<Project Name>
Project File

Template role definition

<Project Name>	*The name that the project is to be known as.*
<Project Sponsor>	*The name of the client organization or department.*
<Project Sponsor Name>	*The name of the person designated to act for the sponsor.*
<Project Sponsor Title>	*The position title of the person designated to act for the sponsor.*
<Project Team Name>	*The name of the company undertaking the work or team if it differs.*
<Project Co-ord Name>	*The name of the person assigned to act as project team co-ord.*

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Title Page

Choose/design your own format for the team report.
Title Page should include the following:

- Program Name
- Course Name
- Report Title
- <Project Team Name>
- Student's Names & Student's IDs
- Course Co-ordinator's Name
- Due Date
- Word Count

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Project File Overview

About this Guide/Template

Purpose

A Project File is used to record and store all information related to the project.

Use

The Project File should follow the structure documented in this guide/template. You are welcome to add, remove or modify details to suit your particular application.

Text in Blue details a structure that provides a framework for project management and documentation.

Text in Red provides guidance to the content that would be typically required and how much would be appropriate for a project run at university or by an SME. Once the instructions have been read and actioned they should be deleted.

Text in Black are fully worked examples of typical content.

Use technical writing. Remember succinct: concise and clear (short & sweet!)

Structure

Management Planning Levels

PMBOK

Prince2

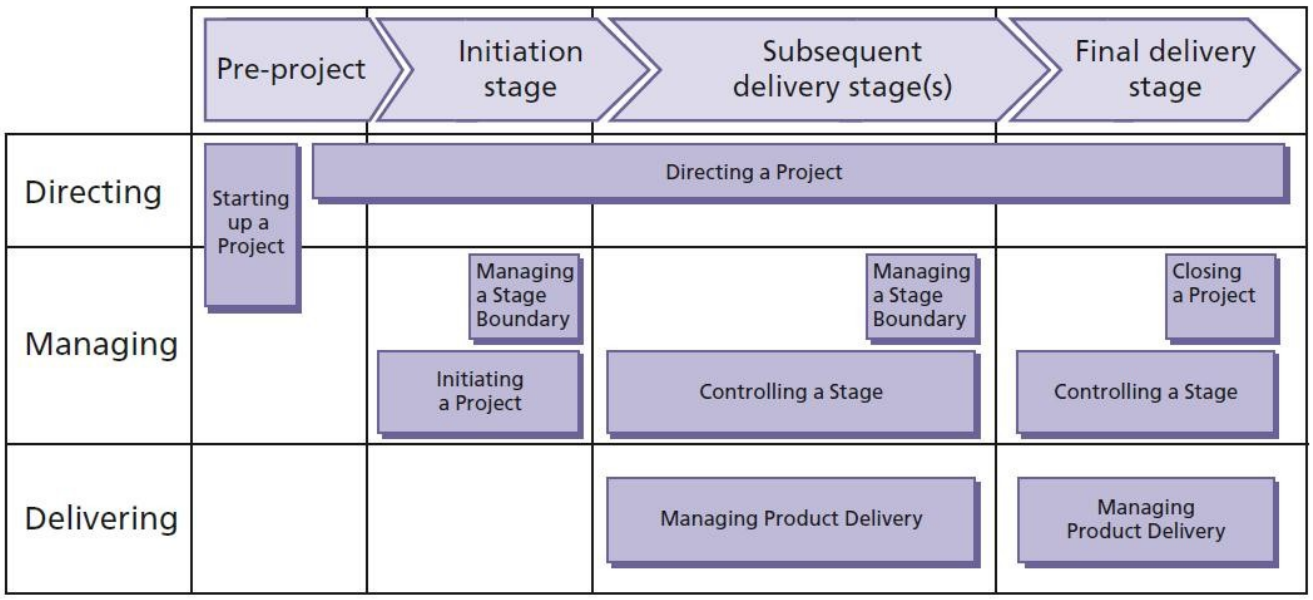
PMBOK vs Prince2

PMBOK & Prince2 Combined

Project Management Institute (PMI)
Project Management Book Of Knowledge (PMBOK)

	Initiating	Planning	Executing	Controlling	Close
Project Integration Management	Develop Project Charter Develop Preliminary Project Scope	Develop Project Management Plan	Direct and Manage Project Execution	Monitor and Control Work Integrated Change Control	Close Project
Project Scope Management		Scope Planning Scope Definition Create WBS		Scope Verification Scope Control	
Project Time Management		Activity Definition Activity Sequencing Activity Resource Estimating Activity Duration Estimating Schedule Development		Schedule Control	
Project Cost Management		Cost Estimating Cost Budgeting		Cost Control	
Project Quality Management		Quality Planning	Perform Quality Assurance	Perform Quality Control	
Project HR Management		Human Resource Planning	Acquire Project Team Develop Project Team	Manage Project Team	
Project Communications Management		Communications Planning	Information Distribution	Performance Reporting Manage Stakeholders	
Project Risk Management		Risk Management Planning Risk Identification Qualitative Risk Analysis Quantitative Risk Analysis Risk Response Planning		Risk Monitoring and Control	
12. Project Procurement Management		Plan Purchases and Acquisitions Plan Contracting	Request Seller Responses Select Seller	Contract Administration	Contract Closure

PRINCE2



PMBOK vs PRINCE2

PRINCE2	PMBOK
Origin - United Kingdom	Origin - United States
Administered by APMG	Administered by PMI
Worldwide adoption	Worldwide adoption
A **process based** project management methodology	A **knowledge based** approach to project management
A series of management processes defining **what** must be done, **when** and **how** it must be done and by **whom** over the life of a project	Describes core practices and a wider range of techniques that can be applied to manage a project
Prescriptive, but tailorable	Non-prescriptive
Defines the roles of everyone involved in a project	Focuses on the project manager's role

PMBOK can be summarised as an approach (a book of knowledge) that provides information on what a project manager needs to know when undertaking certain activities whereas the PRINCE2 methodology demonstrates how to apply this knowledge in a structured and consistent manner. Section1.1 of the PMBOK guide states that PMBOK is not a methodology and recommends the use of methodology for its application.

For example, PMBOK discusses the importance of defining roles and responsibilities in a project whereas PRINCE2 provides a model on how to set up a Project Team and standard role descriptions which are suitable for all types of projects. PMBOK is reliant on the project manager to develop a model for a project team structure.

PMBOK users are sometimes frustrated as people can incorrectly view the project manager as a “super-person”; acting as the planner, problem solver, human resources manager and key decision maker. However, organizations today recognize that as the ultimate functional and/or financial authority is not within the project manager position but with senior management and that key project decisions should be executed by senior management.

In many business environments project managers are not always best placed to make the key decisions. In PRINCE2 the responsibility of the project is with senior management and the role of the project manager is to provide ‘day by day’ operational project management on behalf of senior management.

If a key PMBOK criticism is that the project manager acts as a “super-person”, a similar key criticism of PRINCE2 is that it misses the importance of the ‘soft skills’ needed to manage a project and it could probably provide more detail on knowledge areas such as scope management & contract management which PMBOK provides guidance on.

PRINCE2 is popular because it provides a standard approach for the management of all types of projects across an organization. PRINCE2 ensures consistency of approach whereas

PMBOK leaves it open to the project manager to decide on their approach which often means many different approaches are adopted throughout an organization using it to manage its projects. More often, larger organizations are realizing the advantages to be gained by standardizing the management of projects. Most quality systems require a reduction in variance within management systems and PRINCE2 is viewed as the solution for this requirement. The other advantage of PRINCE2 is its focus on the Business Case which is a management theme designed to support valued decision making.

PRINCE2 being a process based methodology, does not need a highly experienced project management team to apply it, whereas PMBOK is a collection of knowledge areas which requires a team with significant management experience to design a method to support its application. PRINCE2 being process based is easy to implement and use; therefore quick and easy to learn; therefore quick and easy to teach. It is far more efficient and cost effective in its initial implementation into an organization producing better results sooner.

In summary, a skilled project manager is one that can apply project management knowledge areas, such as those of PMBOK with the aid of a structured methodology such as PRINCE2. A highly skilled project manager should also have the 'know-how' to apply project management controls that are appropriate to the scale, complexity and nature of the project.

http://www.hilogic.com.my/PRINCE2-PMP-PMBOK-Comparison.html

Executive Summary

Needs to outline the following information:

- the purpose of the project
- the methods used to achieve the purpose
- the major findings
- the main conclusions
- the major recommendations.

Executive Summary is written on **COMPLETION** of the project!!!
1>2 pages (1&1/2 preferred) in length.

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Project Concept Planning

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1. Overview

An overview of the report which states and frames the engineering project. It provides a background to the project, explains the importance and goals of the project, outlines the method/framework for executing the project, and gives a preview of the report's overall structure (signposts it).

1.1 Project summary

The product should be able to perform the following:

- xxx.
- xxx.
- xxx.

Performance specifications are not to be listed in this section!

1.1.1 Purpose, scope and objectives

The objective of the project is to create a product that satisfies the following requirements:

- xxx.
- xxx.
- xxx.

Performance specifications are not to be listed in this section!

1.1.2 Assumptions and constraints

<Project Team Name> will operate under the following assumptions:

- The client has no human resources other than the <Project Team Name> team to work towards building the product.
- The development team will learn and work together to meet the deliverables of the project.
- The customer will respond in a timely manner to all questions and requests for information.

The following constraints may impose limits on this project:

- Time availability for this project is constrained by other course requirements.
- <Project Team Name> shall operate under the directives of the selected development process.
- Additional resources (financial or human) are not available for the project.

1.1.3 Project deliverables

<Project Team Name> will deliver all software, hardware and documentation for the project no later than COB 01Jul2013. In addition, a final report and presentation will be given to the <Project Sponsor> at about that time. There deliverables are described below and are subject to change.

Only a single copy of each deliverable shall be provided. For material given to the customer, an electronic copy of the material on a CD-ROM shall be sufficient. For internal deliverables, a printed hardcopy shall be provided.

Customer deliverables shall be considered delivered when presented to the client. Internal deliverables shall be considered delivered when given to the management designee.

1.1.3.1 Software deliverables

The following is a preliminary list of software deliverables that will be handed to the client upon completion of the project:

Software Component	Delivery Date (No later than)

1.1.3.2 Hardware deliverables

The following is a preliminary list of software deliverables that will be handed to the client upon completion of the project:

Hardware Component	Delivery Date (No later than)

1.1.3.3 Documentation deliverables

The following is a preliminary list of documents that the team will need to deliver to the client and/or internally:

Document	Delivery Date (No later than)

1.2 Plan evolution

It is good practice and mostly required by large consulting and professional project management firms, to have a formally agreed and version controlled project management plan approved in the early stages of the project, and applied throughout the project.

