

18BIT65S - Software Project Management

III Bsc. IT

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UNIT I: Initiating the Project: Defining the project Management lifecycle – Gathering Project Information – Identifying the project needs. Planning the Project: How to plan – Establishing project priority – creating an Approach. Working with Management: Presenting the Project to Management – Defining Management’s Role.

UNIT II: Defining the Work Breakdown Structure: Defining a WBS Approach-The Mechanism of Creating a WBS – why you need a WBS – Creating a WBS dictionary. Creating the Budget: Budget Basics – Implementing Bottom-up cost Estimates-Budget at Completion –Zero –Based Budgeting–Determining Project Expenses.

UNIT III: Building the project Plan: Project Plan Documents-Creating the Project Scope Management Plan – Defining the Project Schedule Management Plan-Creating the Project Cost Management Plan – Planning for Project Quality-Preparing for Managing a Project Team. Organizing a Project Team: Assessing Internal skills–Creating a Team –Interviewing Potential Team Members–Managing Team Issues–Using External Resources.

UNIT IV: Managing Teams: Leading the team –Establishing the Project Authority–Mechanic soft Leading a Team –Team Meetings–Maintaining Team Leadership –Working to ward the Finish –Motivating The Team. Implementing the Project Plan: Reviewing Assignments with the project Team –Focus on the work – Hosting a project Team Meeting–Tracking Process–Tracking Financial Obligations.

UNIT V: Enforcing Quality: Defining Quality–Quality of the deliverables–Quality of the process–Quality Management as a Process Completing the Project: Completing the Final Tasks–The Project Postmortem – Obtaining Final Sign-Off –Post-Project Audit–Creating the Final Report.

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2. Walker Royce, “Software Project Management”, Pearson education, 2000.

Unit I : Initiating the project : Defining the project management life cycle – Gathering project information – Identifying the project needs. Planing the project : How to plan – Establishing the project priority – Creating an approach. Working with the management : Presenting the project to management – Defining management Role's.

Introduction

What is a project?

A **project** is a finite endeavor—having specific start and completion dates—undertaken to create a unique product or service which brings about beneficial change or added value.

A **project** is a carefully defined set of activities that use resources (money, people, materials, energy, space, provisions, communication, motivation, etc.) to achieve the project goals and objectives.

What is a Project Management?

Project management is the discipline of planning, organizing and managing resources to bring about the successful completion of specific project goals and objectives.

(or)

The methods and disciplines used to define goals, plan and monitor tasks and resources, identify and resolve issues, and control costs and budgets for a specific project.

What is software?

Computer programs and associated documentation such as requirements, design models and user manuals.

Software products may be developed for a particular customer or may be developed for a general market.

Software products may be –Generic -developed to be sold to a range of different customers e.g. PC software such as Excel or Word.

Be spoke (custom) -developed for a single customer according to their specification. New software can be created by developing new programs, configuring generic software systems or reusing existing software.

What is a Software Project Management?

Software project management is a sub-discipline of project management in which software projects are planned, monitored and controlled.

What is software engineering?

Software engineering is an engineering discipline that is concerned with all aspects of software production.

Software engineers should adopt a systematic and organized approach to their work and use appropriate tools and techniques depending on the problem to be solved, the development constraints and the resources available.

1. Initiating the project :

Project management requires adequate planning, determination, and vision for success.

1.1 Defining the project management life cycle:

Project is an endeavor that has a definite start and end. Thus, it makes it all the more important to have well defined life cycle in place. Life cycle is helpful in laying out transparent and time bound entry and exit points throughout the project stages.

Time boxing the stages ensures we stay on track and deliver with quality. One of the key objectives of any project is always having a balance among the triple constraints – Time, Cost & Quality. The better the balance, better the chances of the project being successful.

The project management life cycle can assist you and your team in narrowing the project's focus, keeping its objectives in order and finishing the project on time, on budget and with minimum surprises. Dividing a project into phases makes it possible to lead it in the best possible direction. Through this organization

A **project management life cycle** is a framework comprising a set of distinct high-level **stages** required to transform an idea of concept into reality in an orderly and efficient manner into phases, the total work load of a project is divided into smaller components, thus making it easier to monitor.



Figure 1 : Project Management Life Cycle

A project management life cycle consists of 5 phases:

- Initiating the process
- Planning process
- Execution process
- Monitoring and control process
- Closing process

Initiating the process

The initiation phase is the very first phase of the project management life cycle. During this phase, a project manager must develop a business case for the project. Whether they undertake a feasibility study or establish a project charter, making sure the rest of the team understands the importance of the project is key. During this phase, a project team is appointed.

As common logic says – before we undertake any endeavor we perform certain background checks, initial research, execution feasibility, and commercial viability and then decide if it should be undertaken at all.

And exactly that is what is covered in our Project Charter :-

- Business Case or Vision
- Goals / Projected Benefits
- Identify Stakeholders
- Project Scope (In-scope and Out-of-scope items)
- Identifying Deliverable's
- Identifying Risks
- Defining project resources, cost & budget.

Planning the project process

A lot of planning takes place during this phase. Depending on the specifics of your project, you may need to complete all (or just a few) of the following:

- Financial plan
- Quality plan
- Risk Management plan

- Acceptance plan
- Communications Management plan
- Procurement Management plan
- Scope Management plan
- Scope baseline
- Change Management plan
- Configuration Management plan
- Schedule Management plan
- Schedule baseline
- Execution process
- Project plan
- Process improvement plan
- Resource Management plan

Execution process

Tasks completed during the Execution Phase include:

- Develop team
- Assign resources
- Execute project management plans
- Procurement management if needed
- PM directs and manages project execution
- Set up tracking systems
- Task assignments are executed
- Status meetings
- Update project schedule
- Modify project plans as needed

While the project monitoring phase has a different set of requirements, these two phases often occur simultaneously. The final process in execution is linked to the costs of your project: procurement.

Monitoring and control process

This is the phase that is most commonly associated with project management. Execution is all about building deliverables that satisfy the customer. Team leaders make this happen by allocating resources and keeping team members focused on their assigned tasks.

Execution relies heavily on the planning phase. The work and efforts of the team during the execution phase are derived from the project plan. The key tasks performed are:-

- Assemble Execution Phase Project Team: Acquiring required resources who can work on the project.
- Team Development: Dividing the resources into small teams to work on certain modules. For example, if you are working on website development, one team can be assigned for UI/UX design of the website, other team for the back-end design, similar a team to perform testing and so on.

