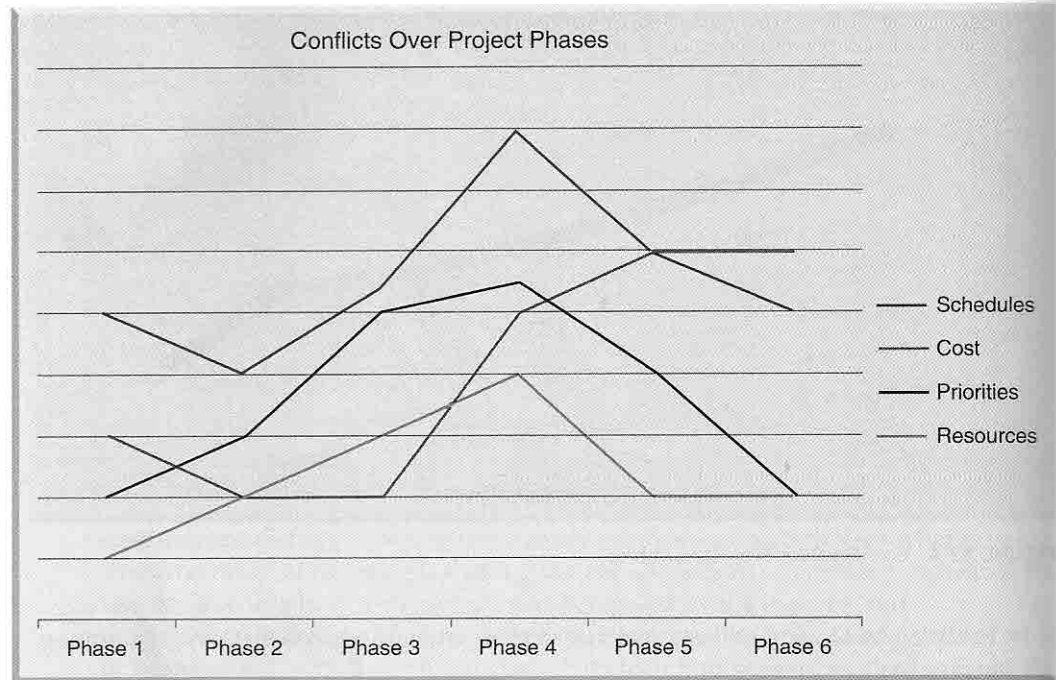


FIGURE 12-5 Conflict Over Project Phases

of a project manager.²⁹ Effective conflict management requires people skills and the ability to understand and diagnose conflict and consists of the following:

- Diagnostic process;
- Selection of interpersonal style;
- Communication and negotiation strategy;
- Development of trust and respect; and
- Reduction or resolution of excessive conflict.

Conflict resolutions can be achieved by the following techniques:³⁰

- Changes in procedures: This technique involves changing procedures to avoid conflicts;
- Changes in personnel: This involves transferring people in and out of a project to resolve personality conflicts;
- Changes in authority: This involves clarifying or altering lines of authority and responsibility;
- Changes in resources: This involves providing resources needed to both parties in conflict;
- Withdrawing: This involves trying to avoid the conflict;
- Smoothing: This emphasizes the use of agreements to stop conflicts;
- Forcing: This forces both parties to stop fighting;
- Compromising: This involves searching and bargaining for solutions that bring some degree of satisfaction to both parties;
- Collaborating: This involves seeking consensus and commitment from both parties involved in conflicts and provides long-term solutions; and
- Confronting: This involves treating conflicts as problems to be solved with a "win-win" solution.

Effective conflict management is directly related to good active listening. With good listening skills, mediation can be easy because of access to accurate information

and better understanding of concerns and needs. Some conflicts can have positive outcomes as well and can result in greater creativity, better worker enthusiasm, better decisions, improved ideas, tendency to search for new approaches, increased interest, and increased creativity. Conflicts need not always be viewed negatively as they are sometimes necessary and healthy. Project managers have to use their discretion in using such arguments to their advantage. Even though such practices are for the betterment of organizations, when using executive disagreements,³¹ caution should be exercised as such disagreements and arguments can become unproductive if taken personally by team members. The encouragement of arguments and conflicts is often necessary in some R&D environments.

PERSONAL TIME MANAGEMENT

In a project organization, both the project manager and the project team spend their time in planning, execution, monitoring, and controlling projects to ensure success. Project management is composed of many meetings, planning sessions, report writing, and crisis management. The project managers in an organization often have to juggle many duties and demands. In order to manage their time wisely and usefully, time management is of utmost importance.

