PLANNING AND SCHEDULLING OF G+4 OCTAGONAL SHAPE BUILDING USING PRIMAVERA

RACHA SAI PRAVEEN 1* , SUEBHA KHATOON 2*

1. M.Tech Student, Dept of Civil, LORDS INSTITUTE OF ENGG & TECHNOLOGY

2. Asst. Prof, Dept of Civil, LORDS INSTITUTE OF ENGG & TECHNOLOGY

Abstract

Primavera Software and the Project Management Lifecycle Project Management in Primavera software is the planning, organizing, securing, and managing of the resources needed to complete a project on time and within budget. The main purpose of project management is to achieve all of the project goals while taking in to account the constraints of the project.

Typical constraints associated with a project are *time*, *scope*, and *budget*. The secondary goal of project management is to streamline the project management process ensuring that resources are allocated correctly and all the processes are streamlined to make sure the project is completed on time and within the budget.

INTRODUCTION:

The project management approach is relatively modern. It is characterized by new methods of restructuring management and adapting special management techniques, with the purpose of obtaining better control and use of existing resources. Thirty years ago project management was confined to U.S Department of Defense contractors and construction companies. Today, the concept behind project management is being applied in such diverse industries and organizations as defense, construction, pharmaceuticals, chemicals, banking, hospitals, accounting, advertising, law, state and local governments, and the United Nations.

The rapid rate of change in both technology and the marketplace has created enormous strains on existing organizational forms. The traditional structure is highly bureaucratic, and experience has shown that it cannot respond rapidly enough to a changing environment. Thus, the traditional structure must be replaced by project management, or other temporary management structures that are highly organic and can respond very rapidly as situations develop inside and outside the company.

Project management has long been discussed by corporate executives and academics as one of several workable possibilities for organizational forms of the future that could integrate complex efforts and reduce bureaucracy. The acceptance of project management has not been easy, however. Many executives are not willing to accept change and are inflexible when it comes to adapting to a different environment. The project management approach requires a departure from the traditional business organizational form, which is basically vertical and which emphasizes a strong superior–subordinate relationship.

The four project objectives are related to each other by the following equation:

$$\text{Cost} = f(P, T, S)$$

Project Life Cycle

The Project Life Cycle refers to a logical sequence of activities to accomplish the project's goals or objectives. Regardless of scope or complexity, any project goes through a series of stages during its life. There is first an Initiation or Birth phase, in which the outputs and critical success factors are defined, followed by a Planning phase, characterized by breaking down the project into smaller parts/tasks, an Execution phase, in which the project plan is executed, and lastly a Closure or Exit phase, that marks the completion of the project.

Project activities must be grouped into phases because by doing so, the project manager and the core team can efficiently plan and organize resources for each activity, and also objectively measure achievement of goals and justify their decisions to move ahead, correct, or terminate. It is of great importance to organize project phases into industry-specific project cycles. Why? Not only because each industry sector involves specific requirements, tasks, and procedures when it comes to projects, but also because different have industry sectors had different needs for life cycle management methodology. And paying close attention to such details is the difference between doing things well and excelling as project managers.

Diverse project management tools and methodologies prevail in the different project cycle phases. Let's take a closer look at what's important in each one of these stages:

The Project Initiation Phase

The project imitation phase is the first Project Phase and is usually represented by the conceptualization of the project. The purpose of this phase is to specify what the project should accomplish.
The basic processes of the Project Initiation Phase are: Creation of a Product /Project Description Document. This is an informal, high-level statement describing the characteristics of the product / project / process to be created.

The Project Planning Phase

The Project Planning Phase follows the Project Initiation Phase and is the most important phase in project management. The effort spent in planning can save countless hours of confusion and rework in the subsequent phases.

Purpose of the Project Planning Phase

- Establish Business Requirements.
- Establish Cost, Schedule, List of Deliverables and Delivery Dates.
- Establish Resource Plan.
- Get Management Approval and proceed to next phases.