Who is responsible for maintaining this planning document?

This PMP is intended to be an evolving document. The team leader is responsible for the revisions to this document, although responsibility for some of the sections may be delegated to other members of the team.

1.3 Project Charter

This project charter states the scope of the project, gives the Project Co-ord authority over the project, provides summary milestones, states the project budget and identifies funding sources. Copy information from Section 1.1 where appropriate.

Paragraph 1: Formally authorize the project in this section of the Project Charter.

This Charter formally authorizes the <Project Name> Project to develop and implement a new ..... A project plan will be developed and submitted to the Project Sponsor for approval. The project plan will include: scope statement; schedule; cost estimate; budget; and provisions for scope, resource, schedule, communications, quality, risk, procurement, and stakeholder management as well as project control.

Paragraph 2: Project Scope - State the scope of the project, its deliverable and what business needs, problems or opportunities the project addresses – a market demand, business need, legal requirement, social need, customer request or technological advance.

The purpose of the <Project Name> Project is..... This project meets the client's need for..... The project deliverables shall include ..... The objectives of the <Project Name> Project are to ..... High level risks for this project include ..... Success will be determined by .....

Paragraph 3: Identify the Project Co-ord and give them authority to apply resources to the project.

The Project Co-ordinator, <Project Team Co-ord>, is hereby authorized to interface with management as required, negotiate for resources, delegate responsibilities within the framework of the project, and to communicate with all contractors and management, as required, to ensure successful and timely completion of the project. The Project Co-ordinator is responsible for developing the project plan, monitoring the schedule, cost, and scope of the project during implementation, and maintaining control over the project by measuring performance and taking corrective action.

Paragraph 4: Provide the summary milestone schedule in the Project Charter.

The project plan will be submitted and approved in accordance with the milestone schedule below. The client must approve any schedule changes which may impact milestones. A detailed schedule will be included in the project plan.

The high level milestone schedule is:
Feb 1, 20xx – Project Plan Complete and Approved
Mar 31, 20xx – Design Completed
May 31, 20xx – Contruction Completed
June 30, 20xx – Testing Completed
Sept 30, 20xx – Implementation Completed
Oct 15, 20xx – Project Completion

Paragraph 5: Project Budget – state the budget for the project and identify funding sources.

The budget for the <Project Name> Project is $425,000.

Sponsor Acceptance

Approved by the Project Sponsor:

_____ Date:_____

<Project Sponsor Name>
<Project Sponsor Title>

1.4 Team Charter

Team Charter Overview

Team Charters are documents that define the purpose of the team, how it will work, and what the expected outcomes are. They are "roadmaps" that the team and its sponsors create at the beginning of the journey to make sure that all involved are clear about where they're heading, and to give direction when times get tough.
For teams to get off "on the right foot," Team Charters should be drawn up when the team is formed. This helps to make sure that everyone is focused on the right things from the start. However, drawing up a team charter can also be useful if a team is in trouble and people need to regain their view of the "big picture."

Tip: At the start of a project, all is momentum and excitement, and people are eager to start work right away. This is where it's tempting to charge in to productive work. However, "failing to plan is planning to fail," as is failing to set objectives clearly. Time taken agreeing a team charter will be repaid many times over as the project progresses.
In particular, it will speed the process of ***forming, storming, norming, and performing,*** *meaning that the team becomes effective much more quickly.*

The precise format of team charters varies from situation to situation and from team to team. And while the actual charter can take on many forms, much of the value of the Charter comes from thinking through and agreeing the various elements.

Team Charter can be thought of as the foundation upon which all of the team's work, rules, tools, and behaviors are built. Unlike traditional project management, where a project charter defines the project scope and success criteria, often pre-determined by senior management/sponsors, a Team Charter is built and agreed upon by the project team exclusively. The results of the project team directly contributing to and building the charter are immediate buy-in and a vested interest in the success of the project. When project team members are able to directly contribute to and influence a project, they will be much more motivated for success.

What Does the Team Charter Include?

There is no standard or universal template for a Team Charter. Some practitioners interpret the Team Charter to be a tool that strictly applies to the team's dynamics, communication, and rules of behavior. Other practitioners incorporate these characteristics as well as the project's vision, goals/objectives, mission, or success criteria. The items included in the Team Charter may be a result of experience or organizational practices. For the purposes of this Team Charter Template, sections for both the high-level project specific information and the interpersonal team dynamics are incorporated into one document.

It is also important that the Team Charter be readily available or prominently posted in a team room so all team members have immediate access to it. It can be distributed to each team member on paper, drawn on a dry erase board, or posted on flip charts in the team room where everyone can see it at any time. Having the Team Charter available and visible will aid team project meetings when it is necessary to discuss any project information that is listed in the charter.

Project Specific Information

The charter is created in the beginning of the project, so the team may not even know or understand a great level of detail yet. The project specific information that is included in the charter should be limited to a high level vision (why the project has been initiated), a description of the mission or objectives, and what criteria constitute success for the project. All of this information is at a high enough level that it should be known to the project team at the outset of the project.

Interpersonal Team Dynamics Information

This section is an extremely important part of the charter for a total team concept of buy-in and interpersonal communications. This portion of the team charter should describe the names and roles of project team members, how, when, and where team communications will occur, and the rules of behavior for the group. It is important that all team members contribute to these sections of the charter as this provides a sense of ownership for the team. The team must encourage contribution and feedback from all team members in order to provide a sense of ownership for the Team Charter.

1.4.1 Context

This is the introduction to the charter. It sets out why the team was formed, the problem it's trying to solve, how this problem fits in with the broader objectives of the organization, and the consequences of the problem going unchecked.
What problem is being addressed?
What result or delivery is expected?
Why is this important?

The team has been formed to increase cooperation and cohesion between a multinational company's business units in different countries.
The historic lack of cooperation between country business units has meant that they have ended up selling different parts of the company's product portfolio. This has undermined the company's ability to achieve economies of scale in manufacturing, and has led to the R&D budget being frittered away across many different business areas. These are key reasons why the company has been losing out to competitors.

1.4.2 Mission and Objectives

This section is at the heart of the Charter. By defining a mission, the team knows what it has to achieve. Without a clear mission, individuals can too easily pursue their own agendas independently of, and sometimes irrespective of, the overarching goal.

The mission of this team is to develop a plan that increases cohesion between country business units so that, within three years, they are selling a common product range.

The next stage is to take the mission, and turn it into measurable goals and objectives. These are the critical targets and milestones that will keep the team on track. When writing goals and objectives, consider using the SMART framework (SMART usually stands for Specific, Measurable, Attainable, Relevant, and Time-bound). The key here is to make sure each objective can be measured, so that success can be monitored.

Tip: Review your project milestones and how they were generated. Use critical thinking to improve if possible.

1. To interview country managers and product managers to identify why they think countries are not working together. Survey to be completed and presented to the CEO by March 31.
2. To prepare first draft proposals, and present to CEO by April 15.
3. To refine proposals, and present to regional management meeting on April 25.
4. To present the costed plan to the CEO by May 15.

1.4.3 Rules of Behavior

1. All team members will treat each other with respect at all times.
2. Constructive feedback is a valuable part of our success so we will not take offense and all team members will ensure all feedback is provided in a constructive manner.
3. Open communication among the team is always welcomed and valued.
4. We will recognise and celebrate all individual and team accomplishments.
5. All personal mobile phones will be turned off prior to beginning any of our meetings or discussions.
6. We will accept responsibility and be accountable for our actions.
7. We will give consideration to whomever is speaking and avoid sidebars or speaking over one another.
8. We will work collaboratively when possible and use a consensus approach when making team decisions.

1.4.4 Communications

1. All team members will treat each other with respect at all times.
2. Constructive feedback is a valuable part of our success so we will not take offense and all team members will ensure all feedback is provided in a constructive manner.
3. We will update our tasks on the Kanban board each work day before 0900.
4. Meeting minutes will be sent out within 24 hours of each meeting..
5. The responsibility for meeting scribe will be shared by all team members on a rotating basis.
6. If a meeting must be cancelled or additional meetings are required, the Product Owner will send out notification as early as possible.
7. All team members are expected to be on time for all meetings..

1.4.5 Project Team

Name	Role	Phone	Init

Sponsor Acceptance

Approved by the Project Sponsor:

_____ Date:_____
<Project Sponsor Name>
<Project Sponsor Title>

2. Project organization

This section describes the external interfaces to the team, the internal team structure as well as the roles help by team members.

2.1 Stakeholder identification

In order to effectively manage your stakeholders you need to have a good stakeholder management strategy. The stakeholder management strategy identifies and documents the approach to take in order to increase support and decrease negative impacts of stakeholders throughout the life of the project. It should identify the key stakeholders along with the level of power and influence they have on the project. Then the Stakeholder Management Strategy should document the strategies which will be used to manage the stakeholders according to their power and interest in the project.

2.1.1 Introduction

This section of the Stakeholder Management Strategy should introduce and discuss the goals and objectives of the Stakeholder Management Strategy for the project. Effectively managing stakeholders is a key component of successful project management and should never be ignored. Proper stakeholder management can be used to gain support for a project and anticipate resistance, conflict, or competing objectives among the project's stakeholders.

The Stakeholder Management Strategy for <Project Team Name>'s <Project Name> Project will be used to identify and classify project stakeholders; determine stakeholder power, interest, and influence; and analyse the management approach and communication methodology for project stakeholders. This will allow us to identify key influential stakeholders to solicit input for project planning and gain support as the project progresses. This will benefit the project by minimizing the likelihood of encountering competing objectives and maximizing the resources required to complete the project.

Early identification and communication with stakeholders is imperative to ensure the success of the <Project Name> Project by gaining support and input for the project. Some stakeholders may have interests which may be positively or negatively affected by the <Project Name> Project. By initiating early and frequent communication and stakeholder management, we can more effectively manage and balance these interests while accomplishing all project tasks.

2.1.2 Identify Stakeholders

This section should discuss the methodology the project team will use to identify stakeholders and how stakeholders are defined. It is imperative that all stakeholders are identified regardless of how major or minor they are. This is because they will be categorized after they're identified. If stakeholders are omitted there is a likelihood that they may become evident at some point during the project's lifecycle and introduce delays or other obstacles to the project's success. Great care and effort should be dedicated to this step of the Stakeholder Management Strategy.