The project managers in an organization need to analyze how they spend their time and implement a few time-saving methods. Time is a resource, and as we discussed previously, the schedule has to be controlled and managed for project success. Project managers and team members have to efficiently use their time to implement a project. In this section, we will discuss both time wasters and time savers first. We will look at effective methods and ways to be an efficient time manager. The following are examples of some of the biggest time wasters for project managers:

- Procrastinating due to indecision;
- Implementing first instead of analyzing first;
- Interrupting work to do unnecessary things;
- Unrealistic time estimates;
- Unmanaged and unnecessary errors;
- Overindulgence in crisis management;
- Poor organizational skills;
- Ineffective, long, and unnecessary meetings;
- Micro-managing;
- Failing to engage in important tasks;
- Poor planning and lack of contingency plans;
- Failing to delegate;
- Lacking priorities, standards, policies, and procedures;
- Not completing work within allocated time and deadline;
- Not knowing how to handle unscheduled visitors and phone calls;
- Not knowing how to say “No”;
- Too many conflicts to be resolved;
- Lack of a prioritized to-do list each day; and
- No flexibility with schedule.

The following are examples of time savers for project managers:

- Managing the decision-making process and delegating decisions among team members;
- Learning to delegate activities effectively and efficiently;

- Organizing e-mails and other communications and cleaning up all incoming mail as soon as possible;
- Establishing deadlines and implementing them per the schedule;
- Avoiding multi-tasking by concentrating on doing only one task at a time;
- Prioritizing activities daily, weekly, and monthly;
- Showing respect for others' time by not wasting it;
- Ensuring all meetings have a purpose, pre-determined agenda, and time limit and include only essential people;
- Taking efficient notes on all communications including phone calls made and received;
- Understanding all organizational policies, procedures, and processes; and
- Re-planning activities and adjusting priorities as a result of new or delayed tasks.

Many experts in time management have called for an in-depth self-analysis to evaluate daily work habits. Michelle Blakeley,³² a micro business therapist, advocates an honest evaluation made by answering 10 questions that will reveal ways to measure oneself for effectiveness and efficiency. The questions are focused on being productive, learning new techniques, willingness to correct, evaluating progress, and adjusting plans.

PROCESS OF DECISION MAKING

Decision making is one of the key tasks of a project manager. Decisions need to be of high quality, be accepted by key people involved in a project, and achieve a sense of satisfaction with the decision process itself. Involving everyone in the team likely increases the quality of decisions. The participants in a decision-making process possess varied knowledge and information, and the decisions made by a group containing such participants should be willing to cooperate to find a quality solution to a problem. Cooperation depends upon how the participants trust their project manager and their view of the legitimacy of the whole process.³³ However, decision quality depends upon the expertise and knowledge of the team. Decisions are accepted by the influence of some key people gathered to make a decision, and those key people should possess the necessary knowledge to make a wise decision. Each participant in the decision-making process has to understand the impacts of the decision and how it will affect his or her contributions to the project. Participation in a decision-making process allows team members to voice their concerns, which enhances the quality of the decision, its acceptance, and a general satisfaction among the project team and project stakeholders.

A contingency model of leader behavior can be adapted for the decision management of a project manager,³⁴ and the model uses the decision processes. The decision processes vary depending upon the participants in a decision-making event. To determine the decision-making process, a project manager should understand the status of a problem and the situation in which the decision has to be made. The decision types can be classified as autocratic, consulting, or joint team effort. An autocratic type of decisions can be either individual or group and the decisions are made using available information at that time. A consulting effort also can be either individual or group and they can share the problem with team members to get suggestions and then use those suggestions to advise the project manager who then can make the decision. A joint team effort will generate several alternatives and use decision-making tools to reach a consensus on a solution as a group. There are seven decision rules and these rules are divided into rules that protect the quality of a decision and rules that protect the acceptance of the decision.³⁵ They stress that if the quality of the decision

is important and if a project manager does not have all the information and expertise to solve a problem, the project manager should resort to using the project team to make decisions. If the quality of a decision is important, if the project manager does not possess enough information or expertise to solve the problem, and if the problem is not structured well, the project manager should involve people with relevant information in the decision making process. In order for the decision to be accepted, if the project manager knows that his autocratic decision will not be accepted and if disagreement among the team members in methods of attaining organizational goals is likely, then the project manager should involve all team members in the decision making process. In summary, it is important that a project manager has to work with the team members in reaching a decision and make the team a part of the decision making process. This builds trust within the team and builds positive relationships leading to project success.