The basic processes of the Project Planning Phase are:

Scope Planning: This specifies the in-scope requirements for the project.

Preparing the Work Breakdown Structure: This specifies the breakdown of the project into tasks and sub-tasks.

Organizational Breakdown Structure: This specifies who all in the organization need to be involved and referred for Project Completion.

Resource Planning: This specifies who will do what work at which time of the project.

Project Schedule Development: This specifies the entire schedule of the activities detailing their sequence of execution.

Budget Planning: This specifies the budgeted cost to be incurred in the completion of the Project.

Project Initiation Phase defines a few facilitating processes as well that are required for successful Project Completion. These can be:

Procurement Planning: Planning for procurement of all resources (staff and non-staff).

Communication Planning: Planning on the communication strategy with all project stakeholders.

Quality Planning: Planning for Quality Assurance to be applied to the Project.

Risk Management Planning: Charting the risks, contingency plan and mitigation strategies.

Configuration Management Planning: Defines how the various project artifacts will get stored.

METHODDOLOGY

Scheduling is a process which tries to organize activities in logical sequence. While it is not possible to know with certainty how long a project will take, there are techniques that can increase your likelihood of being close. If you are close in your planning and estimating, you can manage the project to achieve the schedule by accelerating some efforts or modifying approaches to meet required deadlines.

One key ingredient in the scheduling process is experience in the project area; another is experience with scheduling in general. In every government organization area there will be a body of knowledge that associates the accomplishment of known work efforts with time duration. In some industries, there are books recording industry standards for use by cost and schedule estimators. Interviewing those who have had experience with similar projects is the best way to determine how long things will really take.

When preparing a schedule estimate, consider that transition between activities often takes time. Organizations or resources outside your direct control may not share your sense of schedule urgency, and their work may take longer to complete. Beware of all external dependency relationships. Uncertain resources of talent, equipment, or data will likely result in extending the project schedule. Following activities shows the lifecycle of the project development

Activities involved in the DPR

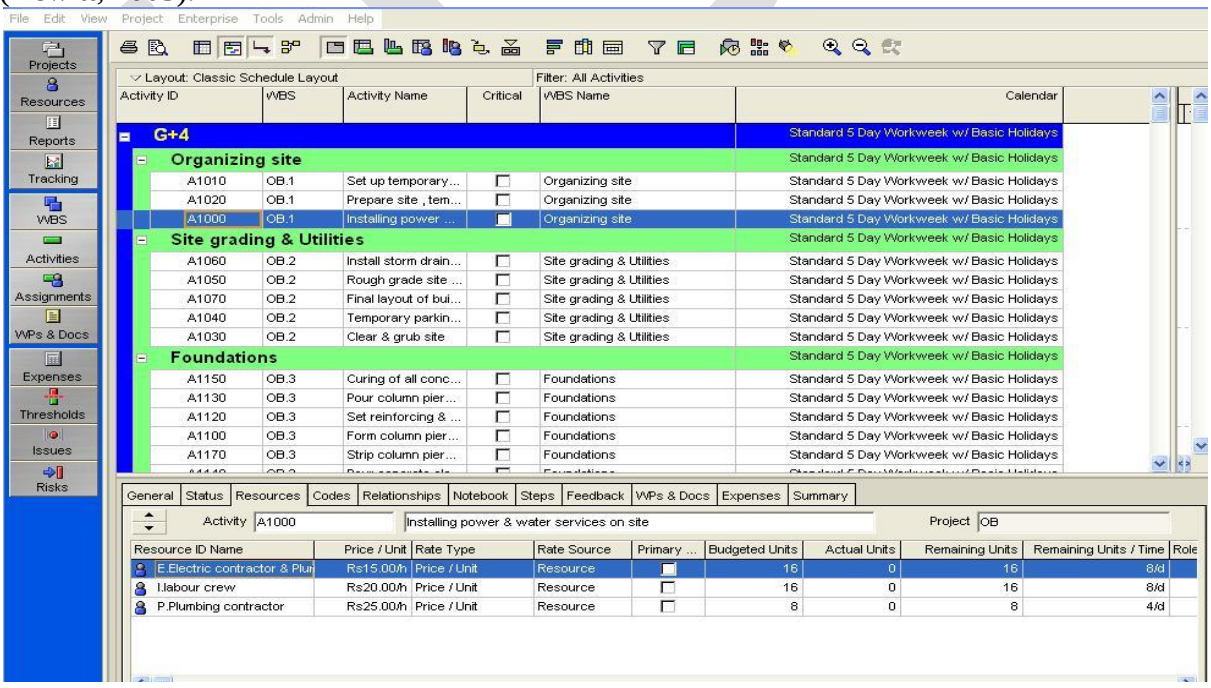
1. Project idea / kickoff meeting
2. Pre feasibility study of the project
3. Administrative approval of the project
4. Preparation of the DPR
5. Technical Sectioning the DPR
6. Implementation of the project
7. Overview of the project progress
8. Sending the Completion report of the project