The <Project Name> Project Team will conduct a brainstorming session in order to identify stakeholders for the project. The brainstorming session will include the primary project team and project sponsor. The session will be broken down into two parts. The first part will focus on internal stakeholders within <Project Team Name>. These stakeholders may include functional managers, operations personnel, finance personnel, warehouse and material handlers, and any other <Project Team Name> employee who will be affected by the <Project Name> Project. The second part of the session will focus on external stakeholders. These may include suppliers, trial customers, partner organizations, or any other individuals who reside outside of <Project Team Name>.

The following criteria will be used to determine if an individual will be included as a stakeholder:

- Will the person or their organization be directly or indirectly affected by this project?
- Does the person or their organization hold a position from which they can influence the project?
- Does the person have an impact on the project's resources (material, personnel, funding)?
- Does the person or their organization have any special skills or capabilities the project will require?
- Does the person potentially benefit from the project or are they in a position to resist this change?

Any individual who meets one or more of the above criteria will be identified as a stakeholder. Stakeholders from the same organization will be grouped in order to simplify communication and stakeholder management.

2.1.3 Key Stakeholders

This part of the Stakeholder Management Strategy identifies the sub-set of stakeholders who have been identified as key stakeholders and the reasoning for determining that they are key stakeholders. Key stakeholders are often those who potentially have the most influence over a project or those who may be most affected by the project. They may also be stakeholders who are resistant to the change represented by the project. These key stakeholders may require more communication and management throughout the project's lifecycle and it is important to identify them to seek their feedback on their desired level of participation and communication.

As a follow on to Identify Stakeholders, the project team will identify key stakeholders who have the most influence on the project or who may be impacted the most by it. These key stakeholders are those who also require the most communication and management which will be determined as stakeholders are analysed. Once identified, the Project Co-ord will develop a plan to obtain their feedback on the level of participation they desire, frequency and type of communication, and any concerns or conflicting interests they have.

Based on the feedback gathered by the project co-ord, the determination may be made to involve key stakeholders on steering committees, focus groups, gate reviews, or other project meetings or milestones. Thorough communication with key stakeholders is necessary to ensure all concerns are identified and addressed and that resources for the project remain available.

2.1.4 Stakeholder Analysis

Here, the Stakeholder Management Strategy describes how the project team will analyze its list of identified stakeholders. This discussion should include how stakeholders will be categorized or grouped as well as the level of impact they may have based on their power, influence, and involvement in the project. There are several tools and techniques that can be used to help quantify stakeholders. A description of these tools and techniques should also be included in this section.

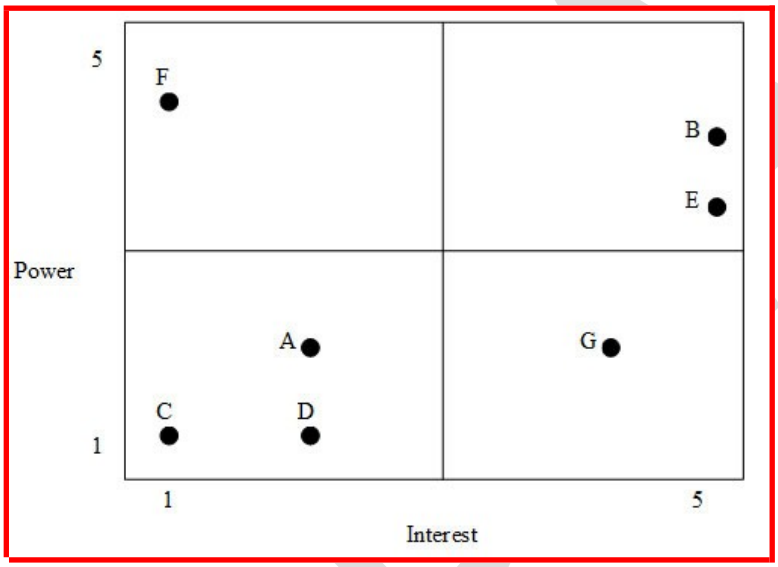
Once all <Project Name> Project stakeholders have been identified, the project team will categorize and analyze each stakeholder. The purpose of this analysis is to determine the stakeholders' level of power or influence, plan the management approach for each stakeholder, and to determine the appropriate levels of communication and participation each stakeholder will have on the project.

The project team will categorize stakeholders based on their organization or department. Once all stakeholders have been categorized, the project team will utilize a power/interest matrix to illustrate the potential impact each stakeholder may have on the project. Based on this analysis the project team will also complete a stakeholder analysis matrix which illustrates the concerns, level of involvement, and management strategy for each stakeholder.

The chart below will be used to establish stakeholders and their levels of power and interest for use on the power/interest chart as part of the stakeholder analysis.

Key	Organization	Name	Power (1-5)	Interest (1-5)
A	Operations	A. White	2	2
B	Operations	B. Brown	4	5
C	Supplier	C. Black	1	1
D	Supplier	D. Green	1	2
E	Trial Customer	E. Day	3	5
F	Engineering	F. Knight	4	1
G	Engineering	G. Smith	2	4

Below is the power/interest chart for the <Project Name> Project stakeholders. Each letter represents a stakeholder in accordance with the key in the chart above.



Based on the power and interest analysis and chart above, stakeholders A, C, and D will require minimal management effort as they reside in the lower left quadrant of the matrix. Stakeholder F, in the upper left quadrant, must be kept satisfied by ensuring concerns and questions are addressed adequately. Stakeholder G, in the lower right quadrant, must be kept informed through frequent communication on project status and progress. Stakeholders B and E, in the upper right quadrant, are key players and must be involved in all levels of project planning and change management. Additionally, stakeholders B and E should be participatory members in all project status meetings, gate reviews, and ad hoc meetings as required.

The stakeholder analysis matrix will be used to capture stakeholder concerns, level of involvement, and management strategy based on the stakeholder analysis and power/interest matrix above. The stakeholder analysis matrix will be reviewed and updated throughout the

project's duration in order to capture any new concerns or stakeholder management strategy efforts.

Stakeholder	Concerns	Quadrant	Strategy
A	Ensuring proper handover of project to operations team	Minimal Effort	Communicate project specifications as required
B	Resource and scheduling constraints for production once project is transitioned to operations	Key Player	Solicit stakeholder as member of steering committee and obtain feedback on project planning. Frequent communication and addressing concerns are imperative
C	Ensuring on time delivery of materials	Minimal Effort	Communicate project schedule and material requirements ahead of time to ensure delivery
D	Possible union strike may impact material delivery	Minimal Effort	Solicit frequent updates and develop plan for alternative supply source
E	Product performance must meet or exceed current product	Key Player	Communicate test results and performance specifications and obtain feedback on customer requirements or any changes. Provide frequent status reports and updates.
F	Concerns regarding resources to assist project team with product design	Keep Satisfied	Communicate resource requirements early and ensure resources are released back to engineering when they're no longer required
G	Questions regarding design of LightWave product	Keep Informed	Allow technical staff to work with stakeholder to answer questions and address concerns and provide test results for validation

2.2 External interfaces.

The client representative for this project is <Sponsor Name>. The <Project Team Name> customer liaison is responsible for formal interaction between <Project Team Name> and the client representative. Necessary interaction can be done through anyone on the team, but all discussions with the customer should be documented clearly for records.

Project Management Planning

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3. Managerial process plans

This section contains the management objectives and priorities, and process management plans. More plans will be added as the document evolves.

3.1 Management objectives and priorities

<Project Team Name>'s primary objective is to ensure the successful completion of the project. To be considered successful, the team must perform the following:

1. Use good engineering methods to develop the product.
   - Apply the methods learned in class
   - Experience a new way of doing things
   - Practice reflective learning
2. Deliver a quality product that meets the requirements agreed upon in the PRS.
   - Deliver a product that is stable
   - Deliver a system that addresses the client's needs at the client's satisfaction.
3. Honour its commitments.
   - Meet client and team deadlines
   - Avoid unrealistic commitments.
4. Display professionalism
   - Value the time of team members, mentors, and the client.
   - Accept and support team decisions.
   - Communicate openly and frequently.
   - Take responsibility for the success of the project
   - Be proactive.
5. Make efficient use of all available resources.
   - Learn from each other
   - Take advantage of GUC staff and peer expertise.
   - Experiment with existing tools and processes.

3.2 Start-up plan

This section describes the materials and resources required to start the project. Because most of this information has been pre-defined, this section will not describe the rationale for many of these choices.

3.2.1 Staffing plan

Section 2.3 shows the staffing resources for the project. Each team member will be available for *XX* hours per week for the duration of the project. This time includes time spent with the mentors and time spent working of any project tasks, such as team and client meetings, document preparation and inspection, and tool development.

3.3 Reporting plan

Internal reporting for <Project Team Name> team members will be relatively informal. Each team member will provide a status report to the team during the weekly team meetings. The Team Lead will use this information to update the project plan. Mentors will be invited to attend the weekly meeting for general status issues.

External reporting will be more formal. The team will give biweekly status reports to the customer at the client meetings to indicate progress.

3.4 Project management plan

3.4.1 Introduction

Provide a high level overview of the project and what is included in this Project Management Plan. This should include a high level description of the project and describe the projects deliverables and benefits. Excessive detail is not necessary in this section as the other sections of the project plan will include this information. This section of the project plan should provide a summarized framework of the project and its purpose. Look back at the Project Charter for information to include in this section.
2-3 paragraphs long.

3.4.2 Project Management Approach

Outline the overall management approach for the project. This section should describe, in general terms, the roles and authority of project team members. It should also include which organizations will provide resources for the project and any resource constraints or limitations. If there are any decisions which must be made by specific individuals—for example authorizing additional funding by the project sponsor—this should also be stated here. It should be written as an Executive Summary for the Project Management Plan.
2-3 paragraphs long.

3.4.3 Project Scope

State the scope of the project. The scope statement from the project charter should be used as a starting point; however, the project plan needs to include a much more detailed scope than the charter. This detail should include what the project does and does not include. The more detail included in this section, the better the product. This will help to clarify what is included in the project and help to avoid any confusion from project team members and stakeholders.
2-3 paragraphs long.

3.4.4 Milestone List

Provide a summary list of milestones including dates for each milestone. Include an introductory paragraph in this section which provides some insight to the major milestones. This section of the project plan should also mention or discuss actions taken if any changes to the milestones or delivery dates are required.

