Project Management Primer

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Introduction

The purpose of this primer is to give the reader a basic introduction to the discipline of project management, by outlining the tools required to manage an initiative from inception through the planning phase, execution and finally completion.

This is intended to be an introductory level guide. For information on more advanced materials, please refer to the appendix.

1. Project Management: An Overview

What is a Project?

- A temporary undertaking to create a unique product or service with a defined start and end date and specific objectives that signify completion when attained.

It is vitally important that every project have a clearly defined completion date that is communicated to all involved.

What is Project Management?

- The application of knowledge, skills, tools and techniques to guide a project to completion, while meeting or exceeding stakeholder needs and expectations.

What is a Program?

A program is a group of related projects managed in a coordinated way to obtain benefits and control that would not be achieved if they were managed separately.

What is a Portfolio?

A portfolio is a range of all the organization's projects, each having differing qualities and characteristics. They are managed together as a portfolio to ensure that they are all aligned with the strategy of the organization.

Who is involved in the Project?

A wide range of people participate in the project from its inception all the way through to its completion.

- Project Sponsor
- Project Manager
- Stakeholders
- Subject Matter Experts
- Customers

Why do projects fail?

Projects fail all the time for a variety of reasons. Some estimates put the failure rate for projects to be as high as 70%!!

To ensure that your project has the best chance of success, be aware of the primary reasons for project failure and plan accordingly.

- A weak business case. The rationale for undertaking the project simply wasn't compelling enough to get sufficient backing for the project.
- Lack of senior management sponsorship and commitment
- Certain key stakeholders weren't identified in the planning process, so they weren't consulted. Their lack of input would have an adverse effect on the project's outcome.
- Inadequate project planning
- Lack of buy-in from stakeholders
- Unfamiliar technology or processes
- Economic conditions outside the control of the project manager or organization.

Why do projects succeed?

Now that you are familiar with some of the reasons why projects fail, let's look at some of the most common reasons for project success. Try to incorporate these into your project management plan.

- Sound Project Management methodology. Follow the methodology set out in this primer and you are already on your way to success!
- The project is aligned to the organization's business and strategic goals
- Senior management are fully behind and actively support the project
- Good Change Management procedures are followed throughout the life of the project, to deal with the inevitable changes to the scope
- All relevant stakeholders are identified early on
- There is buy-in from all stakeholders
- Roles and responsibilities are clearly defined
- The objective of the project is clear and unambiguous
- The schedule/work plan is realistic

Why adopt a projectized/project management approach to implementing your initiative?

The projectized approach creates a nimble, responsive environment with fewer organizational obstructions that is ideal for getting your initiative done right and with minimal rework.

2. Project Management: The Role of the PM

The Project Manager's Roles and Responsibilities

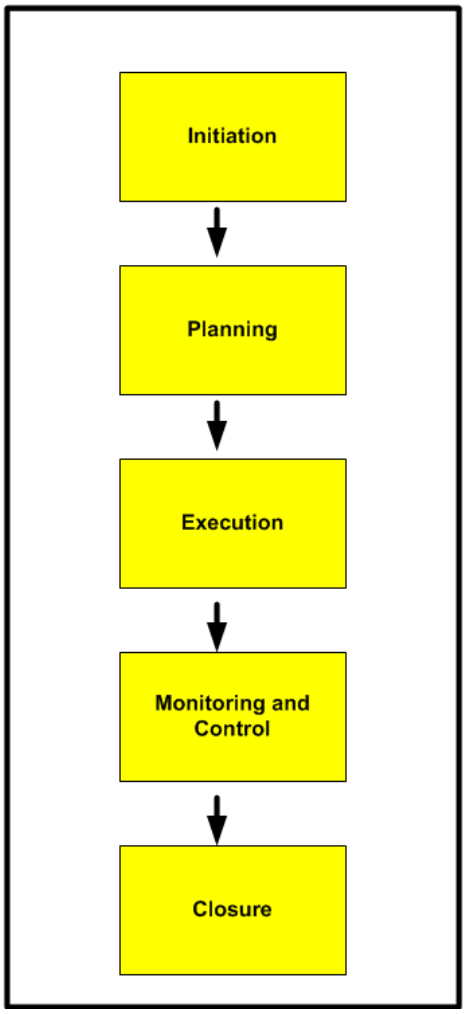
The job of the Project Manager is to make sure that the project runs on schedule, within budget and that the end product meets the customer's expectations. They will help manage any issues that arise and arbitrate any disagreements that may arise amongst members of the project team.

The project manager is the point of contact for every facet of the project. This position brings with it a lot of responsibility. The project manager must:

- Define project scope
- Select and lead the project team
- Identify stakeholders
- Develop the project plan, budget and schedule
- Manage and control project risks, issues and decisions
- Manage scope changes
- Manage issues to resolution
- Manage the triple constraint – scope, time & cost
- Monitor and report on project progress and status
- Record all decisions made by the project team

3. The Project Management Life Cycle

All projects go though a similar life cycle, comprising of a number of clearly defined phases:



The following sections of this primer reflect the phases in the above diagram.