- **Assign Resources:** Assigned skill or expert resources to the project. Obtaining the right resources for the project is crucial for project success. A high skill to requirement mapping will enable smoother and timely task execution.
- **Execute Project Management Plans:** Set your schedule into action.
- **Direct and Manage Project Execution:** This involves leading and performing the work defined in the project plan and implementing approved changes to achieve the project's objectives.
- **Conduct Progress Status Meetings:** Having periodic status checks helps keep the team motivated, stay on track, address any real or perceived threats in advance and take corrective measures as required.
- **Update Project Schedule and Management Plans:** As the project progresses, we must update the project schedule and plans in order to ensure the project is set to be delivered within the agreed timelines. However, this phase is optional if the project is already on track.
- **Quality Assurance:** Review tasks and deliverables are up to the mark or not. And what corrective actions are required to meet the defined quality guidelines.
- **Acceptance of Deliverables:** Verify if the developed project meets the deliverables, fulfills all the standards and criteria set by the customer.
- **Complete Execution Phase Review:** Lastly, ensure all the key execution activities are performed properly

Closure

So much time and effort is put into the planning of a project, it is often forgotten that the end of a project is equally important. There's a lot of work involved even once a project is technically complete.

You handover all deliverables to your customers, relevant stakeholders, release the project into business as usual and handover to the operations team, free all your resources, return equipment and notify all of project closure.

Here are some associated tasks in the closure stage:

- **Lessons Learnt:** Managing a project isn't only about tasks and resources, budget and deadlines, it's an experience you can constantly learn from. While you should have been learning throughout the project, now is a great time to look back without the pressure and distractions that might have dulled your focus.
Gather the core team to invite feedback about what worked, and what didn't. Encourage honesty.
Clearly document the lessons learnt, celebrate how a major mishap was averted, what remedial actions brought a positive turn around to the project, what aspects were missed, where they were missed and capture their impact on the project.
You can go back and look over the information for precedents when planning for new projects. There's a wealth of knowledge produced at every project closure and smart organizations share this wealth with a lot of zeal.
- **Complete paperwork:** Acquiring required resources who can work on the project.
This includes a complete documentation of the project, approval from the stakeholders, Legal contracts of the projects should be verified and signed up by the stakeholders.
It also includes addressing outstanding payments and sending invoices for the payments. All dues must be settled and vendor contracts must be closed before proceeding to project closure.
- **Release resources:** This is a formal procedure, in which resources are assigned back to the project pool and made available for new projects. If there were contractors involved then they are released and the contracts canceled post all due settlement.
- **Archive documents:** It is important to archive all project documents to be used for posterity. We learn from the mistakes from every project. Having all project documents neatly stacked on

a relevant shared portal or with the PMO is in the best interest of the organization and will also come in handy for any issues that may arise in the future.

1.2.Gathering project information

Project information management is a series of activities for gathering, analyzing, tracking and utilizing data on projects. These activities are also called steps that are consistently taken to provide project participants and stakeholders with all necessary information on their project.

When managing project information, managers need to do almost an interruptible task of gathering and distributing information on the activities and processes. This task turns around collecting project data that describes status, assignments and performance.

Actually these are the key information on any project. When you know current status of assignments and current level of team performance, you can make efficient decisions and solve ongoing problems. Besides, effective information gathering paves the way for further steps of project data management.

There are four key methods for efficiently gathering information on projects. Following these methods will help keep your project updated.

- Team Meetings
- Customer Meetings
- Templates
- Special Discussions

The most important is that the underlying technology changes and advances so frequently and rapidly that experience of one product may not be applied to the other one. All such business and environmental constraints bring risk in software development hence it is essential to manage software projects efficiently.

The figure 2 shows triple constraints for software projects. It is an essential part of software organization to deliver quality product, keeping the cost within client's budget constrain and deliver the project as per scheduled. There are several factors, both internal and external, which may impact this triple constrain triangle. Any of three factor can severely impact the other two.

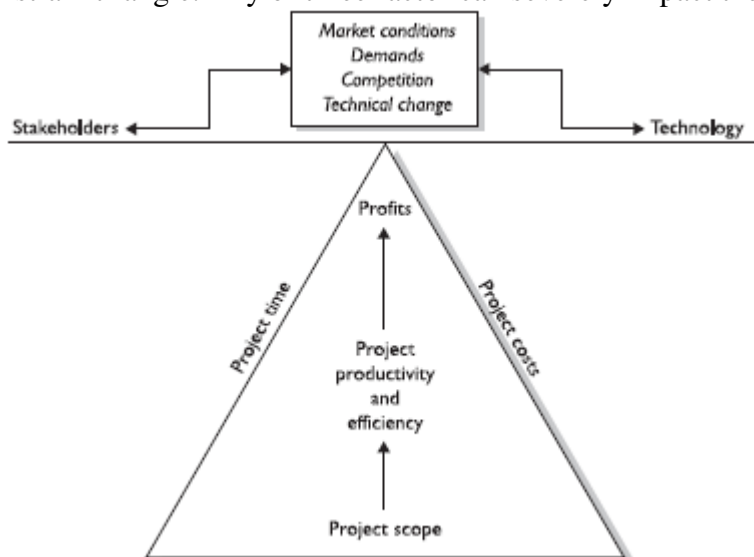


Figure 2 : A project manager must balance stakeholders, technology and the project

Therefore, software project management is essential to incorporate user requirements along with budget and time constraints.

Effective project information management is vital for successful project communications and team management. The four methods of information gathering allow you to make your project more

sustainable through collecting and disseminating necessary information to the team, executives and stakeholders.

Establishing the project Requirements

Project stakeholders are any individuals, groups or communities that have a vested interest in the outcome of the project. The **requirement** is the expectation of **project** stakeholders on **project** outcomes. In another words, "Collect **Requirements** is the process of **determining**, documenting, and managing stakeholder needs & **requirements** to meet **project** objectives."

Developing clear and complete requirements can also make the difference between success and failure, especially for an IT-related project. The requirements are those capabilities, attributes, and qualities that must be part of the final project deliverable. Defining these early in the project development cycle is important because going back to add them in later (called rework) is inefficient, costly, and fraught with both errors and additional project risk.

Requirements are not the same as project objectives. The objectives should drive the requirements. Objectives are what you want to accomplish, requirements are how you will accomplish those objectives. Requirements may have to be refined or developed later in the project definition process as details about the project become clear. However, clear requirements before project work begins are absolutely critical to project success. Unclear requirements cause confusion, duplication of effort, rework, and wasted work. If your objective is continuous availability but you never specify which applications, which data, which users, which business functions, which locations, which customers, etc., fall under that objective, you will undoubtedly find your project wandering off on its own.

Project requirements are conditions or tasks that must be completed to ensure the success or completion of the project. They provide a clear picture of the work that needs to be done. They're meant to align the project's resources with the objectives of the organization. The benefits of effectively gathering project requirements include cost reduction, higher project success rates, more effective change management, and improved communication among stakeholders.

Requirements typically fall into three categories: business, functional, and technical requirements.

Business requirements help you determine what the business needs to survive a disruption. This helps you understand the major building blocks of your company, how they work together, and what key areas should be prioritized. Business requirements might also include things like response time, availability of data, and tolerance for downtime.

Functional requirements detail things such as which processes, methods, and resources need to be available during and after a business disruption.

Technical requirements delineate things such as servers, network infrastructure, and business application requirements. The more specific your requirements, the more likely you are to have a successful outcome.