Milestone	Description	Date
Complete Requirements Gathering	All requirements for project must be determined to base design upon	28/2/xx

3.4.4 Schedule Baseline and Work Breakdown Structure

This section should discuss the WBS, WBS Dictionary, and Schedule baseline and how they will be used in managing the project's scope. The WBS provides the work packages to be performed for the completion of the project. The WBS Dictionary defines the work packages. The schedule baseline provides a reference point for managing project progress as it pertains to schedule and timeline.

The WBS for the <Project Name> Project is comprised of work packages which do not exceed 40 hours of work but are at least 4 hours of work. Work packages were developed through close collaboration among project team members and stakeholders with input from functional managers and research from past projects.

The WBS Dictionary defines all work packages for the <Project Name> Project. These definitions include all tasks, resources, and deliverables. Every work package in the WBS is

defined in the WBS Dictionary and will aid in resource planning, task completion, and ensuring deliverables meet project requirements.

The Project Schedule Baseline and Work Breakdown Structure are provided in Appendix A, Project Schedule and Appendix B, Work Breakdown Structure.

3.4.5 Communications Management Plan

The purpose of the Communications Management Plan is to define the communication requirements for the project and how information will be distributed to ensure project success. You should give considerable thought to how you want to manage communications on every project. By having a solid communications management approach many project management problems can be avoided. In this section you should provide an overview of your communications management approach. Generally, the Communications Management Plan defines the following:

- *Communication requirements based on roles*
- *What information will be communicated*
- *How the information will be communicated*
- *When will information be distributed*
- *Who does the communication*
- *Who receives the communication*
- *Communications conduct*

For larger and more complex projects, the Communications Management Plan may be included as an appendix or separate document apart from the Project Management Plan.

This Communications Management Plan sets the communications framework for this project. It will serve as a guide for communications throughout project life-cycle and will be updated as communication requirements change. This plan identifies and defines the roles of <Project Name> Project team members as they pertain to communications. It also includes a communications matrix which maps the communication requirements of this project, and communication conduct for meetings and other forms of communication. A project team directory is also included to provide contact information for all stakeholders directly involved in the project.

The Project Team Co-ord will take the lead role in ensuring effective communications on this project. The communications requirements are documented in the Communications Matrix below. The Communications Matrix will be used as the guide for what information to communicate, who is to do the communicating, when to communicate it, and to whom to communicate.

Communication Type	Description	Frequency	Format	Participants/ Distribution	Deliverable	Owner
Weekly Status Report	Email summary of project status	Weekly	Email	Project Sponsor, Team and Stakeholders	Status Report	Project Manager
Weekly Project Team Meeting	Meeting to review action register and status	Weekly	In Person	Project Team	Updated Action Register	Project Manager
Project Monthly Review (PMR)	Present metrics and status to team and sponsor	Monthly	In Person	Project Sponsor, Team, and Stakeholders	Status and Metric Presentation	Project Manager
Project Gate Reviews	Present closeout of project phases and kickoff next phase	As Needed	In Person	Project Sponsor, Team and Stakeholders	Phase completion report and phase kickoff	Project Manager
Technical Design Review	Review of any technical designs or work associated with the project	As Needed	In Person	Project Team	Technical Design Package	Project Manager

Project team directory for all communications is:

Name	Title	Email	Office Phone	Cell Phone
Team Member #1	Project Co-ord	j.bloggs@guc.com	xxx-xxx-xxxx	xxx-xxx-xxxx
Team Member #2	Developer	j.bloggs@guc.com	xxx-xxx-xxxx	xxx-xxx-xxxx
Team Member #3	Developer	j.bloggs@guc.com	xxx-xxx-xxxx	xxx-xxx-xxxx

3.4.6 Cost Management Plan

The Cost Management Plan clearly defines how the costs on a project will be managed throughout the project's lifecycle. It sets the format and standards by which the project costs are measured, reported, and controlled. Working within the cost management guidelines is imperative for all project team members to ensure successful completion of the project. These guidelines may include which level of the WBS cost accounts will be created in and the establishment of acceptable variances. The Cost Management Plan:

- *Identifies who is responsible for managing costs*
- *Identifies who has the authority to approve changes to the project or its budget*
- *How cost performance is quantitatively measured and reported upon*
- *Report formats, frequency and to whom they are presented*

For complex or large projects the Cost Management Plan may be included as an appendix to the Project Plan or as a separate, stand-alone document.
2-4 paragraphs long

3.4.7 Procurement Management Plan

The Procurement Management Plan should be defined enough to clearly identify the necessary steps and responsibilities for procurement from the beginning to the end of a project. The project co-ord must ensure that the plan facilitates the successful completion of the project and

does not become an overwhelming task in itself to manage. The project co-ord will work with the project team, and other key players to manage the procurement activities.

For larger projects or projects with more complicated procurement management requirements, a Procurement Management Plan would be attached as a separate document separate from the Project Management Plan.

The Project Co-ord will provide oversight and management for all procurement activities under this project. The Project Co-ord is authorized to approve all procurement actions up to $XX,XXX. Any procurement actions exceeding this amount must be approved by the Project Sponsor.

While this project requires minimal procurement, in the event procurement is required, the Project Co-ord will work with the project team to identify all items or services to be procured for the successful completion of the project. In the event a procurement becomes necessary, the Project Co-ord will be responsible for management any selected vendor or external resource. The Project Co-ord will also measure performance as it relates to the vendor providing necessary goods and/or services and communicate this to the purchasing and contracts groups.

3.4.8 Schedule Management Plan

This section of the Project Plan provides a general framework for the approach which will be taken to create the project schedule. Effective schedule management is necessary for ensuring tasks are completed on time, resources are allocated appropriately, and to help measure project performance. This section of the Project Plan should include discussion of the scheduling tool/format, schedule milestones, and schedule development roles and responsibilities.

A separate Schedule Management Plan is suitable for larger projects or projects where the schedule management is more formalized. The Schedule Management Plan can be broken out as an appendix to the Project Plan.

Project schedules for the <Project Name> Project starting with the deliverables will be identified in the project's Work Breakdown Structure (WBS). Activity definition will identify the specific work packages which must be performed to complete each deliverable. Activity sequencing will be used to determine the order of work packages and assign relationships between project activities. Activity duration estimating will be used to calculate the number of work periods required to complete work packages. Resource estimating will be used to assign resources to work packages in order to complete schedule development.

Once a preliminary schedule has been developed, it will be reviewed by the project team and any resources tentatively assigned to project tasks. The project team and resources must agree to the proposed work package assignments, durations, and schedule. Once this is achieved the project sponsor will review and approve the schedule and it will then be base lined.

The following will be designated as milestones for all project schedules:

- *Completion of scope statement and WBS/WBS Dictionary*
- *Baselined project schedule*
- *Approval of final project budget*
- *Project kick-off*
- *Approval of roles and responsibilities*
- *Requirements definition approval*

- *Completion of data mapping/inventory*
- *Project implementation*
- *Acceptance of final deliverables*

Roles and responsibilities for schedule development are as follows:

The project co-ord will be responsible for facilitating work package definition, sequencing, and estimating duration and resources with the project team. The project co-ord will also create the project schedule and validate the schedule with the project team, stakeholders, and the project sponsor. The project co-ord will obtain schedule approval from the project sponsor and baseline the schedule.

The project team is responsible for participating in work package definition, sequencing, duration, and resource estimating. The project team will also review and validate the proposed schedule and perform assigned activities once the schedule is approved.

The project sponsor will participate in reviews of the proposed schedule and approve the final schedule before it is base lined.

The project stakeholders will participate in reviews of the proposed schedule and assist in its validation.

3.4.9 Quality Management Plan

This portion discusses how quality management will be used to ensure that the deliverables for the project meet a formally established standard of acceptance. All project deliverables should be defined in order to provide a foundation and understanding of the tasks at hand and what work must be planned. Quality management is the process by which the organization not only completes the work, but completes the work to an acceptable standard. Without a thorough Quality Management Plan, work may be completed in a substandard or unacceptable manner. This section should include quality roles and responsibilities, quality control, quality assurance, and quality monitoring.

For larger or more complex projects, the Quality Management Plan would be included as an appendix or separate document from the Project Management Plan.

All members of the <Project Name> Project team will play a role in quality management. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The following are the quality roles and responsibilities for the <Project Name> Project:

The Project Sponsor is responsible for approving all quality standards for the <Project Name> Project. The Project Sponsor will review all project tasks and deliverables to ensure compliance with established and approved quality standards. Additionally, the Project Sponsor will sign off on the final acceptance of the project deliverable.

The Project Co-ord is responsible for quality management throughout the duration of the project. The Project Co-ord is responsible for implementing the Quality Management Plan and ensuring all tasks, processes, and documentation are compliant with the plan. The Project Co-ord will work with the project's quality specialists to establish acceptable quality standards. The Project Co-ord is also responsible for communicating and tracking all quality standards to the project team and stakeholders.

The Quality Specialists are responsible for working with the Project Co-ord to develop and implement the Quality Management Plan. Quality Specialists will recommend tools and methodologies for tracking quality and standards to establish acceptable quality levels. The

Quality Specialists will create and maintain Quality Control and Assurance Logs throughout the project.

The remaining member of the project team, as well as the stakeholders will be responsible for assisting the Project Co-ord and Quality Specialists in the establishment of acceptable quality standards. They will also work to ensure that all quality standards are met and communicate any concerns regarding quality to the Project Co-ord.

Quality control for the SpagBridge Project will utilize tools and methodologies for ensuring that all project deliverables comply with approved quality standards. To meet deliverable requirements and expectations, we must implement a formal process in which quality standards are measured and accepted. The Project Co-ord will ensure all quality standards and quality control activities are met throughout the project. The Quality Specialists will assist the Project Co-ord in verifying that all quality standards are met for each deliverable. If any changes are proposed and approved by the Project Sponsor and CCB, the Project Co-ord is responsible for communicating the changes to the project team and updating all project plans and documentation.

Quality assurance for the SpagBridge Project will ensure that all processes used in the completion of the project meet acceptable quality standards. These process standards are in place to maximize project efficiency and minimize waste. For each process used throughout the project, the Project Co-ord will track and measure quality against the approved standards with the assistance of the Quality Specialists and ensure all quality standards are met. If any changes are proposed and approved by the Project Sponsor and CCB, the Project Co-ord is responsible for communicating the changes to the project team and updating all project plans and documentation.