LITERATURE REVIEW

Work Breakdown Structure (WBS)

Work breakdown structure is a process of dividing the project task into smaller manageable components for planning purpose. A complex project is made manageable by first breaking it down into individual component in a hierarchical structure, known as the work breakdown structure (WBS). The WBS is the structure which defined task, facilitating resource allocation, assignment of responsibilities and measurement and control the project. The WBS is widely use by the project manager as a tool in the planning activity for the construction project (Newitt, 2005).

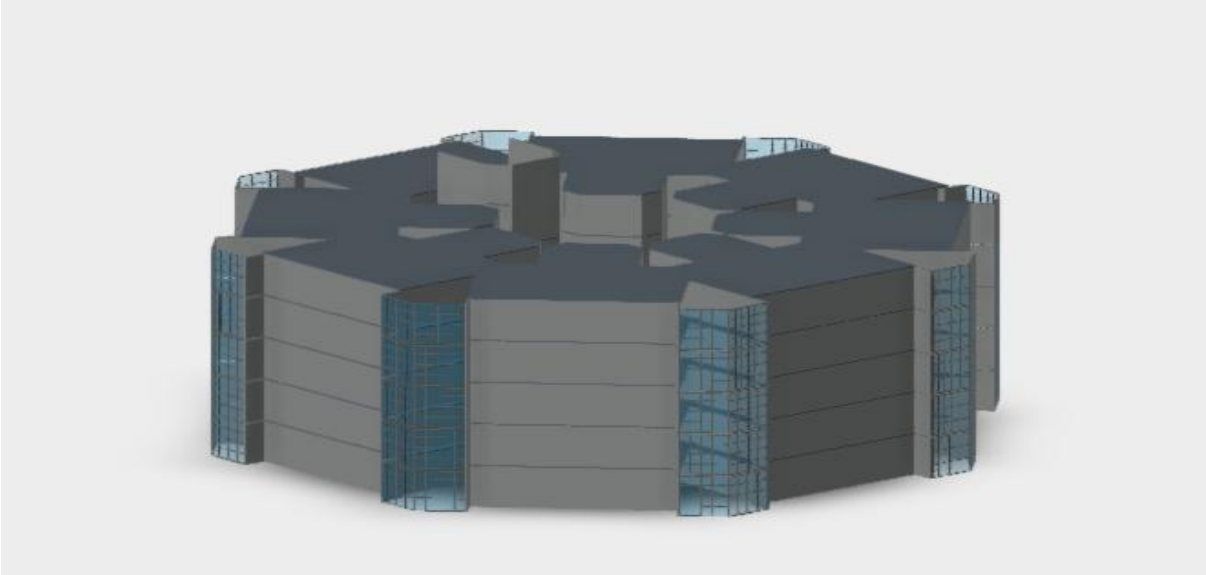
The Work Breakdown Structure (WBS) is a key planning tool used to define a project in terms of its deliverables, while providing a method for breaking down those deliverables into meaningful work efforts. The WBS enables project managers to clearly describe the hierarchical nature of work to be performed. The WBS also establishes a foundation for other elements of the formal project plan. Project managers regularly are challenged to clearly describe desired project outcomes to all involved, while they also capture the order and sequence of the work necessary to produce those outcomes. Once it is complete, the WBS becomes an essential building block and reference point for other project plan components. (Newitt, 2005).