Requirement Gathering Methods

There are several different ways to collect requirements that vary depending on the type and complexity of the project. There are advantages and drawbacks to each method. It's best to use a combination of these techniques and avoid taking shortcuts when it comes to collecting project requirements. The success of the project is directly related to how well requirements are communicated, documented, and carried out. A best practice is to ensure that you're including as many stakeholders as possible.

Of course, on most projects there will be key stakeholders who influence the project's outcome : department managers, customers, directors, end users, and other folks who have direct power over the

project work or results. With the input of these key stakeholders, specifically their requirements for the project, constraints on the project, and time and cost objectives for the project, the project manager will be able to gather the project requirements to begin building a project plan to create the project deliverables. Stakeholders include

- Customer and Users
- Project sponsors
- Portfolio review board
- Program managers
- Project management office
- Project team
- Functional management
- Operations Management
- Business Partners
- Project Managers

Once the project is defined, you need clearly stated objectives, requirements, and boundaries for the project. While management may have an ideal timeline for project completion, it will take some planning and research to determine the exact duration of the project. The role of a project manager is not permanent but temporary.

As you begin your project, consider the following questions.

1.Does the project have an exact result?

As a Project Manager, you must ensure the project has a definable, obtainable and result.(i.e PM, Pr. Sponsor & team member should know)

2.Are there Industry or Government sanctions to consider?

Ex: If Govt project means it deals with security of the technology, backup and recovery procedures and the fault tolerance of the hardware. PM must be aware of regulations and standards that affect the project's work and deliverables.

3.Does the project have a reasonable deadline?

PM must consider how many working hours their TM will be able to devote to the project in a given day.

4.Is the project sponsor someone who has the authority to christen the project?

Project sponsor should be initiating the project.

5.Does the project have a financial commitment?

The goal of a project in the corporate world is the same goal of any company; to make or save money.

6.Is someone else doing this already?

Need communication among departments.

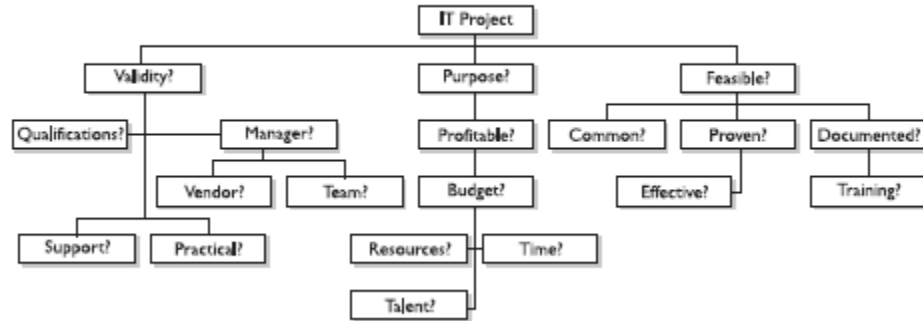
Processing Multiple Personas

A project manager has to be an optimistic, pessimist and realist

1. If you have to be an optimist, you may lead your people, manage the resources and implement the technology according to plan.
2. If you have to be a pessimist, you need to look at the worst-case scenario for each piece of the technology implementation.
3. If you have to be a realist you need to look at the facts of the projects completely, unattached, unemotional and unencumbered.

FIGURE 1-3

Project managers must question all aspects of a project.



When your project is developing, you should play devil's advocate to each cornerstone of the project. You need to question the concepts, the technology, and the time it may take for each step of the implementation. You should question everything before you begin:

1. How will this new technology affect your users?

Project management technology improves communication and collaboration by breaking down the walls between individuals and teams. Good project management software allows teams to centralize documents, work on schedules and budgets together, and tag each other in updates and requests.

2. Will this technology affects other solutions?

Installed software without testing it may lead to software compatibility issue.

3. Will this technology work with any operating system?

If your company has multiple operating systems, you have got to question the compatibility of the technology for each.

4. What other companies are using this technology?

When embracing and implementing a new technology, ask that question for the vendor's salesperson. If he will be happy to report all the larger companies installed, tested and implemented the vendor's product successfully.

5. Does the vendor of this technology have a good track record in the industry?

From whom you are buying this technology, vendor's history, support from the vendor's, all these information must collect.

6. What is the status of your network now?

Before stating your work, you must verify the bandwidth hog on a network and the utilization.

7. What if you need to dream up worst case scenarios and see if there are ways to address each?

You need to find out how the technology will react when your servers are bounced, lines go down and processor utilization peaks.

No Other choices

Ensure that the proposed technology is the correct technology. Most of the time you have some input to the technology implemented to solve a problem. You will need to create a list of questions and then find the appropriate technology that offers the needed solution, work these current systems, and fit within your budget. Having the right technology to begin with ensures success at projects end.

Interviewing Management

To have a successful project, you need a clear vision of the delivered result. You need to share management's visions of how the end results will benefit the company. When you approach management to find out why the project needs to happen, you aren't questioning their decision-making ability. The upper management knows the difference between effective decision-making abilities and poor decision-making abilities.

When you speak with management about the proposed project, you are on fact-finding mission. You should ask the following questions.

1. What do you want technology so-and-so to do?

2. Why is this technology needed?
3. How did you discover this technology?
4. What lead you to the decision this was the way for your company to go?

Sometimes a manager may come to you with specific problem for you to solve. For example the worker may complain that retrieving information on customer through your database takes long time, wants it fast. That time your question may be something like this:

1. Can you show me how the process is slow?
2. Is it slow all the time or just some of the time?
3. How long have you experienced this tag?
4. Have others reported this problem?
5. There are several things we can do to increase the speed of the process. Each may require financial commitment initially but would result in faster responses for all of the database users. Do you want to investigate this route?.

When you are inventing a project, think like an executive of a company and show how the investment in software, hardware, and talent can create more dollars by increasing productivity, safeguarding data, or streamlining business processes and ultimately making customers happy.

Your company may shift much of these requirement gathering duties to a business analyst. Both you and your business analyst should still work together to examine the goals, requirements, and objectives of the project that will eventually feed into your project scope. One approach is SMART, for each project goal, you can determine if it meets all of the following to spell smart:

To make sure your goals are clear and reachable, each one should be:

- **Specific** You to know what the specific requirements and deliverables are for your project.
- **Measurable** It's a good idea to avoid vague terms like fast, good, and happy. You need measurable metrics for the project requirements.
- **Achievable** The goals of the project should be achievable considering the resources, cost, and time required versus what's available in the organization. Management and customers that ask for a long list of requirements without providing a balance of time and monies are setting themselves up for disappointment.
- **Relevant** The goal of the project shouldn't be for someone's private agenda. The goals of the project should support the primary business need of the organization, provide an opportunity for the company, or solve a problem. Basically, all projects should either increase revenue or cut costs.
- **Time-bound** Requirements that are dreamy, are open-ended, and don't provide an easy link to conclusion isn't good requirements to accurately plan and create.