3.4.10 Risk Management Plan

This part of the Project Plan provides a general description for the approach taken to identify and manage the risks associated with the project. It should be a short paragraph or two summarizing the approach to risk management on this project.

The approach for managing risks for the <Project Name> Project includes a methodical process by which the project team identifies, scores, and ranks the various risks. Every effort will be made to proactively identify risks ahead of time in order to implement a mitigation strategy from the project's onset. The most likely and highest impact risks were added to the project schedule to ensure that the assigned risk managers take the necessary steps to implement the mitigation response at the appropriate time during the schedule. Risk managers will provide status updates on their assigned risks in the bi-weekly project team meetings, but only when the meetings include their risk's planned timeframe.

Upon the completion of the project, during the closing process, the project team will analyze each risk as well as the risk management process. Based on this analysis, the project team will identify any improvements that can be made to the risk management process for future projects. These improvements will be captured as part of the lessons learned knowledge base.

3.4.11 Risk Register

The Risk Register for this project is provided in Appendix XX, Risk Register.

3.4.12 Staffing Management Plan

Discuss how you plan to staff the project. This section should include discussion on matrixed or projectised organizational structure depending on which is being used for this project. This section of the project plan should also include how resources will be procured and managed as well as the key resources needed for the project.

The <Project Name> Project will consist of a matrix structure with support from various internal organizations. All work will be performed internally. Staffing requirements for the <Project Name> Project include the following:

Project Co-ord (1 position) – responsible for co-ordination for the <Project Name> Project. The Project Co-ord is responsible for coordinating the planning, creating, and/or managing all work activities, variances, tracking, reporting, communication and performance evaluations.

Developer (x3-4 positions) – responsible for all design and development tasks for the <Project Name> Project as well as ensuring functionality is compliant with quality standards. Responsible for working with the Project Co-ord to create work packages, manage risk, manage schedule, identify requirements, and create reports. The Developers will be co-ordinated by the Project Co-ord who will provide performance feedback.

3.4.13 Cost Baseline

This section contains the cost baseline for the project upon which cost management will be based. The project will use earned value metrics to track and manage costs and the cost baseline provides the basis for the tracking, reporting, and management of costs.

The cost baseline for the <Project Name> Project includes all budgeted costs for the successful completion of the project.

Project Phase	Budgeted Total	Comments
Planning	$350,000	Includes work hours for all project team members for gathering requirements and planning project
Design	$250,000	Includes work hours for all project team members for work on SmartVoice conceptual design
Construction	$200,000	Includes all work hours for coding of SmartVoice
Testing	$175,000	Includes all work hours for testing (including beta testing) of SmartVoice software
Transition and Closeout	$150,000	Includes all work hours for transition to client and project closeout

3.5 Engineering plan

The.

3.5.1 Research

Research in order to clearly define the problem and performance criteria.
This sub-section presents an outline of the engineering problem, including issues around applying the Engineering Method while building your teamwork capabilities, identification of research needs and literature review of the research conducted.

3.5.2 Alternative solutions

Generation of alternative solutions.
Drawing upon your research, this sub-section outlines and discusses the creative process your team used to generate innovative solutions to both engineering and teamwork-based goals and objectives.

3.5.3 Evaluation

Evaluation of alternatives against the criteria.
This sub-section demonstrates how your team practiced critical thinking to evaluate its solutions against the team project criteria

3.5.4 Monitoring

Monitoring, reviewing and checking the outcomes.
This sub-section demonstrates how your team practiced reflection-in-action and on-action to improve the quality of its performance and keep the project on track as per your project timeline (Gantt Chart)

3.5.5 Communication

Communicating recommendations to the client.
This sub-section discusses the recommendations you shall make to your client once you have completed this project (make sure you refer to the “Recommendations” section of the Report).

3.6 Knowledge management plan

Application specific. How is the knowledge to be managed: recorded, configuration controlled, modified, stored, disseminated?

3.7 Quality management plan

An integral part of any project management plan. The purpose of the Quality Management Plan is to describe how quality will be managed throughout the lifecycle of the project. It also includes the processes and procedures for ensuring quality planning, assurance, and control are all conducted. All stakeholders should be familiar with how quality will be planned, assured, and controlled.

The Quality Management Plan for the project will establish the activities, processes, and procedures for ensuring a quality product upon the conclusion of the project. The purpose of this plan is to:

- Ensure quality is planned
- Define how quality will be managed
- Define quality assurance activities
- Define quality control activities
- Define acceptable quality standards

3.8 Issues/Conflict resolution plan

Conflict in project management is inevitable. The potential for conflict in engineering development projects is usually high because it involves individuals from different backgrounds and orientations working together to complete a complex task. The cause of conflict in team projects can be related to differences in values, attitudes, needs, expectations, perceptions, resources, and personalities. Proper skills in dealing with conflict can assist project managers

and other organization members to handle and effectively resolve conflicts which can lead to a more productive organization as a whole.

Conflict can be constructive and healthy. It can aid in developing individuals and improve the organization by building on the individual assets of its members. Conflict can bring about underlying issues. It can force people to confront possible defects in a solution and choose a better one.

Establishing Requirements to Avoid Conflict Later

When project requirements are vague, producing a successful product or service becomes more difficult. An effective project manager takes the time to complete a stakeholder analysis that identifies the business need for the project. After they develop a project charter and establish a preliminary project scope, they validate their assumptions with the sponsors and stakeholders. Doing this at the beginning of the project tends to prevent major conflicts later on. Changing requirements at the beginning of a project costs less than waiting until later in the project life cycle when the impact increases.

Minimizing Conflict Among Team Members

When roles and responsibilities are unclear, conflict often arises. To prevent two project team members from bickering over who should complete a project task, effective project managers generate comprehensive work breakdown structures that define project tasks and assigned resources. By referring to the approved project plan in status meetings, the project manager keeps the team focused on achieving the project goals, not arguing over who should complete work.

Setting Standards for Conduct

Managing conflict improperly causes business and interpersonal relationships to break down. Ignoring conflict just prolongs the problem. By recognizing the roles people play, the project manager can help project teams resolve problems quickly and get back to project work. If everyone maintains a level of honesty, integrity and trust, completing project tasks becomes easier.

Handling Conflicts Effectively

The first step in conflict resolution involves getting the parties involved to agree to the nature of the problem. By defining the problem, the project manager can assess the amount of time and effort that needs to go into fixing it. Looking at case studies usually helps employees to develop the skills and knowledge to use techniques to smooth over and avoid conflict so that work can resume.

As the project is planned and executed, there will be conflicts and differences of opinion. The five strategies you can use to resolve conflict are:

Strategy	Description	Situation
Confronting/ Problem-solving	Confronting the conflict as a problem to be solved	When you have confidence in the other party's ability to problem solve When the relationship is important When you need a win-win solution When there is time and trust When the objective is to learn
Collaborating	Win-win through collaboration and meeting to resolve issues	When you want to incorporate multiple views When there is time to come to consensus When there is a willingness to give and take When both parties need to win
Compromising	When you are looking for some degree of satisfaction for both parties	When you can't win When an equal relationship exists between the parties in conflict When the stakes are moderate To avoid a fight To reach an overarching goal
Smoothing/Accommodating	Emphasize areas of agreement	To maintain harmony When any solution will be adequate When you will lose anyway To create goodwill When you are right
Forcing	Win-lose; impose the resolution	In a do-or-die situation When the stakes are high To gain power If the relationship is not important When time is of the essence
Withdrawal/ Avoiding	Retreat; cool off	When you can't win When the stakes are low To preserve neutrality or reputation If the problem will go away on its own

In this section detail the process that will be followed to resolve internal and external conflict.

3.9 Monitoring and controlling strategies

<Project Team Name> will actively track plans and the processes it has established. Several methods will be implemented for effectively tracking of the project.

3.10.1 Weekly team meetings

Each week, the team co-ord will chair a team meeting to update members on the status of the project and to discuss any new issues. Time permitting will also be an opportunity to brainstorm ideas and provide suggestions and comments. Each team meeting will commence with an update of the open action items so everyone will have an understanding of the status and progress of each action item. The team meeting will then continue with the agenda for the meeting. Finally, the team meeting will end with a review of the project plan, the list of risks and new action items. If and when there is an open issue with the team, it will be discussed at the weekly team meeting and handled accordingly. Additional meetings may be requested by team members on a per-need basis.

3.10.2 Bi-weekly client meetings

Every other week, the customer liaison will facilitate a client meeting to provide an update of the status of the project to the client, and also to elicit requirements from the clients. At this meeting, each team member will be able to request clarifications and ask questions regarding the project. Similar to the team meeting, each client meeting will commence with an update of the open action items. The client meeting will then continue with the objective stated for the meeting. Finally, the client meeting will end with the listing of new action items. If an when there is an open issue with the client, it will be discussed at a client meeting. Depending on the level of the issue, the customer liaison may email the client directly.

3.10.3 Brainstorming meetings

On a per-needed basis, the developers of <Project Team Name> will meet to brainstorm on some issue or discuss action items. This meeting is designed for team members to work together on portions of the project. This working meeting is informal and it is intended to be a learning time for each member of the team.

3.10.4 Paired tasks

It is generally good practise for the team co-ord to assign two people per sufficiently large task.

Specifically during the development (building) phase of the project, paired construction will be part of the team's process.

Project Planning

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4. Project management

4.1 Project plan

"...a formal, approved document used to guide both project execution *and* project control. *The primary uses of the project are to document planning assumptions and decisions, facilitate communication among* stakeholders, *and document approved scope, cost, and schedule* baselines. *A project plan may be summarized or detailed."*

"...a statement of how and when a project's objectives are to be achieved, by showing the major products, milestones, activities and resources required on the project."

Describe the execution, management and control of the project. The information can be provided by referencing other documents that will be produced and included in the Project File, such as a Procurement Plan, or detailed in the project plan itself.

The project team created the project management plan following input from the project team and key stakeholders. The plan should be agreed and approved by at least the project team and its key stakeholders. The

4.1.1 Project management methodology/s used

Detail the project management methodology used, where and how they are to be applied, and why.

4.1.2 Design / Specification / Performance criteria

Detail the Design / Specification / Performance criteria required to be met. Should list the
Detailed in *TABxx*.

4.1.2 WBS, Tasking and scheduling

The Work Breakdown Structure (WBS) is a view of the project which shows what work the project encompasses. It is a tool which helps to easily communicate the work and processes involved to execute the project. The Project Co-ord and project team use the WBS to develop the project schedule, resource requirements and costs. There are many ways you can present the WBS for your project.