KNOWLEDGE MANAGEMENT

There is a distinction between data, information, and knowledge.³⁶ Data are raw facts or simple observations, for example, "98.6" is a piece of data. We do not know what this means or what this number defines. Information is data in some context or with some kind of human interpretation applied, for example, the piece of data "98.6" with another unit, "degrees Fahrenheit," results in "98.6°F" as information. Knowledge is information with guidance for action, for example, "the normal human temperature is 98.6°F." Knowledge and information may be difficult to distinguish at times, but both are valuable and involve more human participation than raw data.³⁷

Knowledge is the expertise or skills acquired by a project team member through experience, education, or association. It is also awareness or familiarity of a situation gained by experience derived from information, which in turn is derived from data. But knowledge is the information possessed in the mind of individuals; it is personalized information (which may or may not be new, unique, useful, or accurate) related to facts, procedures, concepts, interpretations, ideas, observations, and judgments.³⁸ Knowledge may be obtained from books, conversations, and meetings and from within one's experiences because it is a mixture of experiences, values, information from books, and insight to lead to a discovery.

The concept of knowledge management has received widespread attention primarily because organizations have come to realize that a large amount of corporate knowledge resides in the heads of workers and dispersed in many processes, practices, and documents of an organization. While some of this knowledge may be contained in databases, documents, and other repositories, much of it is difficult to extract, codify, and transfer as useful knowledge. Knowledge sharing is a critical catalyst for creativity and subsequent innovation because it provides a means by which innovative ideas can be captured, shared, and tested. Without an effective knowledge management strategy, organizational knowledge is lost when employees leave the organization. Organizations believe that knowledge gained by their employees during their tenure is the resource of the organization. Such knowledge gained has the potential to help organizations to understand their processes better.³⁹ A company's competitive strength is derived from its core capabilities, i.e., capabilities that differentiate a company strategically and deliver competitive advantage.⁴⁰ Knowledge management as opposed to information processing capabilities plays a pivotal role in the development and maintenance of the core capabilities of an organization and therefore is of great strategic importance.

Knowledge management is the process of creating value from intellectual capital and sharing that knowledge with employees, managers, suppliers, customers, and

KNOWLEDGE

Knowledge is the expertise or skills acquired by a project team member through experience, education, or association. It is also awareness or familiarity of a situation gained by experience derived from information, which in turn is derived from data.

other stakeholders. It enables the project team members to leverage organizational knowledge. The following are the benefits of knowledge management:⁴¹

- Fosters innovation by encouraging free flow of ideas;
- Improves customer service by streamlining response time;
- Increases cycle time of products and services to market; and
- Streamlines project operations and reduces costs by eliminating redundant and unnecessary processes.

Moreover, the most important benefit of knowledge management is that it preserves organizational learning by capturing, storing, and disseminating lessons learned and best practices of employees. Additional benefits of knowledge management are:

- Reducing cost and risk;
- Leveraging existing assets to reduce cost, risk, and cycle time;
- Improved decision making;
- Improved strategic planning;
- Faster development of new technical approaches;
- Faster, more robust problem solving;
- Reduced cost of employee training; and
- Increased versatility of the workforce.

Knowledge Types and Processes

There are several types of knowledge, such as explicit, tacit, procedural, declarative, esoteric, exoteric, shallow, and deep.⁴² In this section, we will discuss tacit and explicit knowledge as they are widely used in organizations in the creation of knowledge.

TACIT KNOWLEDGE

Tacit knowledge is unique knowledge possessed by individuals.

TACIT KNOWLEDGE Tacit knowledge is unique knowledge possessed by individuals and includes corporate experiences like mental maps, insights, acumen, expertise, know-how, trade secrets, and skill sets. Subjective knowledge, personal knowledge, and procedural knowledge are terms used to describe tacit knowledge. Tacit knowledge is the kind of knowledge that is difficult to transfer to another person by means of writing down or explaining. It is personal and in many cases difficult to extract from individuals. The knowledge in an organization largely consists of tacit knowledge. Learning in an organization occurs when individuals come together in socialized settings such as meetings and are encouraged to share their ideas and develop new knowledge. The project managers in an organization can identify knowledge possessed by various project team members and then arrange interactions between such knowledgeable team members to perform the project activities, transfer knowledge, and create new knowledge that may be useful to the organization and in future projects.