Interviewing the stakeholders

The international standard providing guidance on social responsibility, called ISO 26000, defines a **stakeholder** as an "individual or group that has an interest in any decision or activity of an organization." **Stakeholders** may include: Suppliers, Internal staff, such as employees and workers , Members. We can prepare for a successful stakeholder interview as

- Identify your research goals.
- Identify the **stakeholders**.
- Define a timeline and a budget.
- Define the setup.
- Send an email to your interviewees beforehand.

- Start with an icebreaker.
- Get to the core of the subject.
- Keep the lines of communication open.

Role of Stakeholders as A Group

The stakeholder is anyone who can positively or negatively influence the project, including the customers or users, the project manager and team, the project's sponsor, program and portfolio managers, the PMO functional managers within the organization, and external sellers that provide services or materials for the project.

The stakeholders may be involved in:

- The creation of the project charter and the project scope statement
- Project management plan development
- Approving project changes and being on the change control board
- Identifying constraints
- Identifying requirements
- Risk management
- The stakeholders may also become risk response owners.

The importance of stakeholder management is to support an organization in achieving its strategic objectives by interpreting and influencing both the external and internal environments and by creating positive relationships with stakeholders through the appropriate management of their expectations and agreed objectives. Stakeholder Management is a process and control that must be planned and guided by underlying Principles.

As stakeholders are identified, they should be added to a stakeholder register. Stakeholder Management, within business or projects, prepares a strategy utilizing information (or intelligence) gathered during the following common processes: The stakeholder register defines

- **Stakeholder identification information** Includes each stakeholder's contact information, role in the project, and organizational position.
- **Assessment information** Includes each stakeholder's specific requirements, project expectations, and project influence, along with the specific phases and deliverables each stakeholder is most interested in.
- **Stakeholder classification** Stakeholders that are for your project are considered positive stakeholders. Stakeholders that oppose your project are considered negative stakeholders or project resistors. Neutral stakeholders are indifferent to your project. This part of the stakeholder information may also include information on the stakeholder role in the company, such as internal employee, customer, or vendor.
- **Stakeholder management strategy** This may be included in the stakeholder register, though it's often a separate document. The stakeholder management strategy defines how the project manager will increase support for the project among the stakeholders and how interruptions and objections to the project can be minimized. The strategy considers which stakeholders wield power and influence over the project, interest level for the project, and strategies to overcome stakeholder objections.

Understanding how stakeholders complete their work can help the project manager and the project team understand how the project deliverables will be used. Understanding the end result of the project at project initiation will enable accurate identification of project goals.

Stakeholder Agreements: A collection of agreed decisions between stakeholders. This may be the lexicon of an organization or project, or the Values of an initiative, the objectives, or the model of the organization, etc. These should be signed by key stakeholder representatives. Contemporary or modern business and project practice favors transparent, honest and open stakeholder management processes.

Stakeholder observation comes into two flavors:

1. **Passive observation:** Where the observer simply observes and documents the work and does not interact with stakeholders at all. It is sometimes called invisible observation.
2. **Active observation :** Where the observer interact with he user, stops and work to ask questions and can even get in the actual work to experience the users processes. This approach is sometimes called visible observation.

1.3 Identifying the Project

As a project manager you should have a full understanding of your project's needs. The needs that your project addresses may not always be obvious. When you clearly understand your project's requirements, you can

- Choose project activities that enable you to accomplish the true desired
- Monitor performance during and at the end of the project to ensure that you're meeting the real needs
- Realize when the project isn't meeting the real needs so that you can suggest modifying or canceling it.

When you're initially assigned a project, you hope you're told the products you're supposed to produce and the needs you're supposed to address. However, often you're told what to produce (the outcomes), but you have to figure out the needs yourself.

- **What needs do people want your project to address?** Don't worry at this point whether your project actually can address these needs or whether it's the best way to address the needs. You're just trying to identify the hopes and expectations that led to this project in the first place.
- **How do you know that the needs you identify are the real hopes and expectations that people have for your project?** Determining people's real thoughts and feelings can be difficult. Sometimes they don't want to share them; sometimes they don't know how to express them clearly.

When speaking with people to determine the needs your project should address, try the following techniques:

- Encourage them to speak at length about their needs and expectations.
- Listen carefully for any contradictions.
- Encourage them to clarify vague ideas.
- Try to confirm your information from two or more independent sources.
- Ask them to indicate the relative importance of addressing each of their needs.

The project manager cannot have a clear vision of the project if the project needs are never clearly established.

Creating Reasonable Expectation

Once you have discovered your vision, create a goal. A goal should be clearly stated fact. A goal sums up the project plan I a positive, direct style. Every member of your team should know and pursue the goal. The goal establishes the direct need and purpose to undertaking the project.

When creating a goal for your project, be reasonable. A logical goal is not just an idea, a guesstimate, or some dreamy date to be determined. A goal is actually the end result of a lot of hard work. Each IT project will have different attributes that determine each goal. The questions will help you create the end date for the goal.

1.4 Creating the project Charter

Project Charter refers to a statement of objectives in a project. This statement also sets out detailed project goals, roles and responsibilities, identifies the main stakeholders, and the level of authority of a project manager. It acts as a guideline for future projects as well as an important material in the organization's knowledge management system. The project charter is a short document that would consist of new offering request or a request for proposal. This document is a part of the project management process.

How to Create a Project Charter?

1. Understand project goals and objectives. Identify the project vision and determine the scope of the project
2. Define project organization. List all of the essential roles for the project, including customers, stakeholders, and day-to-day project team.
3. Create an implementation plan. Outline major milestones, dependencies and timeline for the entire team and stakeholders.
4. List potential problem areas. No one wants to be a downer, but adding potential risks and issues to the project charter helps everyone think ahead should the worst happen.

Project Charter Elements

Since project charter is a project planning tool, which is aimed at resolving an issue or an opportunity, the below elements are essential for a good charter project.

- For an effective charter project, it needs to address these key elements:
- Identity of the project.
- Time: the start date and the deadline for the project.
- People involved in the project.
- Outlined objectives and set targets.
- The reason for a project charter to be carried out, often referred to as 'business case'.
- Detailed description of a problem or an opportunity.
- The return expected from the project.
- Results that could be expected in terms of performance.
- The expected date that the objectives is to be achieved.
- Clearly defined roles and responsibilities of the participants involved.
- Requirement of resources that will be needed for the objectives to be achieved.
- Barriers and the risks involved with the project.
- Informed and effective communication plan.

Sample Project Charter

Project: Systems Upgrade: Workstations and Servers

Project Sponsor: Sharon Brenley, Chief Information Officer (x. 233)

Project Manager: Michael Sheron, Network Administrator (x. 234)

Project Team: Edward Bass, Ann Beringer, Mike Tallent, Carol Fox, Charlotte Harving, Kyle Hardie, Casey Murray, Dustin Bossmeyer, Mark Turner, Frank Simmons

Project Purpose : All desktops will be upgraded to Windows Vista by December 30. All servers will be upgraded and moved to five Windows 2008 Servers by January 15 of the following year.