Depending on where in the Project Plan you're putting the WBS a different layout may be more suitable. A high level WBS can be included within the project plan, then a detailed version as an appendix to the plan if applicable. One layout for a high level WBS and a different one for a detailed WBS may be preferred.

In your project you will want to develop the WBS down to a more detailed level using the 8 to 80 rule (where the WBS is broken down to where a work package contains between 8 and 80 hours of work to complete).

Use Gantt charts to detail the WBS and task scheduling.
Recorded/displayed in MS Excel!!!
Must show dependencies, duration (start & end) and effort!!!
Detailed in *TABxx*.

4.1.3 Resource allocation and accounting

Resources allocated and used during the progress of the project.
Recorded in MS Excel!
Detailed in TABxx.

4.1.5 Financial allocation and accounting

Financial resources allocated and consumed during the progress of the project.
Recorded in MS Excel!
Detailed in TABxx.

4.2 Design File

This section is used to record all project design information included definitions, specification, calculations, drawings, etc.
Should be able to be viewed as a separate document.
Filed in TABxx.

4.2.1 Specification Definition

Problem definition and performance specification requirements that are to be met.

4.2.2 Alternate Solutions

List alternate solutions in priority order in case they are needed. Detailed information of the second option should be recorded.

4.2.3 Solution Selection

Detail the steps taken during solution selection.

4.2.3 Conceptual Design

Detail the conception design for the selected solution.

4.2.3 Detailed Design

Detail the detailed design for the selected solution.

4.3 Development/Production

Detail and record the development / production tasks
Detailed in TABxx.

4.4 Testing

Testing specifications, test templates, test results.
Conclusions. Any action items arising from testing results.
Detailed in TABxx.

4.5 Delivery

Detailed in TABxx.

4.5.1 Client Training

Detail the client user training plans and deliverables.

4.5.2 Product Delivery

Detail the progress of the delivery and/or installation of the final product into the client's organization.

4.6 Communications

Communications, internal & external, sorted Date:Time in descending order.
Detailed in TABxx.

4.7 Progress reporting

Record the project progress reporting as baseline references when generating new progress reports.

Detailed in TABxx.

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Project Closure

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5 Quality Management

5.1 Lessons learned

Even the most successful projects have lessons from which we can learn. Whether you're building the next wonder of the Word, or upgrading an IT system there will be lessons you can learn from your project. An effective Project Co-ord documents and analyzes the lessons learned from his project and applies them to future projects throughout the organization.

5.1.1 Introduction

Capturing lessons learned is an integral part of every project especially required of those using Prince2 methodologies. While the finalization of a formal lessons learned document is completed during the project closeout process, capturing lessons learned should occur throughout the project lifecycle to ensure all information is documented in a timely and accurate manner.

The lessons learned document serves as a valuable tool for use by other project co-ords within an organization who are assigned similar projects. This document should not only describe what went wrong during a project and suggestions to avoid similar occurrences in the future, but it should also describe what went well and how similar projects may benefit from this information. This document should be communicated to the project sponsor and Project Management Office (PMO) for inclusion in the organizational assets and archives as part of the lessons learned database. If the organization does not have a PMO then other, formal means of communicating the lessons learned should be utilized to ensure all project co-ords are included.

The purpose of the lessons learned document for the <Project Name> Project is to capture the project's lessons learned in a formal document for use by other project co-ords on similar future projects. This document may be used as part of new project planning for similar projects in order to determine what problems occurred and how those problems were handled and may be avoided in the future. Additionally, this document details what went well with the project and why, so that other project co-ords may capitalize on these actions. Project co-ords may also use this document to determine who the project team members were in order to solicit feedback for planning their projects in the future. This document will be formally communicated with the organization and will become a part of the organizational assets and archives.

5.1.2 Lessons Learned Approach

The lessons learned approach describes how the document will be created, what it will consist of, and how lessons will be categorized. It is important that the lessons learned approach is covered in the initial stages of project planning. The reason for this is that a methodology along with an appropriate set of tools should be established to capture these lessons throughout the project's lifecycle. A project journal is one example of a tool to capture these lessons. If no thought is given to lessons learned until project closeout then it is likely that many lessons and details will be omitted from the document. The contents of the lessons learned document should also be determined ahead of time. They should be detailed enough to provide value for future use and the contents should be consistent with other lessons learned documents or organizational standards. The categorization of lessons learned is another consideration. Many organizations categorize lessons by project lifecycle phase or by the knowledge area that the lesson applies to.

The lessons learned from the <Project Name> Project are compiled from project journal entries throughout the project lifecycle. Lessons learned were also be gathered from both realized and

unrealized risks in the project risk register as well as through interviews with project team members and other stakeholder as necessary. The lessons learned from this project are to be used as references for future projects and contain an adequate level of detail so that other project co-ords may have enough information on which to help base their project plans. The lessons learned in this document are categorized by project knowledge area. These knowledge areas consist of: procurement management, risk management, integration management, quality management, time management, cost management, scope management, human resource management, and communications management.

NOTE: some knowledge areas may not contain lessons learned if none were documented throughout the project lifecycle.

5.1.3 Lessons Learned From This Project

The lessons learned must be communicated in a consistent manner. In addition to the categorization and description of the lesson, it is important to state what the impact was and provide a recommendation for project co-ords to consider on future projects.

The following chart lists the lessons learned for the <Project Name> Project. These lessons are categorized by project knowledge area and descriptions, impacts, and recommendations are provided for consideration on similar future new construction projects. It is important to note that not only failures or shortcomings are included but successes as well.

Category	Issue Name	Problem/Success	Impact	Recommendation
Procurement Management	Contract Requirements	The PM was not fully engaged in the contract process.	All requirements were not included in the initial contract award. A contract modification was required which added a week to the project.	PM must be fully engaged in all contract processes. This must be communicated to both PM and contract personnel.
Scope Management	Scope Creep	Stakeholders continuously tried adding to the project scope throughout the project lifecycle.	The PM did not have a plan for addressing scope creep and allowed some requirements to be added until the sponsor stopped it. Overall project delay of 3 weeks was the result.	The PM must have an approval process for any proposed scope changes and communicate this process to all stakeholders.
Quality Management	Building Material	A process for determining acceptable building material quality was planned into the project.	This allowed the project team to work with the contractors to smoothly ensure all materials were of acceptable quality and avoided any re-work and delays associated with substandard material.	Always plan quality standards and allowances into the project plan. This helps avoid delays and cost overruns.
Risk Management				

5.1.4 Process Improvement Recommendations

It is important that once lessons learned are collected and documented that the organization approves and implement any process improvements identified. It is important for organizations to strive for continuous improvement and this portion of the lessons learned process is an integral step.

As indicated in the lessons learned chart above, the <Project Name> Project did not have a process for reviewing and approving requested changes in requirements or project scope. Not only is this a lesson learned for similar future projects; but the organization must ensure that all project co-ords are aware of the need for this process to be included in the planning of all future projects. Therefore, it is recommended that prior to work beginning on any new project, the project co-ord must brief the project sponsor on the process for requesting and approving changes to project scope.

5.2. Post Project Review

It's good practice to review all projects at their completion. A Post Project Review should be performed in addition to a Lessons Learned. Reviewing your project to see how actuals compared to planned gives you a good 30,000 foot view of the project's performance. The post project review along with Lessons Learned provides meaningful input to future projects. Be sure to also download our Lessons Learned Template.

5.2.1 Project Summary

This section of the Post Project Review should provide a summary of the project which was completed. It is important that this summary captures the scope of the project and contains enough detail to provide a full understanding of the project. Since this document will communicate what went right and wrong with the project, as well as lessons learned and recommendations for future projects, it is imperative that this section provide enough background information to base the details in the rest of the document on.

<Project Team Name> recently completed the <Project Name> Project which has been transitioned to the operations group for manufacturing. This marks the end of a difficult but successful project for the <Project Team Name> research and development (R&D) group.

The objective of this project was to design a new optical fiber cable which is smaller than our current line of cable products without sacrificing any performance parameters. The purpose of this is to reduce material costs by utilizing less material in the manufacturing of smaller cables and to grow our customer base by providing smaller cables which are able to fit in smaller or congested ducts and conduits.

The scope of this project included a phased approach for the design, testing, customer trials, and transition to manufacturing for the new <Project Name> Project. Project success was defined as designing and manufacturing a SpagBridge product which passed all performance and mechanical testing, achieved the goal of smaller cable diameters, received positive customer feedback in trials, and was able to be transitioned to production without significant capital investments.

5.2.2 Project Deliverables (Planned vs. Actual)

This section of the Post Project Review describes the expected outcomes of the project as it was originally planned and compares these outcomes against the actual outcomes. This is beneficial in defining any occurrences of scope creep or whether a project may not have been completed as planned. This is helpful information for lessons learned and for future project teams conducting similar projects.

The <Project Team Name> <Project Name> Project has been completed successfully. There were planned deliverables for each phase of this project as well as for the completed product. This section highlights the planned deliverables and compares them to actual deliverables as they occurred.

Design

Planned Deliverable	Actual Deliverable	Summary
Complete cable specification kit and design parameter package	Complete cable specification kit and design parameter package	This deliverable was completed as planned

Production (Prototype)

Planned Deliverable	Actual Deliverable	Summary
Range of prototype SpagBridge for testing and customer trials	Range of prototype SpagBridge for testing and customer trials	This deliverable was completed as planned

Testing

Planned Deliverable	Actual Deliverable	Summary
Testing documentation package establishing all product limits and thresholds	Testing documentation package establishing all product limits and thresholds	This deliverable was completed as planned

Final Project Deliverables

Planned Deliverable	Actual Deliverable	Summary
Final cable product line with standard performance criteria and diameters reduced by 10%	Final cable product line with standard performance criteria and diameters reduced by 10%	This deliverable was completed as planned
SpagBridge production guidelines and specifications for operational manufacturing	SpagBridge production guidelines and specifications for operational manufacturing	This deliverable was completed as planned
Completed Technical Reference Package for product users	Technical Reference Package for product users with exception of approved material/vendor list	Material and vendor list is under review with legal department and will be added upon approval

In summary all documented project deliverables have been met by the <Project Name> Project team. All stakeholders have submitted their feedback and acknowledge that there are no deliverables which were missed or omitted for this project.