The project managers in an organization can make an effort to understand who knows about what in the project organization. Philips, the global electronics company, developed a listing of experts with various kinds of knowledge within its business units and created an application on its intranet to share that knowledge. If an employee wants to find information about designing a component for a DVD player, he or she can type in the keywords to retrieve a worldwide company listing of people who possess that particular knowledge with contact information.⁴³ Toyota creates new knowledge in Japan and transfers that knowledge to all subsidiaries and affiliations around the globe. Toyota proved successful in tapping rich local knowledge to ensure its competitive edge and the global lead in the automotive industry.⁴⁴ They also use “quality circles” to create new knowledge from tacit knowledge. A quality circle is a volunteer group of workers who are trained to identify, analyze, and solve problems and accumulate

organizational knowledge. The improvements obtained from such quality circles and accumulated over many years have provided Toyota one of the highest-quality production processes in the world.⁴⁵

EXPLICIT KNOWLEDGE Explicit knowledge can be readily articulated, codified, and shared and deals with objective, rational, and technical knowledge such as data, policies, procedures, software, documents, products, strategies, and goals. Terms such as objective knowledge, pre-dispositional knowledge, and declarative knowledge are also used for explicit knowledge. The knowledge that can be articulated and expressed by words, numbers, mathematical and scientific formulae, and musical notations is explicit knowledge. This type of knowledge is easy to communicate, store, and distribute and is the knowledge found in books, on the web, when communicated by lecture in class, and so on. Organizations capture and share explicit knowledge in manuals, bulletins, patents, processes, and on intranets and the Internet. Technical or scientific knowledge can be stored in computers by structured coding in a hierarchy of databases that can be easily accessed in a reliable and secure way. The coded and stored knowledge can be reused to solve similar problems.

Ernst & Young, a leading professional services firm, has created explicit knowledge to include cultural differences.⁴⁶ Such a global “best practices” repository of documented knowledge can be shared by company employees from any part of the world and is used to find workable approaches to problems involving cultural differences. Accenture, the information technology professional company, has created a repository of explicit knowledge where client-sensitive information is removed from the extracted knowledge to make the knowledge independent of its developer. The information is transformed to a form that can be used in similar technical or business situations.⁴⁷

The distinction between explicit and tacit knowledge is of particular importance in knowledge management. While both types of knowledge are important, organizations have focused primarily on managing explicit knowledge. The attempt to manage tacit knowledge is a relatively recent development. A spiral model that suggests the importance of managing tacit knowledge⁴⁸ is composed of four modes of knowledge conversion:

- Socialization: conversion of tacit knowledge to tacit knowledge;
- Combination: conversion of explicit knowledge to explicit knowledge;
- Externalization: conversion of tacit knowledge to explicit knowledge; and
- Internalization: conversion of explicit knowledge to tacit knowledge.

Socialization is the process where tacit knowledge is transferred through observation, imitation, meeting, and practice from one individual to another. Combination is the process where discrete parts of explicit knowledge are combined to form new knowledge. Externalization is the process where tacit knowledge is translated into explicit knowledge that can be communicated to other members in the organization. Internalization is the process where the members of an organization enrich their own tacit knowledge base by applying explicit knowledge. Externalization and internalization are the critical steps in the spiral of knowledge.

Knowledge Management and Learning

Knowledge management in organizations is composed of four primary processes: knowledge creation, knowledge structure, knowledge storage, and knowledge sharing, as shown in Figure 12-6. Knowledge creation is the process of acquiring and developing new knowledge in an organization. Knowledge structure involves codification of

EXPLICIT KNOWLEDGE

Explicit knowledge is knowledge that can be readily articulated, codified, and shared.