Business Case : Windows NT has served our company for the past five years. Windows 2008 will allow our users to find resources faster, keep our network up longer, and provide ever-increasing security.

Project Results

- Windows Vista on every desktop and portable computer
- Windows 2008 Server installed on six new servers
- All implementation complete by January 15

Basic Milestone Timeline

Project Resources

- Budget: \$475,000 (includes Vista, 2008 servers, client access licenses, consultants, training)
- Test lab reserved for four-month duration
- On-site consultant from Donaldson IT

Project Constraints, Assumptions, and Risks

- The project must be completed by January 15.
- The project must not exceed \$500,000.
- The learning curve for our employees to learn Vista could affect productivity and efficiency.

1.5 Finding the Completion Date

An IT project manager, will give a reasonable deadline has to complete the project. A firm end date accomplishes a few things:

- It creates a sense of responsibility toward the project.
- It gives the team something to work toward.
- It signifies a commitment from sponsors, team members, and the project Manager
- It confirms that this project will end.

We know that projects are a sequence of steps, and each step will take time. The completion of each step will predict when a project should end. And it's not just the project execution that you must account for. A project manager must also consider the time for planning, meetings, and responses to project risks, issues, and the consideration of change requests that are inevitable in technology. Some project managers create a flexible deadline. But don't do it. If you allow yourself a deadline that is not firm, you'll take advantage of it. And so will your team also take it advantage and you may at risk at the last minute.

Set a deadline based on an informed opinion, and then stick with it. A rule of economics that affects scheduling is "Parkinson's Law." Parkinson's Law states that work will expand to fill the time allotted to it. In other words, if you give yourself extra time to complete a project, the project will magically fill the extra time.

A firm deadline gives the project manager and the project team a definite date to work toward. Other factors can have an impact on your projected deadline:

Business cycles Does your project deadline coincide with busy times of the year? Think of a retail giant. How willing do you think it would be to overhaul the database that handles shipping and store management around December?

Financial situations A company may be more (or less) willing to invest in new hardware or software at a particular time of the year due to taxes, fiscal year ending, or the advent of a new budget. You've got to consider these factors when you request finances for your project.

Times of the year When will your team members take vacation? How will their vacation plans coincide with your deadline? What other internal time commitments do they have? Will they be traveling to other sites? These factors can delay a project for weeks and months—ultimately resulting in a missed deadline. Work with your team members to ensure that their availability coincides with their responsibilities within the project plan.

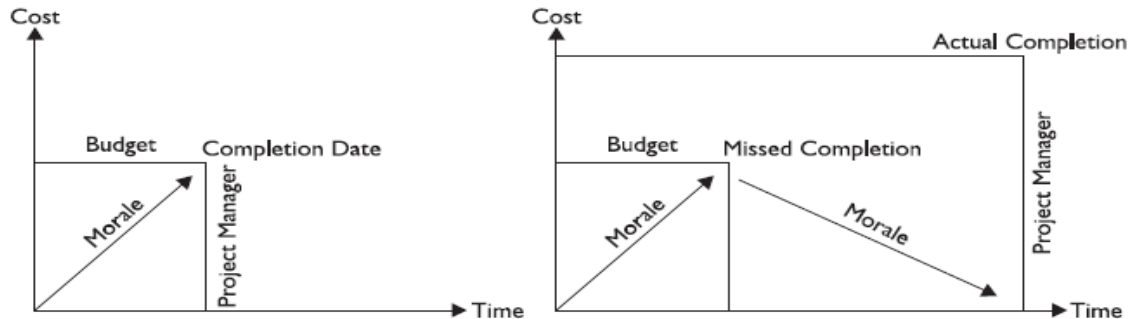


Figure 1.4 : If a project stays on schedule, so will the budget and the morale

1.6 Planning the Project

The planning phase is when the project plans are documented, the project deliverables and requirements are defined, and the project schedule is created. It involves creating a set of plans to help guide your team through the implementation and closure phases of the project.

1.6.1 How to plan

Many IT project managers, executives, and professionals don't know how to plan. In order for projects to be successful, the project manager and the key stakeholders must know exactly what it is the project will create. Often, especially in information technology, the customers of the project don't know what they want or what your project should create. They may have a general idea of a scenario they'd like you to create for them. Through interviews, quantitative analysis, and in-depth research, you'll propose solutions to them.

Project managers need to link project solutions to terms, scenarios, and conditions the stakeholders can understand. When creating a solution for a customer, the project manager must have the same vision the customer has for the final product.

Root cause analysis allows the project manager and the customer to work together to find the solution for the problem, opportunity, or other condition the project is to resolve. There are six-step method that works:

1. *Define the purpose of the research in writing.* Writing The Concept Definition Statement defines the intent of the project based on the high-level goals, problem to solve, or opportunity the project aims to capture.
2. *Determine what resources you will use during this research.* Make a list of avenues of information you'll utilize. This is not to rule out any possible source of information, but to list your sources and then organize them in priority. Sources can include Organizational process assets such as historical information, files from past projects, and documented experience with the related technology. Expert judgment such as consultants, subject matter experts, and other people in the organization Qualified, quality Internet sites Specific trade magazines IT books directly related to the topic Vendor brochures
3. *Delegate.* If you have team members in mind for this project, use them to help in the research. You'll need their expertise and experience to develop the best solution for the project purpose. Break down the planning into multiple components and then delegate portions of the research to

team members. You might use a roles and responsibilities matrix to identify who'll research what area of the business problem or solution. Many hands may lighten the load, but accurate workers with knowledge develop the plan.

4. *Get to work.* Begin reading, evaluating, and taking notes on your discoveries. If you use the Internet, bookmark useful pages you've found. Record the books and magazines you've used and associated page numbers. This supporting detail will help you later when you present a solution to your stakeholder and formalize your project plan.
5. *Organize and document.* Compile all of the information you and your team have gathered. This is the start of a feasibility study. One key management skill is the ability to organize and recall the needed information at notice. A knowledge management system is ideal for any project manager, as it can help you quickly access information.
6. *Evaluate and do more research.* Once your research has come together, determine if the collected data answers the research purpose. If it does, move on. If it does not, continue to research following these same six steps as your guide. This method of research is simple and direct, but will produce results. One key element is time;

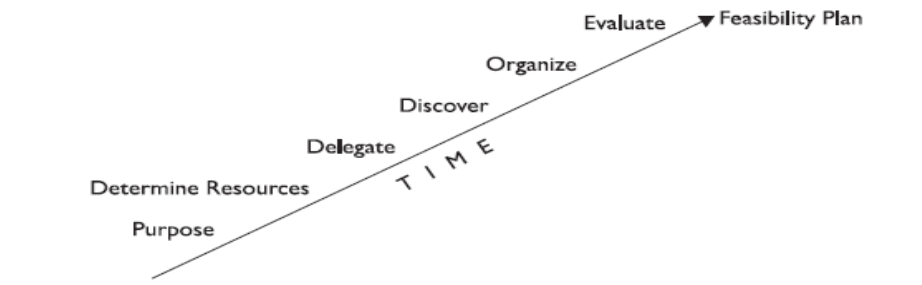


Figure 1.4 Time management is crucial to effective research.