5.2.3 Project Costs

This section of the Post Project Review should describe how the planned or budgeted costs for the project compare with the actual costs. Costs may be affected by scope creep, poor planning, schedule delays, progressive elaboration, or many other factors. This section should highlight whether or not costs were controlled adequately and if there were additional or excessive costs the reasons should be stated. It is important to communicate why costs were met or may have been higher than planned so future projects can benefit from this information in building a more effective project management methodology within the organization.

The budgeted cost for the <Project Team Name> <Project Name> Project was set at $6,600,000. This cost was broken out by project phase in the following chart with actual costs compared to the planned/budgeted cost.

Project Phase	Budgeted Cost	Actual Cost	Comments
Product Design	$1,100,000	$1,050,000	Design costs came in under budget
Prototype Builds	$2,000,000	$2,075,000	Prototype builds were over budget due to errors resulting in the rebuilding of one cable
Testing	$250,000	$250,000	Testing costs were on budget
Trial Cable Builds and Installation	$2,500,000	$2,400,000	Trial cables were built and installed under budget
Transition to Operations	$750,000	$750,000	Transition costs were on budget

Total actual costs of the <Project Name> Project amounted to $6,525,000. The <Project Name> Project was not only successful in meeting all of its objectives and deliverables, but by completing under budget, it also allowed <Project Team Name> to allocate $75,000 to other important initiatives.

Product design was completed under budget. This was due primarily to the fact that the SpagBridge product's performance specifications are identical to our previous product line and that the only required change was reducing the cable size and diameter. This resulted in slightly less design work than anticipated.

Prototype builds was completed over budget. The reason for this was that one of the cable lines malfunctioned during the build and a cable had to be re-built. The line time, labor, and material waste were not included in the budgeted amount for this portion of the project resulting in an overrun.

Trial cable builds and installation was completed under budget. The primary reason for this is that the smaller cable diameters allowed for easier installation of the cables at trial customer premises. This resulted in taking less time for installation which resulted in lower actual cost for this portion of the project.

Testing and transition to operations completed on budget for this project. Past project documentation was used in developing our budgets for these portions of the project. By utilizing <Project Team Name> project archives and standard best practices we were able to plan accurately and complete the work according to plan.

5.3 Project Schedule

This portion of the Post Project Review describes the project's planned schedule or timeline and how the project measured against this plan. This information is helpful in identifying and understanding what may have contributed to project delays or allowed the project to complete early or on time. This can then be used by the team members on future projects or be referenced by other project teams for use on future projects. Archiving project information during the project closure phase is one of the best ways for an organization to improve its project management methodologies and effectiveness.

The <Project Team Name> <Project Name> Project schedule called for a one year project with initiation beginning on January 1, 2011 and project closeout ending on December 31, 2011. There were initial concerns by the project team that the schedule would potentially slip due to

the small number of resources assigned to the project. The below chart shows each phase of the project lifecycle, the planned schedule dates, and the actual completion dates of each phase.

Project Phase	Scheduled Completion	Actual Completion	Comments
Initiation	January 15, 20xx	January 15, 20xx	Completed on time
Design	February 28, 20xx	February 28, 20xx	Completed on time
Prototype Build	April 30, 20xx	April 30, 20xx	Completed on time
Testing	June 30, 20xx	June 30, 20xx	Completed on time
Trial Build/Install	September 30, 20xx	September 30, 20xx	Completed on time
Transition to Ops	November 30, 20xx	November 30, 20xx	Completed on time
Project Closure	December 31, 20xx	TBD	Progressing on time

Many <Project Team Name> projects do not complete a thorough project closure phase. This is usually due to earlier project phases completing late which results in having to cut short or omit this important final phase. The <Project Name> Project successfully completed each phase on time which can be attributed to effective planning and communication as well as sponsor and executive level support of this important initiative. Throughout the project there was a strong sense of cooperation across the organization as the importance of this project was stressed and its benefits were realized.

During the initiation and planning phases there was concern among the team members that there were inadequate resources assigned to this project. However, due to the many similarities between SpagBridge and the previous product line, additional resources were not needed and the assigned staff was adequate to complete all work packages in the planned timeframes.

The only project phase which encountered schedule problems was the prototype build phase. This was due to a cable line malfunctioning and a prototype cable having to be rebuilt. The project team was able to reallocate its resources and complete the rebuild within the planned timeframe.

5.4 Recommendations

This section of the Post Project Review highlights any recommendations and lessons learned which would be of use on future projects. This is a valuable part of the project closeout phase and organizational project archives. In the project planning phase one of the first steps is to research organizational archives to identify useful information for planning and executing a project. These recommendations and lessons learned are one of the most important pieces or project success in any effective project management group.

The <Project Name> Project was an example of a carefully planned and successfully executed project for <Project Team Name>. However, it is not without its recommendations or lessons learned.

Recommendation #1:

.

Recommendation #2:

.

Recommendation #3:

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GUC Closure

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6 GUC Project Summary & Closure

Approximately 750-1000 words.

Relate the experience gained from this project to the GUC teaching and your own learning undertaken during the semester. Similar but separate to the preceding project Closure with a different audience and aim.

6.1 The Engineering Method

Introduce this method as a systematic problem-solving framework:

6.1.1 Research

Research in order to clearly define the problem and performance criteria

This sub-section presents an outline of the engineering problem, including issues around applying the Engineering Method while building your teamwork capabilities, identification of research needs and literature review of the research conducted.

6.1.2 Generation of alternative solutions

Drawing upon your research, this sub-section outlines and discusses the creative process your team used to generate innovative solutions to both engineering and teamwork-based goals and objectives. Compare planned vs actual.

6.1.3 Evaluation of alternatives against the criteria

This sub-section demonstrates how your team practiced critical thinking to evaluate its solutions against the team project criteria. Compare planned vs actual.

6.1.4 Monitoring, reviewing and checking the outcomes

This sub-section demonstrates how your team practiced reflection-in-action and on-action to improve the quality of its performance and keep the project on track as per your project timeline (Gantt Chart). Compare planned vs actual.

6.1.5 Communicating recommendations to the client.

This sub-section discusses the recommendations you shall make to your client once you have completed this project (make sure you refer to the "Recommendations" section of the Report).

6.2 Project Management

Approximately 1000-1250 words.

Introduce as a systematic framework complementary to the Engineering Method:

6.2.1 Project management methodology/s used

Which ones, where, why, and how?

6.2.2 WBS, tasking & scheduling

Show & explain project progress timelines (Gantt Chart). Compare planned vs actual.

6.2.3 Resource allocation, accounting and variance.

Summarize resource management. Explain planning variances

6.2.4 Financial allocation, accounting and variance

Summarize project costs. Explain planning variances. Include staffing costs ($200/hr)

6.2.5 Risk Performance

Summarize risk management performance. Compare planned vs actual.

6.3 Reflection on teamwork

Approximately 500 words.

This section demonstrates how your team practiced reflection to learn and improve team effectiveness through constructive feedback.

6.3.1 Peer Assessment

This sub-section demonstrates how your team drew upon theory to practice constructive feedback to ensure fair contribution to the project while helping each other improve your teamwork skills and your team's overall effectiveness. Make sure you outline the team contribution criteria you used, the key challenges you have incurred and how you dealt with them (you might need to do some further research on effective team leadership, collaboration and assessment!)

6.3.1 Lessons Learnt

This sub-section explains and summarises the key learning points your team has distilled from the discussions and negotiations conducted during the peer assessment process.

6.3 Conclusion

Approximately 150-200 words.

The conclusion completes the report by stating the outcomes and/or implications of the project and discussion presented before. A conclusion has no new evidence but rounds off the report by summarising the main points (Ensure that you link your concluding remarks back to your project goals statement from the Introduction).

6.4 Recommendations

Approximately 150-200 words.

Drawing upon the literature review and the critical analysis and reflection on the project execution process and deliverables (goals and objectives) as a team, this section makes some practical recommendations on effective strategies for applying the engineering method to the project as a team, including drawing upon lessons learnt from peer assessment.

*Please attach team members' **Self and Peer assessment** forms, relevant diagrams (mindmaps, Gantt chart, flowcharts, etc), drawing/sketches (to scale!), design calculations, etc,*

Reference List

Please use **IEEE** referencing style

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Appendix A

Sample directory structure helps manage project documentation

There are many aspects of project document management. One of the things you need to define is a directory or folder structure that provides guidance to team members on the specific locations for storing documents.

The first step is to define a logical view of how the documents should be organized. Its recommended that the document repository be comprised of four main areas:

- **Project Deliverables.** A directory for storing all project related deliverables. This is further broken down into subfolders to provide more guidance on where specific documents should be stored.
- **Project Management Deliverables.** A directory for storing all project management related deliverables (Charter, Status Reports, Communication Pan, etc.). This is further broken down into subfolders to provide more guidance on where specific documents should be stored.
- **Reference.** This directory is used to store documents that are used as input to the project, such as architecture definition, client organization charts, training material, graphics, etc.
- **Work Area**. This area includes a directory for each team member to use to create work products. Each team member can organize their directory in whatever manner makes sense to them. There is no standard structure.

The following directory is an example of how you can use the four areas above to create a directory template that can be used on all projects.

Project ABC (place your project name here)

\Project Deliverables

\Final
\Draft
\In.Work (Work in Progress)

\Project Management Deliverables

\Project Definition
\Communications
\Presentations
\Financial Information
\Logs
\Miscellaneous
\Workplans
\Status
\Meeting Minutes
\Reports

\Reference

\Tutorials
\Templates
\Other Reference Material

\Workarea

\Team member 1
\Team member 2
\(etc..)

Appendix B

Project Meeting Agenda Template

A well run meeting starts with a well planned meeting agenda. It is frustrated if a meeting agenda is sent out 30 minutes before a meeting is scheduled to start! Or not having an agenda provided until you arrive at the meeting! It's difficult to know what to expect during a meeting and to prepare for the meeting if you don't have an agenda well in advance of the meeting. Typically a meeting agenda should be distributed at least two days prior to the meeting.

Meeting Objectives

State in one or two sentences the overall purpose and objective of the meeting.

Action Item Review (Name of Topic Chair) 5 minutes

The first thing to cover in a project meeting is the action items from the previous meeting. Action items and who they were assigned to were sent out in the meeting minutes from the previous meeting. This section of the meeting agenda lists the assignees and their action items. The Chair for this topic will call on each of the assignees for them to state the status of their action items. Before the meeting be sure to let the assignees know that they will be presenting the status of their action items during the meeting, if they are unable to attend the meeting then they should have their representative attend the meeting and present for them.