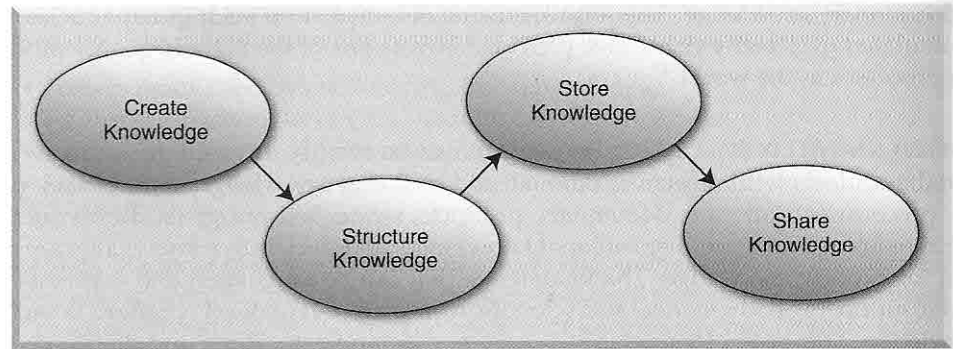


FIGURE 12-6 Knowledge Management Process

the acquired knowledge in a computer language to be useful and stored for future use. The codification strategy creates the possibility of achieving the scale in knowledge reuse and thus of growing the business by using the acquired knowledge. Knowledge storage is concerned with how to index and store the knowledge. Databases, knowledge bases of best practices, or expert systems based on functional knowledge modules are examples of knowledge repositories. This strategy is useful in the management of explicit knowledge and to solve structured and well-defined problems. Knowledge sharing is about disseminating knowledge within the organization. Different perspectives on knowledge management arise when organizations give different priorities on this process. For example, some organizations, especially organizations with strong research and development capabilities, may focus more on knowledge generation and creation than others. Many IT organizations rely on sharing their acquired knowledge to do better in future projects. Despite potential benefits, many organizations do not use knowledge management at all.

Lessons Learned from Past Projects

Knowledge that is acquired from past failures and successes is an important resource for the success of future projects. Project managers in an organization should plan on acquiring formal lessons learned during the project planning phase of a project. Such lessons should be implemented during the project closure phase. A learning environment should be encouraged in all organizations⁴⁹ to raise awareness as well as provide tools to use past project data in planning through implementation phases of projects, to compare projects and search for commonalities between them, and for “what-if” analysis for current project situations.

The knowledge management process may be enhanced by the use of software available in the market in the form of knowledge management systems and knowledge management tools. A range from small software packages for individual use to highly specialized enterprise software suitable for use by hundreds of employees is available on the market. Many organizations can use this kind of software in customer service or in call centers as well. Such software enables the combination of unstructured information sources such as word-processed documents, portable document format (PDF) files, e-mails, pictures, unstructured notes, and website links. Almost all the available software in the market allows sharing of information using the Internet. The software also helps project organizations to share, search, and print documents and procedures from past projects.

In general, a project manager needs to understand that the process of obtaining and storing knowledge from past projects may present some challenges. The first generic challenge in the creation, sharing, and management of knowledge is ensuring

that the quality of information in the system is high. The second challenge is the lack of time. Project team members may intend to record the lessons they have learned or the solutions they have developed for subsequent addition to databases, which will be made available to other consultants in the firm, but they may not have time. Project managers need to allocate time in planning stages for themselves to deposit their lessons learned into knowledge management systems. The third challenge is the tendency for some project managers and team members to “hoard” knowledge. The management of an organization has to provide real rewards to post the acquired project knowledge. It is common in many blog websites to share knowledge only if the receiver shares his or her knowledge. Functional managers can enforce such behavior by adding this dimension to an individual project team member’s performance evaluation.

Companies like Andersen Consulting, now Accenture, as part of their annual job performance review, evaluate employees on the quantity and quality of knowledge that they share and how much they use company knowledge repositories.⁵⁰ In some cases, there may be problems with the design and implementation of the knowledge management system. Andersen Consulting managed to create an enormous knowledge repository, but the volume of the information grew more quickly than the development of its navigational and search aids, resulting in poor usage.⁵¹

Learning from the past projects helps in the success of current projects. Project managers themselves need to record all e-mail, mail, telephone, meeting, and other forms of communications. Some of these communications can become best practices for future projects. Mistakes made in current and past projects may become part of an experiential learning to avoid future project failures. Project managers need to encourage their team members to do the same and benefit from both successful and unsuccessful projects.

Learning Curves

A learning curve is a graphical representation of the changing rate of learning for a given project activity. Typically, the increase in the retention of information is at its best just after initial attempts. When a carpenter makes his first chair, it may take him four days. The next chair he makes will take less than four days, let us say three days. The next chair he makes will take him less than three days, let us say two and a half days. This is due to the process of learning from making the same chairs. The retention of knowledge gradually evens out, which means that less and less new information is retained after each repetition. This is due to initial learning of a difficult task. The initial learning is the hardest; once it has occurred, there may be very little to learn to familiarize oneself with the same task. Therefore, after the initial learning, learning drops to even out the retention of knowledge. This retained knowledge is mature to be used in knowledge management systems for future projects. For example, if a new job is performed by a new project team member, it will take that person longer the first time than the fifth time he or she performs the same job. From time to time, there might be new knowledge that needs to be learned and added to existing knowledge. Once Microsoft Excel[®] is learned by a student in class, the retained knowledge should be good enough to do well on the exam. After applying this knowledge, the student may find a new methodology, a new function, a better way, or an easier way to solve a problem thus adding to the already retained knowledge. Learning curves represent the initial difficulty of learning something and, to an extent, how much there is to learn after initial familiarity.