Defining the Business Need

Defining the business need is a project management research activity that overlaps with business analysis duties. The business need will help the project manager define the project scope and the project management plan. These elements help the project manager and the project team understand the stakeholder requirements and what the project must accomplish.

Determining the Business Goals and Objectives

A *business goal* defines the scenario the business wants to achieve. Common business goals and objectives for IT are

- Cut costs.
- Increase revenue.
- Secure the organization's technology assets.
- Improve customer satisfaction.
- Improve employee satisfaction.
- Adhere to new or pending regulations.
- Become more efficient.

In order to create the business goals and objectives, there are six typical tools you'll use.

1. **Benchmarking** This tool compares one component to a similar component. In IT you'll often use benchmarking when you've multiple choices between software packages or hardware solutions.

2. **Brainstorming** This approach encourages participants to generate ideas about an opportunity or business problem. Brainstorming at this stage of research is useful to determine different types of outcomes for the project.
3. **Business Rules Analysis** If the project outcome will likely affect the way your organization does business, the business rules should be studied. Business rules define the internal processes to make decisions; provide definitions for operations; define organizational boundaries; and afford governance for projects, employees, and operations.
4. **Focus Groups** Focus groups are a type of stakeholder analysis. Stakeholders are led through a discussion about the opportunity or problem by an impartial moderator. A scribe or recorder keeps the minutes in the meeting, and then the results are analyzed. An average focus group has six to twelve participants. The participants can be considered homogeneous if they all share the same characteristics, such as all salespeople. Or you can use a heterogeneous group where the participants are stakeholders with different backgrounds, such as users of a software product from different departments within your company.
5. **Functional Decomposition** This method simply takes a large problem and breaks it down into smaller, manageable components. You want to break down the problem into as small of a subcomponent as possible so that each “subproblem” can be managed independent of the other problems. The project manager will need to link the components together so that one solution to a subproblem doesn’t affect the solutions to other components in the decomposition.
6. **Root Cause Analysis** You’ll see this approach often in project management. *Root cause analysis* is a study of the effect that’s being experienced and then determining the causal factors of the effect. This is one of the purest forms of analysis, and the results are often graphed in a cause-and-effect diagram. You’ll also use this approach in quality control. These techniques aren’t solo activities. You’ll include your project team, the identified stakeholders, management, and maybe even subject matter experts. This step is crucial to understanding the problem so that you can create an accurate and cost-effective solution.

Creating a Feasibility Study

A *feasibility study* is a documented expression of what your research has told you. It helps you determine the validity or scope of a proposed project or a section of a project. Feasibility studies can help solidify if a problem is solvable or whether an opportunity can be realized by the company. You might also be tasked with writing a feasibility study to determine the financial aspects of the project—including potential return on investment. Feasibility studies are often written with upper management in mind.

Begin Writing

To begin writing the feasibility study, refer to the Concept Definition Statement and the business goals and objectives you used in the research phase. The business goals and objectives define why you initiated the planning process and should reflect the proposed project.

The feasibility study is broken into eight sections:

- Executive summary
- Defined business problem or opportunity
- Requirements and purpose of the study
- Description of the options assessed
- Assumptions used in the study
- Audience impacted
- Financial obligations
- Recommended action

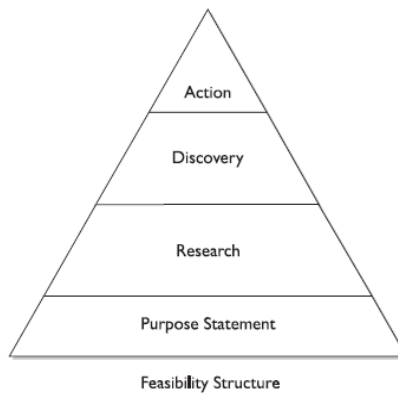


Figure 1.5 Feasibility Structure

Each section is vital to the study and should be direct, be full of facts, and provide references to the historical information and supporting evidence you've used to create the plan.

Executive Summary

The feasibility study should start with an *executive summary*, the purpose of which is twofold: to draw the reader into your findings and to define the key points of your plan. As its name implies, it provides a summary of your findings. It should include a summation of each of the remaining sections in your plan.

Defined Business Problem or Opportunity

The business goals and objectives can be used in this section to link the proposed product or solution to the identified opportunity or problem to be solved. You'll also document the benefits of the technology you've investigated and are recommending. Ideally you'll investigate several solutions, performing what is sometimes called alternative identification, The product section may also include

- Benchmark results of the alternative identification
- Support for the recommended product(s)
- How the recommended product(s) may dovetail with the current technology
- Vendor history
- Other companies that have successfully implemented the product
- Any shortcomings or risks involved with the proposed product

Purpose of the Feasibility Study

Most feasibility studies are launched to determine if an identified opportunity is valid or to determine if an identified problem can be resolved. Feasibility studies can also be initiated for a number of other reasons:

- Compare hardware solutions.
- Compare software solutions.
- Determine buy versus build opportunities.
- Determine capability gaps with new technical solutions.
- Determine disaster recovery options.
- Investigate maintenance of the organization's technical status.

Options Assessed

Feasibility studies examine multiple options, often called alternative identification, for the business problem or opportunity to determine the best solution for the organization. The project manager needs to explain which options were assessed in the study, why the options were selected, and how the options differ from one another.

Assumptions Used in the Study

An assumption is something you believe to be true but you have not proven it to be true. In a feasibility study you may have to make certain assumptions with the technology you're assessing for the sake of time and cost.

Audience Impacted

The feasibility study should address issues concerning the users, capability resource gaps, and who will be affected by the implementation:

1. How much downtime will the audience experience because of the implementation?
2. What is the learning curve of the new software?
3. Will training classes be needed for all users?
4. How will the recommended software transfer or work with your company's existing technology?
5. How long before this software will be upgraded again?
6. How long before it will be retired, obsolete, or no longer supported by the company?

Financial Obligations

This section of the feasibility study provides an overview of the cost of the technology rather than a full-blown budget. Consider these factors:

- The price of the technology product
- The necessary licenses
- Training the implementation team
- Cost of labor to create or implement the solution
- Technical support from the vendor
- Outside talent and contractors to install the technology
- Monthly fees that may be associated with the technology (for example, service-related fees such as those for using a remote data backup service)
- The cost of not implementing the solution

Recommended Action

Within this section of the feasibility study, you're ready to make your pitch for, or against, a technology to solve the problem. You should present a general overview of how the technology works, how it will be implemented, and what types of resources are required to make it work in your environment. Consider the reason why the project may be initiated, including

- To solve an existing problem
- To increase productivity
- To become more efficient
- To reduce costs
- To increase revenue
- To become more competitive in the marketplace

Creating the Business Case

Another document the project manager may be required to create is the *business case*. Sometimes the business case is done in tandem with the feasibility study, and sometimes it's a stand-alone document. The business case documents the quantitative value of the solution, the return on investment, but it can also include an analysis of the qualitative values: morale, comfort level, and appreciation. The business case should, at a minimum, include four elements:

- Benefits of the Solution
- Cost of the Solution
- Risk Assessment

- Results Measurement

Writing the Project Scope Statement

The *project scope statement* document defines all of the deliverables the project will create, the boundaries of the project, and the work that the project team will need to complete in order to create the project deliverables. This document is based on the project requirements, the feasibility study, the business goals and objectives, and the business case document.