(Assignee Name)

- First Action Item from last meeting
- Second Action Item from last meeting

(Assignee Name)

- First Action Item from last meeting
- Second Action Item from last meeting
- Third Action Item from last meeting

(Assignee Name)

- First Action Item from last meeting
- Second Action Item from last meeting

Schedule Review (Name of Topic Chair) 10 minutes

The project schedule (Gantt chart) is reviewed during this meeting topic. The review covers the status of all work completed since the last meeting, work performed since the last meeting and work which will be performed prior to the next meeting.

- Work Completed
- Planned Work for next two weeks

Risk Management (Name of Topic Chair) 5 minutes

Risks are typically identified in the project plan and the project schedule. This project meeting agenda topic discusses risks which are being actively monitored, risks which have been closed out since the last meeting and risks which need to be actively monitored and managed in the coming few weeks. Responses to any risks which were realized since the last meeting are also discussed along with the response taken.

- Risk 1
- Risk 2

- Risk 3

New Action Items (Name of Topic Chair) 5 minutes

Before the meeting adjourns all new action items assigned during this meeting are reviewed. The action item review is to ensure that all action items are clearly defined, assigned to someone, and agreed upon by the meeting attendees. Be sure to include due dates for action items as some are expected to be completed prior to the next meeting; whereas, others may have a shorter or longer due date. Also, wrap up the meeting by stating when the next meeting will be held.

Appendix C

Project Meeting Minutes Template

A well executed meeting ends with prompt and clearly documented Meeting Minutes. A successful Project Co-ord has meeting minutes prepared and distributed within 24 hours of having a meeting. Project meeting minutes not only summarize what was discussed and agreed upon during the meeting but also includes a list of action items. It is important that the action items are documented and distributed quickly so the assignees have enough time to follow up on their action items or ask for clarification.

Meeting Objectives

State in one or two sentences the overall purpose and objective of the meeting (you can copy this from your meeting agenda).

Action Item Review

In the meeting the first item on the agenda was to review the action items from previous meetings. Copy the action items section from the meeting agenda and add a short one sentence status to each item. The status should be on the same line as the action item, but separated with a dash and italicized.

(Assignee Name)

- First Action Item from last meeting - Status of this item.
- Second Action Item from last meeting - Status of this item.

(Assignee Name)

- First Action Item from last meeting - Status of this item.
- Second Action Item from last meeting - Status of this item.
- Third Action Item from last meeting - Status of this item.

(Assignee Name)

- First Action Item from last meeting - Status of this item.
- Second Action Item from last meeting - Status of this item.

Schedule Review

Summarize the status of the project schedule in one to two sentences. Include any risks identified which affect the schedule; also, list them in the next section and added to the risk management plan. Provide a high level list of work completed and work which is planned for the next two weeks.

Work Completed

- Item 1
- Item 2

Planned Work for next two weeks

- Item 1

- Item 2

Risk Management

Copy the risks from the project meeting agenda and provide a status of the risk to the right of each risk. Include detailed responses to any risks which were realized.

- Risk 1 - Status of this risk.
- Risk 2 - Status of this risk.
- Risk 3 - Status of this risk.

New Action Items

List all new action items assigned during the meeting. Be sure that all action items are clearly defined, assigned to someone, include due dates.

Action Item 1 - (description of action item), (assignee name) and (due date).
Action Item 2 - (description of action item), (assignee name) and (due date).

Appendix D

Purpose

The purpose of this document is to provide a quick reference checklist/agenda for use by the project manager to ensure that all appropriate activities related to a project kick-off meeting have been addressed.

Activities Checklist

This section provides a checklist related to the practice of management, specifically an agenda for conducting a project kick-off meeting. The checklist/agenda can be used to assure that the project has completed the activities associated with conducting an effective kick-off meeting.

	Project Kick-Off Meeting Agenda
	Personal meetings, introductions, description of meeting to be conducted, etc.
	Project overview, background, customer, project importance, etc.
	Presentation of project schedule & plan.
	Discuss project deliverables
	Discuss project interdependencies
	Establish project management standards (such as…)
	Establish project War Room
	Weekly status meetings
	Time reporting guidelines
	Data tracking & trending
	Review/Define policies & procedures (for things such as…)
	Development
	Implementation
	Information protection
	Change requests
	Agree amongst project team to the definition of ‘completed’ work
	Establish project organization standards (such as…)
	Project organizational chart
	Goals & objectives
	Critical success factors
	Establish project communication standards (such as…)
	Distribute contact list
	Project work plan
	Status reports
	Issues list
	Escalation chain/process
	Meeting minutes
	File location & distribution standards
	Identify project teams and define their roles
	Risk identification, analysis, and management standards
	Schedule interviews for requirements gathering
	Meeting summary & review
	Questions and answer session

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Appendix E

Duration Estimate Template

You don't need to be a rocket scientist to calculate durations. Ensure the success of your project by having a planned methodology for estimating and cataloging durations. Accurate duration estimating is important for developing an accurate project schedule and finishing a project on time.

The Estimate Activity Duration process is used to approximate the amount of time or work periods needed to complete project activities with the assigned resources. There are many inputs and considerations required for estimating activity durations. These include: scope of the activity; resource types and quantities; resources available; resource calendars; project scope statement; and other organizational and environmental factors.

This process estimates the amount of work required to complete an activity as well as the number of resources needed to complete the work. These estimates are then used to determine the number of work periods required for an activity to be completed. Any assumptions and supporting data must also be documented to support the estimates.

There are several tools and techniques that can be used to estimate activity durations. The following is a list of these tools and techniques which support calculating duration estimate, a brief description, and when they are typically used:

a. Expert Judgment – uses historical information or information from past projects to develop estimates. Depending on size and complexity of the project this method may not be extremely accurate. Sometimes used early in the project lifecycle when there is limited information available.

b. Analogous Estimating – uses information and parameters/specifications from previous projects to estimate activity durations. This may include adjusting the estimates based on the complexity of the project. This method is also used when there is limited information available for the project and may also rely on expert judgment as a part of the estimate.

c. Parametric Estimating – uses a statistical or quantitative relationship between planned project activities and historical or known data to develop estimates. If it takes 2 days to pour and set 600 square feet of concrete and our project calls for 1,200 square feet of concrete then we can estimate the activity at 4 days. This method may achieve better accuracy than expert judgment or analogous estimating but relies on known data.

*d. Three-Point Estimating – uses a weighted average of outcomes and accounts for some uncertainty in determining the estimate. This method accounts for the most likely outcome, best case, and worst case scenarios in order to develop an estimate. The formula for this estimate is (Optimistic Estimate + 4*Most likely Estimate + Pessimistic Estimate) / 6. This method may be the most accurate but also relies on the availability of data to perform the calculations. It also provides a range of estimates which helps in any reserve planning that may be required.*

Depending on the organization and the project, the Duration Estimate process may require contingency reserves to be identified for all or some activities. These reserves may be a set percentage of time, a specified number of work periods, or may result from calculations of an estimates range such as three-point estimating provides. These uncertainties must be planned into the project schedule. As more information becomes available during the project lifecycle, estimated activity durations and reserves may be changed and updated in all applicable project documentation.

Sample Duration Estimate Table with Explanations Using Three-Point Estimate Technique:

Duration Estimate

Project: Date:

Activity	Resource(s)	Optimistic	Most Likely	Pessimistic	Estimated Activity Duration	Reserve
This column includes a description or reference for the activity.	List name(s) of likely or known resource(s).	List the best case estimate of the time required to complete this activity.	List the most likely estimate of the time required to complete this activity.	List the worst case estimate of the time required to complete this activity.	This column lists the three point estimate calculation (Optimistic +4*Most Likely+ Pessimistic) / 6.	List the range of the estimate which must be planned for in the schedule.

Duration Estimate Example with Sample Data:

Duration Estimate

Project: Date:

Activity	Resource(s)	Optimistic	Most Likely	Pessimistic	Estimated Activity Duration	Reserve
A	J. Doe	20 hrs.	25 hrs.	30 hrs.	25 hrs.	+/- 5 hrs.
B	B. Green C. White	35 hrs.	40 hrs.	45 hrs.	40 hrs.	+/- 5 hrs.
C	A. Smith	30 hrs.	40 hrs.	50 hrs.	40 hrs.	+/- 10 hrs.

Appendix F

Milestone List Template

Milestones are a good means to determine if your project is on schedule and a useful tool for reporting to management. As a significant point or event in your project, all project milestones should be listed and tracked.

A project milestone is a significant event in the project which may signify the acceptance or verification of completion of a project phase, task, decision, or deliverable. It is important to note that milestones are not work activities but rather significant events during the project which usually have a duration of zero. Milestones may be added to the project by the project sponsor or by the project team through the planning phase of the project. While a summary of project milestones should be included in the project charter and scope statement and WBS Dictionary, it is helpful to include a stand-alone milestone list as part of the project plan documentation.

The milestone list is a basic table of the milestone descriptions, planned completion dates, whether they're mandatory or optional milestones, and how the completion of the milestone will be verified. This document provides an easy reference to all project stakeholders on what milestones are included in the project and when they will occur. Like all project documentation, any proposed changes must be subject to the project's change management process and communicated to all stakeholders. Since milestones are significant events and can impact the project in many ways, changes often require approval from the project sponsor.

Sample Milestone List with Explanations:

Milestone List

Project: Date:

Milestone No.	Milestone	Mandatory/ Optional	Completion Date	Verification
Standard numbering format.	Milestone name.	Indicate if this is a mandatory or optional milestone.	Planned completion date.	How will the milestone be verified?
001	Milestone name.	Indicate if this is a mandatory or optional milestone.	Planned completion date.	How will the milestone be verified?

Sample Milestone List with Sample Data:

Milestone List

Project: Date:

Milestone No.	Milestone	Mandatory/ Optional	Completion Date	Verification
001	Project Start	Mandatory	5/1/20xx	Sponsor Approval
002	Complete Gathering Requirements	Mandatory	10/5/20xx	Sponsor Approval
003	Complete Design	Mandatory	14/8/20xx	Sponsor Approval
004	Complete Construction	Mandatory	9/10/20xx	Sponsor Approval
005	Complete Testing	Mandatory	10/11/20xx	Sponsor Approval
006	Complete Implementation	Mandatory	12/1/20xx	Sponsor Approval
007	Project End	Mandatory	12/31/20xx	Sponsor Approval