Use of Work Breakdown Structure (WBS)

Some companies prefer to use WBS to help identify the activities prior to developing the schedule. This is systematic means of defining the activities so that each activity can be readily identify by its WBS number. The WBS numbers builds intelligence into the activity ID number. The numbering system is typically unique for a company or project. Some prefer to divide the project by the responsible person, firm, or subcontractor. Others divide the project or break it down according to the building or area of work. Sometimes it makes sense to break it down according to the divisions in the specification. A common method is to break down the project according to phases. (Newitt, 2005).

For example with a building, start with the major phases of the project and number them accordingly:
Phase I Project Feasibility
Phase 2 Design and Engineering



RESULTS AND DISCUSSIONS

PROJECT GOALS:

A project is successful when the needs of the stakeholders have been met. A stakeholder is anybody directly or indirectly impacted by the project.

As a first step, it is important to identify the stakeholders in your project. It is not always easy to identify the stakeholders of a project, particularly those impacted indirectly. Examples of stakeholders are:

- The project sponsor.
- The customer who receives the deliverables.
- The users of the project outputs.
- The project manager and project team.

Once you understand who the stakeholders are, the next step is to find out their needs. The best way to do this is by conducting stakeholder interviews. Take time during the interviews

to draw out the true needs that create real benefits. Often stakeholders will talk about needs that aren't relevant and don't deliver benefits. These can be recorded and set as a low priority.

The next step, once you have conducted all the interviews, and have a comprehensive list of needs is to prioritize them. From the prioritized list, create a set of goals that can be easily measured. A technique for doing this is to review them against the SMART principle. This way it will be easy to know when a goal has been achieved. Once you have established a clear set of goals, they should be recorded in the project plan. It can be useful to also include the needs and expectations of your stakeholders. This is the most difficult part of the planning process completed. It's time to move on and look at the project deliverables.

STEP 2: **PROJECT DELIVERABLES:**

Using the goals you have defined in step 1, create a list of things the project needs to deliver in order to meet those goals. Specify when and how each item must be delivered. Add the deliverables to the project plan with an estimated delivery date. More accurate delivery dates will be established during the scheduling phase, which is next.

STEP 3: **PROJECT SCHEDULE:**

Create a list of tasks that need to be carried out for each deliverable identified in step 2. For each task identify the following:

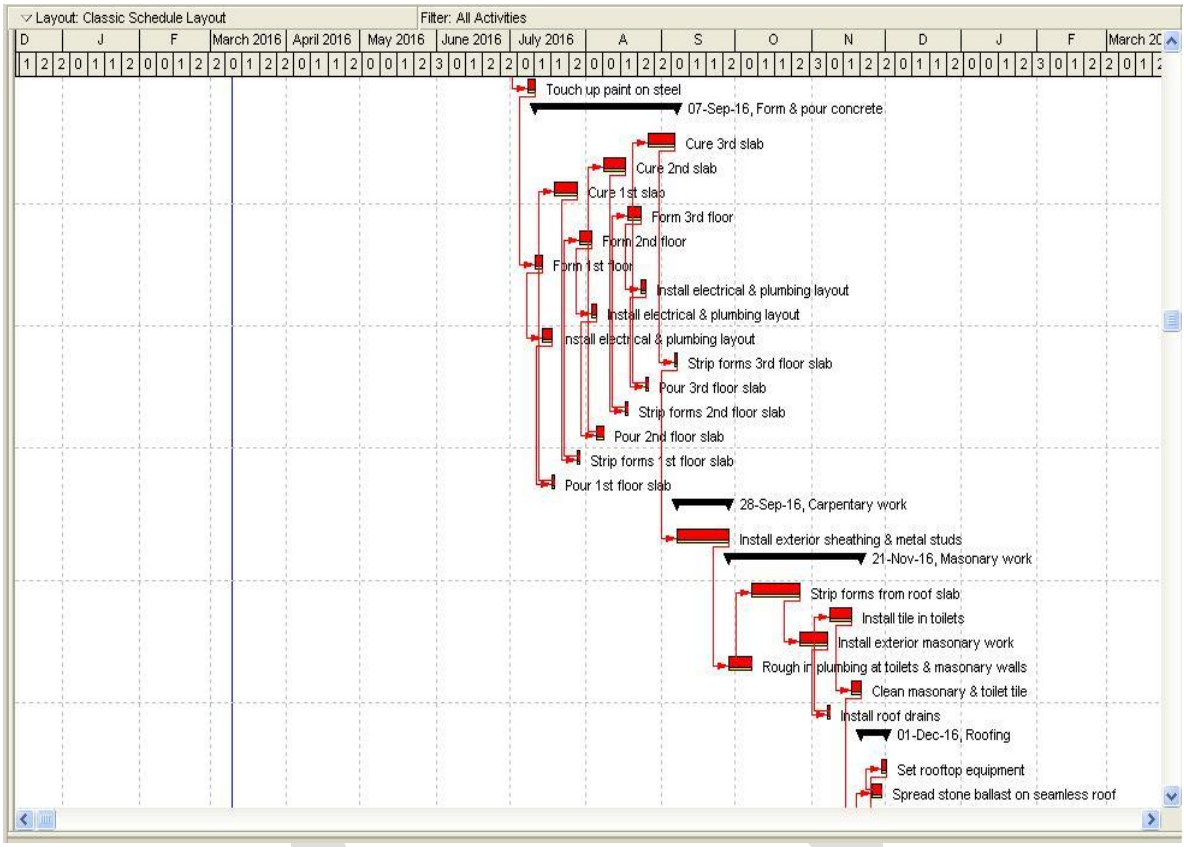
- The amount of effort (hours or days) required to complete the task.
- The resource that will carry out the task.