The project scope statement usually passes through rounds of research and refinements before the project manager, the project sponsor, and the key project stakeholder approve the project scope statement. You might know this progression of scope refinement as progressive elaboration; *progressive elaboration* means that you start with a broad definition, and through a series of refinements you elaborate on the specifics of the deliverables. The project scope statement has six components.

- Product Scope Description
- Product Acceptance Criteria
- Project Deliverables
- Project Exclusions
- Project Constraints
- Project Assumptions

1.6.2 Establishing project priority

Given every organization has different approaches to project management; your odds of success will increase if you know your organization's approach.

Project priority may shift from quarter to quarter or year to year. Project portfolio management is a process an organization takes to pick and choose which projects are needed, are worthy, and should continue. Just as you might manage your financial portfolio, an organization has a responsibility to manage its portfolio of projects. The value, the project champion, the current success rate of the project manager, and the purpose of a project are all factors a company may use to determine which project takes the highest priority.

Another approach to project management is the creation of a Project Management Office (PMO). The role of the PMO is twofold: it offers traditional project management services for an entire organization or portion of an organization, and it serves as a governing committee for all projects throughout an organization. If your organization were to participate in a PMO relationship, conflict resolution, budgeting, and the process of implementing projects and controlling projects would follow a system of checks and balances unique to your organization.

A Communications Management Plan defines all the required communications, scheduled meetings, and expected types of communication, depending on the project scenarios.

Internal Competition

IT projects can grow quickly and spin out of control and size. Imagine you are doing an operating system upgrade for the client workstations. Your plan calls for using Transmission Control Protocol/Internet Protocol (TCP/IP) for all of the hosts.



Figure 1.5 The project manager directs the flow of communication between the team and the sponsor.

Obtaining Budget Dollars

Value vs. Investment : Value and investment, when purchasing anything, often are incorrectly seen as the same concept. Value is a perception. Investments are a reality. Another budgeting concern you must consider during the research phase of your project is time—one of the largest and often overlooked expenses of project management.

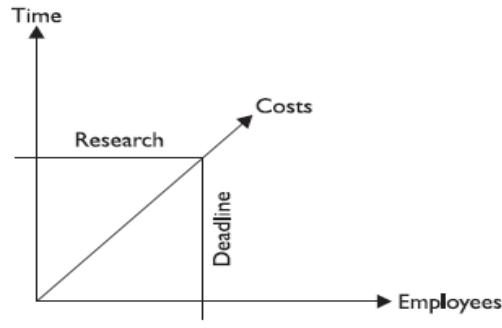


Figure 1.6 More time equals more expense.

1.6.3 Creating an Approach

When you begin to do your planning, you need a plan of attack. How much time will you commit to this phase of the project? What, or who, will be your resources? What is the goal of the research? Who else will be assisting you? These are all questions you should answer as your research begins. The size of the project can help you determine how much time you'll need for planning. Of course, not all planning happens in one big chunk. You'll have some up-front planning, and you'll revisit the planning process throughout the project. For example, if your project team is creating an application, you'll meet with the stakeholders to determine their needs, create an approach to creating the application, and so on. As it moves into execution, your team may need additional planning time to solve problems within the development.

Here's a basic guide to determine how much planning time you can expect for the type of projects you'll manage:

Project Type	Attributes	Planning Time
Add/Move/Change	These are generally smaller projects that, as the name implies, add, move, or change some element within an organization.	Ten percent of the project time allotted to planning
Micro project	These projects take less than 2,000 hours of implementation and/or less than \$250,000 to complete.	Twenty-five percent of the project time allotted to planning
Macro project	These projects take more than 2,000 hours of implementation and/or more than \$250,000 to complete.	Thirty percent of the project time allotted to planning

While quality research takes time, an organized approach will allow you to find the information you're seeking in less time.

Create a Milestone List

One of the primary goals of planning is to determine how the project will be completed, what resources will be required, and what tasks will be involved in the project. Part of planning any project is to create a task list, which simply comprises the major steps required from the project's origin to its conclusion. A task list is created after the technology has been selected and before you create the

implementation plan. There are multiple approaches to creating a task list, but some things must be accomplished before the task list can be created.

1.7 Working with Management

Management's job is to support the vision of the company. Their role is to cut costs, increase productivity, increase revenues, and ensure that the requirements of upper management are met.

1.7.1 Defining the Organizational Structure

The way your organization is structured determines the communication requirements, responsibilities, and reporting structure you have with management. The organizational structure, culture, and internal policies also determine the amount of authority the project manager will have in the project. Because all organizations and projects are different from one another, they can be broken down into one of three different organizational structure models: functional, matrix, and projectized.

Working in a Functional Organization

Functional organizations are fairly common. The types of organizations are segmented by departments and their "functions." For example, you may have "Sales," "Accounting," "Legal," "IT," and so on throughout your organization. In a true functional environment, all team members, including the project manager, report to their functional manager.

The project manager in a functional organization has very little power. Decisions flow through the functional manager. Project managers are sometimes simply called project coordinators or expeditors in a functional structure. The advantage of the functional organization, less anxiety than in other structures, communication demands are reduced, and team members stay within their departments to complete the project work.

Working in a Matrix Organization

A matrix organization model allows a project team to incorporate resources from around the organization regardless of which department employees may work in. Project team members can be recruited, from anywhere or any place, within the organization.

In contrast to the functional structure, this model blends the project team based on team members' individual contributions and abilities.

Technically a matrix structure has three different flavors:

- **Weak matrix** : The functional managers have autonomy and power over the project team members. The project manager has limited authority on project decisions much as in a functional structure, except the project team members come from around the organization.
- **Balanced** : The project manager and the functional manager have equal power and autonomy over the project team. While this sounds nice, it's usually pretty tough to implement. A good balanced matrix defines the decision types that management will make, such as costs and procurement, and leaves the core project management and technical decisions to the project manager.
- **Strong matrix** : The project manager has autonomy over the project and the project team. This structure gives the project manager the most authority, but in reality it's still pretty tough to implement, as there are many functional managers to work with, budgets to approve, and personalities that affect project decisions.

In addition, team members can also expect to be on multiple projects at one time, which, of course, increase their responsibilities, communication requirements, and workload. When team members are on multiple projects at once, then the project managers must coordinate schedules, share

resources, and communicate even more. Further, team members may be expected to complete their regular job duties along with additional responsibilities on the project.