The U.S. aircraft and aerospace industries started using learning curves in the 1930s. Boeing, the aircraft manufacturer, discovered that the cost to build new

LEARNING CURVES

Learning curves are graphical representations of the changing rate of learning for a given project activity.

airplanes—new projects to build airplanes—was highly predictable. For example, it might cost \$100 million to build the first copy of a new airplane, \$80 million to build the second, \$70 million to make the fourth, \$65 million for the eighth, and so on. It discovered that projects to build planes got cheaper as the company learned how to do it more efficiently. Workers work faster, make fewer mistakes, and waste less material. Plotting such production costs against the units of production in a graph yielded a learning curve that slopes from the upper left to the lower right. The steeper the curve, the faster the person or the project team is learning to produce that item or service. Boeing used these learning curves for capacity analysis, resource requirement planning, cost-reduction proposals, and production estimations.⁵² Learning curve theory is based on the following assumptions:

- The amount of time required to complete a task will be less each time the task is undertaken;
- The unit time will decrease at a decreasing rate; and
- This reduction of time will follow a predictable pattern.

Learning, as it is gained, improves performance of a project. A learning curve provides direct labor required to perform an activity to the experience gained in its execution. The basic learning curve is as follows:⁵³

$$T_N = T_1 \times N^\beta \quad (\text{Eq. 12-1})$$

where T_1 = number of direct labor hours required to perform a project activity for the first time

T_N = number of direct labor hours required to perform a project activity for the n th repetition or time

N = repetition number

β = learning coefficient

In practice, learning can be estimated as a value, say 80 percent. This means that time required for the second repetition after learning once is 90 percent. The learning curve can be designated from 0 percent (no learning) to 100 percent (learning the same activity all over again). If estimated learning is L , the learning coefficient β for the subsequent times can be defined as:

$$\beta = \frac{\text{Log}_{10}(L)}{\text{Log}_{10}(2)} \quad (\text{Eq. 12-2})$$

Equation 12-1 can be used to find the learning coefficient, which may be used in project management to update time and cost estimates. By rewriting Equation 12-1:

$$\beta = \frac{\text{Log}_{10}\left(\frac{T_N}{T_1}\right)}{\text{Log}_{10}(N)} \quad (\text{Eq. 12-3})$$

In the case of Example 12-1, a project manager can use 120 hours for the second time the DBA is scheduled for the same database tuning activity and use 89 hours for the fifth tuning activity by the same DBA. An alternate approach to calculating estimates using learning curves is to use the learning curve table shown in Tables A-1 and A-2 in Appendix A. Table A-1 is used for individual units and Table A-2 is typically used for cumulative units.

EXAMPLE 12-1

In an IT project, there is a database tuning activity by a project team member who is a database administrator (DBA). According to the schedule, this activity needs to be repeated five times during the project period. The activity is estimated to be performed for the first time in 150 hours by the DBA. The learning percentage is estimated to be 80 percent. Therefore, the estimated performance times for the second, third, fourth, and fifth times can be calculated as follows.

Substituting $L = 80$ percent in Equation 12-2, we get:

$$\begin{aligned} & \text{Log}_{10}(0.8) \\ \beta &= \text{Log}_{10}(2) = -0.322 \end{aligned}$$

Substituting the value of β in Equation 12-1, we get

$$T_N = T_1 \times N^\beta$$

Estimated performance time for the 2nd time of same activity is: $150 \times 2^{-0.322} = 120$ hrs

Estimated performance time for the 3rd time of same activity is: $150 \times 3^{-0.322} = 105$ hrs

Estimated performance time for the 4th time of same activity is: $150 \times 4^{-0.322} = 96$ hrs

Estimated performance time for the 5th time of same activity is: $150 \times 5^{-0.322} = 89$ hrs

EXAMPLE 12-2

Using Table A-1 in Appendix A, we can find that the learning curve value for the second repetition with an 80 percent learning curve is 0.8. Therefore, estimated performance time for the 2nd time of same activity is: $150 \times 0.8 = 120$ hrs

Similarly for the 3rd repetition it is 0.7021

Therefore, estimated performance time for the 3rd time of same activity is: $150 \times 0.7 = 105$ hrs

Estimated performance time for the 4th time of same activity is: $150 \times 0.64 = 96$ hrs

Estimated performance time for the 5th time of same activity is: $150 \times 0.59 = 89$ hrs