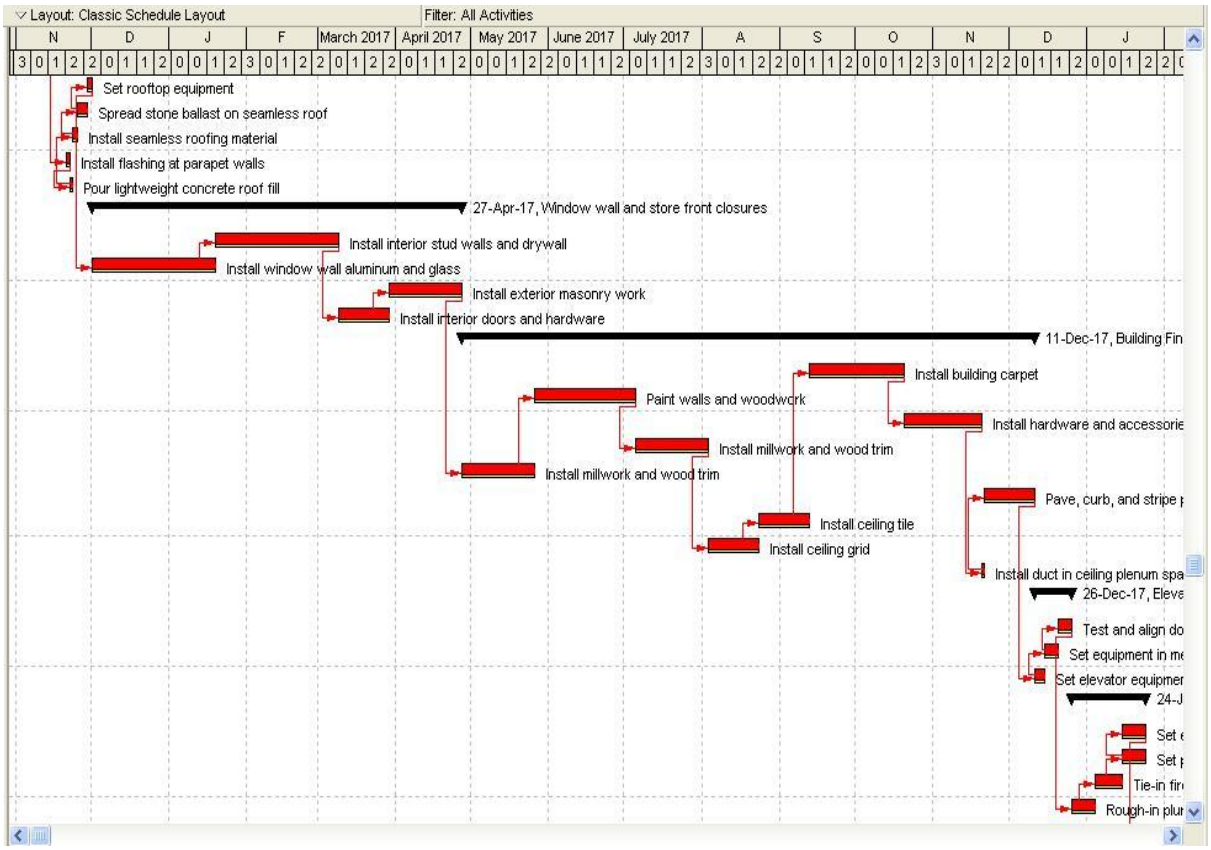
Once you have established the amount of effort for each task, you can work out the effort required for each deliverable, and an accurate delivery date. Update your deliverables section with the more accurate delivery dates.

At this point in the planning, you could choose to use a software package such as Microsoft Project to create your project schedule. Alternatively, use one of the many free templates available. Input all of the deliverables, tasks, durations and the resources who will complete each task.

A common problem discovered at this point, is when a project has an imposed delivery deadline from the sponsor that is not realistic based on your estimates. If you discover that this is the case, you must contact the sponsor immediately. The options you have in this situation are:

- Renegotiate the deadline (project delay).
- Employ additional resources (increased cost).
- Reduce the scope of the project (less delivered).
- Use the project schedule to justify pursuing one of these options.


Layout: Classic Schedule Layout
Filter: All Activities
D
J
F
March 2016
April 2016
May 2016
June 2016
July 2016
A
S
O
N
D
J
F
March 20
Touch up paint on steel
07-Sep-16, Form & pour concrete
Cure 3rd slab
Cure 2nd slab
Cure 1st slab
Form 3rd floor
Form 2nd floor
Form 1st floor
Install electrical & plumbing layout
Install electrical & plumbing layout
Install electrical & plumbing layout
Strip forms 3rd floor slab
Pour 3rd floor slab
Strip forms 2nd floor slab
Pour 2nd floor slab
Strip forms 1st floor slab
Pour 1st floor slab
28-Sep-16, Carpentary work
Install exterior sheathing & metal studs
21-Nov-16, Masonary work
Strip forms from roof slab
Install tile in toilets
Install exterior masonary work
Rough in plumbing at toilets & masonary walls
Clean masonary & toilet tile
Install roof drains
01-Dec-16, Roofing
Set rooftop equipment
Spread stone ballast on seamless roof