Working in a Projectized Organization

In this structure the project manager works with complete autonomy over the project. The project team is on the project full-time and reports only to the project manager. The project manager has the most authority in this structure. There are many advantages to this structure:

- The project team is on the project full-time.
- The project team reports to one boss for the duration of the project.
- The project manager has the power over the project.
- Communication demands are reduced.

However, this can lead to redundancy in some functions, such as tech support, accounting, purchasing, legal, and so on. Additionally, team members do not get the experience they gain when they work in an environment of their peers. This is particularly true for technical fields. What can happen is that a needed resource is assigned to the project but sits idle for a few activities in the project.

Projectized organizations, they can be efficient and create good teams, do have some negative aspects to consider. First, if a project team member leaves the organization, this can create a hole in the team, cause the project to stall, and require any new team member to ramp up quickly on the project. Projectized structures also face an increase in team anxiety as the project nears completion. Team members may begin to wonder at what assignment they'll be doing next as the current project enters its final stages of activity.

1.7.1 Presenting the Project to Management

Everyone has witnessed someone making a terrible job of delivering a presentation, so you know the dilemma. The fellow is sweaty, speaking low, and tripping over every word while he's searching for the next. Poor guy chances are, though, if you were to talk to this person over a cup of coffee about the same ideas, he'd be rational, personable, and able to express his thoughts without a single "um" or "uh." What he's got is stage fright, and it's curable—with practice.

Presentations can be powerful, inspiring, and informative sessions. An effective speaker can captivate and motivate the audience to action. The core of an excellent presentation is the speaker's intimacy with the topic. The more familiar you are with the topic; you are speaking on, the more convincing you will be. You must know the following figure shows the building blocks to an effective presentation.

Start at the End

When you begin a presentation, you want to capture your audience's attention. You want to hook them and reel them into your project idea. One of the most effective ways to do this is to start at the end.



Figure 1.7 An effective presentation must sell the project through effective reasoning

Tell your audience first what the proposed project will deliver. Forget all the techno-babble that only impresses geeks.

Management wants to hear facts. To grab the attention of management, you need to open with the end result. Tell that more productivity by implementing this technology. From coast to coast, our customers can buy more products in real time with a guarantee of when they'll ship. Of course, this means our company will be more savvy, more advanced, and more profitable than our competitors. Now you really have management's attention. Now you have to back up the statements with the proof already gathered from your initial research. Once you have delivered the core benefits of the project, you should immediately show your supporting detail as to why you are so confident the implementation is a good thing. This has to focus on the return on investment (ROI) for the project. Also you could use a slide show or charts to show the expected growth. Use caution, however, with slide shows; it's easy to fall in love with the medium, not the message. Make the slide show as simple.

The WIIFM Principle

The WIIFM, or "What's In It For Me," principle is the ability to make a presentation touch the audience members so that they see how they will benefit from the proposal. When an IT project manager pitches an idea, he has to show the audience, typically management, how this technology will make customer lives better, improve profitability for the company, and make the company superior. You can rarely go wrong if your proposal focuses on either cutting costs or increasing revenue—or sometimes both.

Management will have similar reasons for implementing, or not implementing, your plan. You have to realistically look at four major points in the WIIFM principle to determine if your plan is viable:

Profitability If the ROI on your project is small or nonexistent, proceed with caution. Remember, all businesses exist to make money; make certain your project helps that goal.

Productivity Examine how your project can increase the productivity of the company. Not all projects will increase productivity for everyone, but at the minimum it should not hinder productivity.

Personal satisfaction At the core of WIIFM is the ability to personalize the project. Find attributes of profitability, credit for implementing the technology, new sales channels, and other benefits that will make management (and you) happy to implement the plan.

Promotion Think of how the project can promote the company's products, but also think how it can promote careers—not only yours, but the decision maker who will see the advantage of the project and may become your project sponsor.

Tailor the Presentation

If you were speaking to a group of executives who have but a few minutes to hear your proposal, you need to quickly get to the point in terms they can understand.

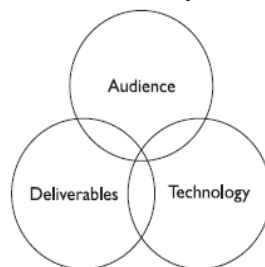


Figure 1.8. Project managers must address several factors in a presentation

Forget about all, focus on how it increases productivity, profitability, and sales. Whomever you

are speaking to, tailor your presentation to what they want, and need, to hear to make a decision. Here are six tips to help you do so:

- *What is your track record?*
- *Do they really want to listen?*
- *Are they listening?*
- *And who are you again?*
- *How does this help?*
- *Are you following the rules?*

Role of a Salesperson

Robert Louis Stevenson, the author of *Treasure Island*, said, “Everyone lives by selling something.” No matter what you do for a living, you are selling something: time, wrenches, advice, a service, or a product. When it comes to presenting your idea to management, you have to slip into the role of salesperson.

A good salesperson is someone who identifies a need and then helps to fulfill it. When selling an idea, speak in direct, simple terms. In fact, an excellent summary of the technology and its benefits should take less than a minute.

1.7.2 Defining Management’s Role

The majority of managers want to be good bosses, they want to be well liked, and they want to do a good, thorough job. While management should show an interest in the project you’re implementing, their role should be one of support, not one of implementation. Project sponsors, however, do have an active role in the project management experience. Figure 1.9 shows the relation between the project sponsor, the project manager, and management. Project sponsors need to be informed of the status of the project, which is completing which portion of the project, and how the project is doing on time and finances.

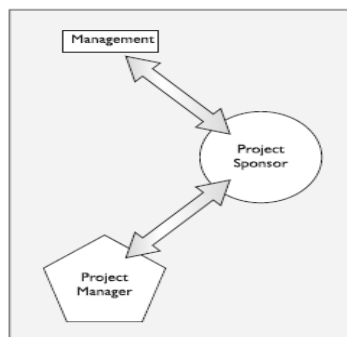


Figure 1.9 Project sponsors are mediators for project managers and management

Project sponsors have invested their credibility in the implementation, and they are relying on you to report progress and to complete the work. Project sponsors, like management, should not be peering over technicians’ shoulders, but should, in some cases, attend team meetings, be involved with the project planning phases, and have input on the project implementation. Don’t be afraid to ask questions and share concerns with your project sponsor—the sponsor is on your side and wants you to succeed with the project.

In fact, if you are going to present the project, it is in your best interest to talk with the project sponsor ahead of time and get coaching on the presentation. Find out the hot buttons, allies, showstoppers, and so on. Then you can tailor your presentation to incorporate this information. If you

are pitching a project that does not yet have a project sponsor, see if you can get some input from a likely sponsor or a friendly person in senior management. It always helps to stack the deck in your favor a little bit.

The role of the project manager encompasses many activities including:

- Planning and Defining Scope.
- Activity Planning and Sequencing.
- Resource Planning.
- Developing Schedules.
- Time Estimating.
- Cost Estimating.
- Developing a Budget.
- Documentation.