FROM PRACTICE

After a delay of more than three years plagued with production and design problems, Boeing delivered its first 787 jet on September 25, 2011. Many airlines had been expecting the new jet to offer travelers more comfort, create new routes, and enjoy significant fuel savings. The first jet was purchased by All Nippon Airways, which has been printing the 787 logo and "We Fly 1st" on its business cards for years. More than 800 of these jets—"Dreamliners," as they are called—have been ordered by several airlines. Instead of aluminum skin, most of the 787 is made of carbon fiber, basically a high-tech plastic that is strong but lightweight. The strength from this new material allows windows to be bigger and higher so that passengers can have a better view. The jet comes with electronic dimming to replace pull-down shades. The cabin is pressurized to the equivalent of 6,000 feet, instead of the usual 8,000 feet, which is great for people with lung ailments. Without the corrosion-prone aluminum skin, the humidity can be kept higher, which reduces dry noses and throats. The first U.S. customer is United Airlines, which will get its first 787s next year and plans to fly them between Houston, Texas, and Auckland, New Zealand, as well as

(continued)

Houston and Lagos, Nigeria. The size of the 787, its fuel efficiency, and its long range should make it profitable for airlines on those routes. Building an all-new plane like the 787 was a massive undertaking, and delays stacked up due to an eight-week strike in 2008. The design team had to reinforce the spot where the 787's wings meet the fuselage, and that delay extended further after an electrical fire forced a landing during a test flight. Boeing expects to deliver a combined 25 to 30 of the 787s and new 747-8 in 2011. The company has set an ambitious goal of building 10 per month by the end of 2013. No one has ever made a large plane that fast. Boeing may miss that goal because the company is not ready yet with its production process. Airbus, Boeing's rival, also wants to launch its new A350, also made of carbon composites. The Boeing 787 has put pressure on Airbus to meet better fuel-efficiency goals and delivery time.⁵⁴

By using the learning curve model for time and cost estimation and by scheduling project team members using learning curves to maximize learning, project managers can implement successful projects.

CODE OF ETHICS AND EXPECTED BEHAVIORS IN PROJECT MANAGEMENT

The code of ethics is a written set of guidelines issued by the Project Management Institute (PMI) to help project managers act in accordance with the primary values and ethical standards of the project management profession. The code of ethics and the expected behaviors of project managers are a set of principles that provide guidance when making ethical decisions and representing the profession. Professional integrity can be considered the cornerstone of the credibility of a project manager. To practice project management, a project manager has to commit to the right and honorable actions of the profession. This code of ethics and professional conduct initiated and established by the PMI articulates the ideals of the project management community and the behaviors that are mandatory in the professional and volunteer roles of project management. The purpose of the code is to help project managers conduct their work in an ethical manner and earn and maintain the confidence of team members, employers, customers, and the public. Project managers have to maintain high standards of personal and professional conduct and accept responsibility for all their actions. They have to treat all project team members fairly regardless of race, religion, sex, age, or national origin. The complete code can be found on the PMI website at http://www.pmi.org/en/About-Us/Ethics/~media/PDF/Ethics/ap_pmicodeofethics.ashx.

Summary

- Although there are many project failures, projects do succeed! Successful projects have many criteria, factors, and variables in common.
- On top of the six criteria for project success (scope, cost, time, resources, performance, and value), there are many other variables that lend themselves to successful projects.
- For projects to be successful, the foundation is project strategy, project leadership, and project management.
- Each one of the PMBOK knowledge areas contains many activities, and success of a project depends heavily on successful implementation of these activities and their processes.