Layout: Classic Schedule Layout
Filter: All Activities
N
D
J
F
March 2017
April 2017
May 2017
June 2017
July 2017
A
S
O
N
D
J
Set rooftop equipment
Spread stone ballast on seamless roof
Install seamless roofing material
Install flashing at parapet walls
Pour lightweight concrete roof fill
27-Apr-17, Window wall and store front closures
Install interior stud walls and drywall
Install window wall aluminum and glass
Install exterior masonry work
Install interior doors and hardware
11-Dec-17, Building Fin
Install building carpet
Paint walls and woodwork
Install hardware and accessorie
Install millwork and wood trim
Install millwork and wood trim
Pave, curb, and stripe
Install ceiling tile
Install ceiling grid
Install duct in ceiling plenum spa
26-Dec-17, Eleva
Test and align do
Set equipment in m
Set elevator equipmer
24-J
Set
Set
Tie-in fir
Rough-in plur

STEP 4: **SUPPORTING PLANS:**

This section deals with plans you should create as part of the planning process. These can be included directly in the plan. Human Resource Plan Identify by name, the individuals and organizations with a leading role in the project. For each, describe their roles and responsibilities on the project.

Next, describe the number and type of people needed to carry out the project. For each resource detail start dates, estimated duration and the method you will use for obtaining them.

Create a single sheet containing this information.

COMMUNICATIONS PLAN:

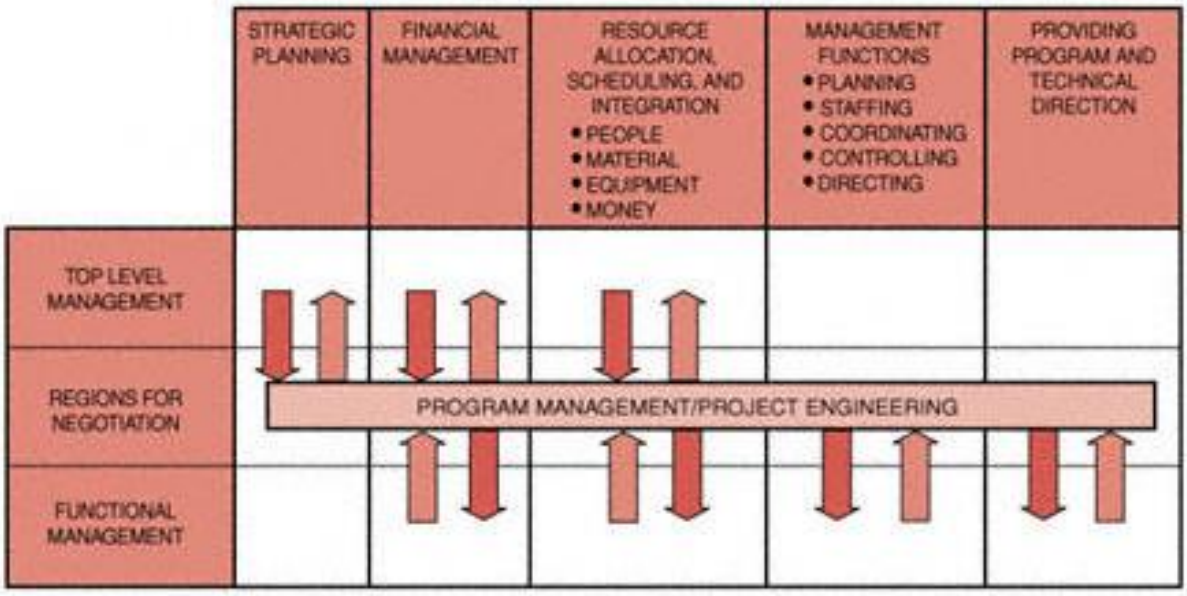
Create a document showing who needs to be kept informed about the project and how they will receive the information. The most common mechanism is a weekly or monthly progress report, describing how the project is performing, milestones achieved and work planned for the next period

RISK MANAGEMENT PLAN:

Risk management is an important part of project management. Although often overlooked, it is important to identify as many risks to your project as possible, and be prepared if something bad happens. Here are some examples of common project risks Time and cost estimates too optimistic. Customer review and feedback cycle too slow. Unexpected budget cuts. Unclear roles and responsibilities. Stakeholder input is not sought, or their needs are not properly understood. Stakeholders changing requirements after the project has started. Stakeholders adding new requirements after the project have started. Poor communication resulting in misunderstandings, quality problems and rework.Lack of resource commitment.