- A project's dynamics revolve around a network of relationships including the organization and its executives, project teams, project managers, customers, government and external agents, peers, and suppliers.
- Each element of a project plays a major part in the success of the project.
- Project success can be measured by how certain activities of the project are efficiently and effectively achieved. These activities may be thought of as activity-based variables.
- Managing people, leadership, and effective communications are skills that enhance project management and hence lead to project success.
- Managing people includes managing assigned human resources, exhibiting leadership qualities, possessing effective communicating skills with project stakeholders, and resolving conflicts. Project managers may or may not have subordinates; however, they still have to exhibit managerial and leadership traits and skills.
- Successful project management requires both project leadership and project management, collectively called project stewardship.
- In managing resources, there are four common interrelated processes: decision making, exchanging information, influencing, and developing and maintaining relationships.
- Managing people effectively promotes easier change management, better management of organizational knowledge, and effective management of project performance and value.
- A project manager needs to work with many stakeholders of a project. Managing people makes a difference in project success.
- In project leadership, there are five different types of powers: reward, coercive, legitimate, expert, and referent power.
- Project managers possess powers that can influence targeted persons.
- Project managers can also use tactics that include impression management tactics, political tactics, proactive influence tactics, and reactive influence tactics. Of all these tactics, proactive influence tactics work best for a project manager.
- There are four types of proactive influence tactics that work well: rational persuasion, inspirational appeal, consultation, and collaboration.
- A project manager needs to support project teams through a project, develop team members by mentoring, and recognize individual team member's contributions.
- Technical skills, interpersonal skills, and conceptual skills are important for a project manager.
- Project management involves communications at all organizational levels and across the relationship network. Listening is an important component of communications. Effective listening improves mutual rapport, trust, and respect among project team members.
- Conflict can happen in any project environment. A project manager must identify, analyze, evaluate, and manage conflicts. Effective conflict management is directly related to good active listening.
- With good listening skills, mediation can be made easier because of access to accurate information and better understanding of concerns and needs.
- Decision making is one of the key tasks of a manager. Decisions need to be of high quality, be accepted by key people involved in a project, and achieve a sense of satisfaction with the decision process itself. Involving everyone in the team likely increases the quality of decisions.
- Participants in a decision process come to the table with varied knowledge and information.
- Knowledge management is the process of creating value from intellectual capital and sharing that knowledge with employees, managers, suppliers, customers, and other stakeholders. Knowledge management enables project team members to leverage organizational knowledge.
- Explicit, tacit, procedural, declarative, esoteric, exoteric, shallow, and deep are types of knowledge. Knowledge management in organizations is composed of four primary processes: knowledge creation, knowledge structure, knowledge storage, and knowledge sharing. Knowledge that is acquired from past failures and successes is an important source for the success of future projects.
- Project managers should plan formal lessons learned during the project planning phase of a project. These lessons learned should be implemented during the project closure phase.
- Project managers need to understand that obtaining and storing from past projects poses some challenges.
- Learning from past projects helps in the success of current projects. By using the learning curve model for time and cost estimation and by scheduling project team members using learning curves to maximize learning, project managers can implement successful projects.

Review Questions

1. What are the common project success variables in scope management?
2. What actions of a project manager can be measured for success?
3. What actions of an executive champion can be measured for success?
4. What actions of an organization can be measured for success?
5. What actions of a customer can be measured for success?
6. What are the success variables of a project team?
7. What are the differences between a leader and a manager?
8. What are the activities of a project manager?
9. Who is in the project manager's network of relationship?
10. What are the responsibilities of a project manager as a decision maker?
11. Can a good project manager be a good supervisor?
12. What are the five different types of power?
13. What are the trait categories and traits of a project manager?
14. What are the behaviors of a good leader in terms of people skills?
15. How can project managers be effective communicators?
16. How can project managers manage conflicts in projects?
17. Name at least five time-wasting actions.
18. How can groups come to decisions?
19. What is knowledge management?
20. What are the two types of knowledge management?
21. What are the benefits of knowledge management?
22. What are learning curves? How can they be used in projects?

Problem Solving and Critical Thinking Questions

1. Find at least three project success stories and compare how they achieved success.
2. Who out of the three—a project manager, an executive champion, or an organization—is critical in project success? How?
3. In what possible ways can a project team's actions bring failure to a project?
4. A project manager should have hiring authority. Is this statement valid? Why or why not?
5. A project manager needs to influence all stakeholders. Is this possible? If yes, how? If no, why not?
6. Why are people skills important for a project manager?
7. How can a project manager be a consultant in a project?
8. How can a project manager be both a controller as well as a representative of a project?
9. What are the different behavior trends in conducting effective meetings?
10. What techniques of conflict resolution can be used to stop conflicts?
11. What techniques of conflict resolution can be used to avoid conflicts?
12. What are the rules of decision making?
13. Is knowledge management important in any project?
14. How can knowledge be captured in projects?
15. Classify each of the following as either tacit or explicit knowledge. Also explain how it can be converted to the other type of knowledge using one of the four modes of knowledge conversion.
 - a. Policies
 - b. Data
 - c. Know-how of technology
 - d. Trade secrets
 - e. Skill sets
 - f. Documents
 - g. Products
 - h. Strategies
 - i. Goals
 - j. Mission
 - k. Core competencies
 - l. Procedures
 - m. Software
 - n. Corporate experiences
 - o. Mental maps
 - p. Insights
 - q. Business acumen
 - r. Expertise
 - s. The organizational culture
16. Air Bearings Systems collected the following cost data on the first eight air bearings systems as shown:

Unit Number	Cost (in thousands)	Unit Number	Cost (in millions)
1	100	5	59
2	91	6	54
3	83	7	51
4	66	8	49

 - a. Estimate the learning curve for the project.
 - b. Estimate the average cost of the first 1,000 units.
 - c. Estimate the cost to produce the 500th unit.
 - d. Estimate the cost to produce the 1000th unit.