Risks can be tracked using a simple risk log. Add each risk you have identified to your risk log; write down what you will do in the event it occurs, and what you will do to prevent it from occurring. Review your risk log on a regular basis, adding new risks as they occur during the life of the project. Remember, when risks are ignored they don't go away.

Congratulations. Having followed all the steps above, you should have a good project plan. Remember to update your plan as the project progresses, and measure progress against the plan



The negotiation activities of systems management.

CONCLUSION:

Step 1: SETTING OBJECTIVES:

- Define and agree what is to be accomplished.
- Ensure objectives are specific, measurable, achievable, realistic and time-based.
- Agree who will play what role.
- Establish a shared project vision.

Step 2: PLAN AND ORGANIZE FOR ACTION:

- Determine the strategy the team is going to follow in order to tackle the job.
- Analyze the tasks and activities that need to be done.
- Agree on the resources required (people, time, materials, equipment, authority)
- Establish alternative methods in case things do not go according to the plan.

Step 3: ESTABLISH CONTROLS:

- The standards of performance expected should be clear to every member.
- Measures to ensure compliance with agreed standards should be put in place by them.
- Controls, milestones and exit points that will be used to keep in touch with progress should be agreed.(time checks, formal reporting, informal reporting, observation, system, etc.)
- Threats and risks should be raised at regular meetings.

Step 4: IMPLEMENTATION:

There are four implementation components that the project manager should account for, namely: direction, duration, dynamics and discussion.

DIRECTION:

1. Are the team members complying with the objectives?
2. Are we succeeding or failing?
3. Is the project moving in the right direction?
4. Are the controls being met?
5. Is the product, at various stages, of good quality?

DURATION:

1. Are we sticking to the time scale?
2. Are the milestones being met?
3. Is the deadline still achievable?

DYNAMICS:

1. What is the level of productivity?
2. Is everyone actively involved? If not, why?
3. Is the group atmosphere positive or negative?
4. Apart from words spoken, are there certain actions that indicate the prevailing team spirit? Dialogue
5. Are members still aware of key issues, their individual roles, the purpose of the project, the timelines, etc?
6. How is information being shared?
7. Does everyone know what is going on?
8. Do members who have replaced old ones know enough about the project?
9. Are regular meeting held?
10. During any given meeting is there a clear agenda?
11. During meetings are all members encouraged to contribute to the dialogue?
12. Are members who failed to attend the meetings informed about latest developments?
13. Are stakeholders who do not attend meetings given regular update on the project progress?

Step 5: **PROJECT EVALUATION:**

1. When was the project completed?
2. Were the milestones and exit points completed within the target time scale?
3. What are the main causes of delay, if any?
4. What went well?
5. What went wrong?
6. Who worked well or badly and why?
7. How well and efficiently were resources used?
8. Why did the project succeed or fail?
9. Was the product of good quality?
10. What changes could we make in the future for the better management of a comparable project?
11. What lessons can be learned from the project?
12. What can be done to improve team work?
13. Did the project receive full institutional support?

Project is running smoothly as we approach our deadline. Suddenly, an unforeseen complication appears: The client wants us to change the feature at the last minute. We agree to this assuming that we have the time and resources to handle the additional work-until you realize, too late, that the requested change breaks a key feature of our project.

Project can go off the rails for many reasons when success seems ensured. Poor communication, premature loss of project resources, and other such issues can jeopardize the outcome of our project if we are not prepared with a contingency plan. The project management says "How to cut them off at the pass shows and shows how to analyze the project for last-minute risks and how to respond with a plan.

REFERENCES:

1. Construction project management by K KChitkara
2. Primavera by Carl chat field (PMP), Timothy Johnson (MCP).
3. Wiley - Project Management - A Systems Approach to Planning, Scheduling, and Controlling (2001).
4. James P. Lewis - Fundamentals of Project Management