Remember, the project exists because someone in the organization saw a need or want in the organization, and wrote a business case to persuade management to give the go-ahead for the initiative.

Initiation

Every project starts when an individual or organization identifies a need or an opportunity. This concept must be documented, the impact on stakeholders should be assessed and their agreement to support the project sought.

4. Project Proposal

The first steps are to identify the goal, objectives, and results expected. This is then put together in a project proposal document.

The key questions to be addressed at this point are:

- What do we want to do?
- Why do we want to do it?
- What will be delivered?
- How big will the project be?

Deliverables

Concept Document

Created by: The project sponsor with input from anyone in the organization who has an interest or is in some way impacted by the initiative.

The Concept Document is written to request seed funding from senior management to complete the initiation phase. It also determines the project cost range and project time line range.

Since funding has not yet been secured at this point, the costs of the concept phase should come out of an existing resource pool.

Project Proposal

Created by: The project sponsor or somebody from outside the immediate project team. This is not the responsibility of the project manager.

A project proposal is a detailed description of a series of activities aimed at solving a certain problem. The proposal should include:

• A justification of the project;
• Activities and implementation timeline;
• The methodology to be used; and
• Human, material and financial resources required.

Business Case

Created by: The project sponsor or main stakeholder

A business case captures the reasoning and specific business need for initiating a project or task.

The business case should set out the funding limit, estimated total project cost (with a 100% Technology contingency and 30% business contingency at this point), estimated project time line and Financial Projection template.

It is not the job of the project manager to build the business case, this task is usually the responsibility of stakeholders and sponsors.

Financial Projection/Total Project Cost Range (part of the business case)

Created by: The project manager

This is a budgetary estimate as to how much the project will cost. At this early stage, the estimate is at a high level, and so a large contingency is factored into the estimate. As more details of the project emerge, the cost estimate will become more granular and the contingency will be reduced.

The Size of the Project

Project Tier Classification

Many organizations' Project Management Office engagement and intake process is based upon a Project Tier classification model. A project or program will be classified into a Tier based on an upfront assessment of its degree of risk and complexity and its dollar value (one-time project-related cost and investment). The table below outlines sample Tier definitions as a guide:

Tier	Definition
Tier 1	• $50MM or greater
Tier 2	• Between $10MM and $50MM **OR** • Between $1MM and $10MM, with a high-risk profile
Tier 3	• Between $1MM and $10MM, with a low/ medium risk profile
Tier 4	• Between $250K and $1MM
Tier 5	• < $250K • LITE project documentation required
Enhancement	• > 3 days work effort and < $50K • LITE project documentation required
Business as Usual	• Brown $ support costs

The tier classification of the project will determine the approval process that it will have to go through before work can start.

5. Determine Objectives

Confirm the scope, determine the project objectives and if required write a business case. Document all known risks and issues. Develop high level plan showing main project stages and timeline.

The key questions to be addressed at this point are:

- Why are we doing this project?
- When do we need it completed by?
- What is included/excluded?
- How much can we spend on this?
- How important is this project to the organization?

Main Steps:

- Write a high level Scope statement, get agreement on it from stakeholders
- Create a project timeline, specify a target date
- Write the Project Charter and get sign-off from stakeholders
- Define the real problem
- Identify the stakeholders
- Set SMART objectives

  SMART: Specific, Measurable, Action Oriented, Realistic, Time Sensitive

- Prepare for trade-offs

The Triple Constraint

The Triple Constraint is the law that every project manager, or anyone doing a job with limited resources, must face.

It can be expressed as:

"Project trade-offs are represented by the Triple Constraint:
Quality (Scope) = Time + Cost"

Remember!:

- You can have it fast and cheap, but the quality will be poor
- You can have it done well and quickly, but it will cost a lot
- You can have it done it done cheaply and well, but it will take a long time

When managing projects, always remember that time is the key parameter on which success is usually judged.

The following are the deliverables for this stage of the project:

Deliverables

Scope Statement

Created by: The project manager

This details the project deliverables and describes the major objectives. The objectives should include measurable success criteria for the project. Must be approved by the stakeholders before the project proceeds

Define your goal clearly. It's important that you be able to articulate the project's goals concisely to all team members and stakeholders in order to get buy in from them.

Don’t forget to state clearly any related items that are out of the scope of your project. This is important for clarifying your objectives and avoiding scope-creep.

Make sure that the stakeholders know how the project will benefit them. There may be some resistance to change but try to show how your project will make life easier for people. The stakeholders and other project participants will be more likely to help you in many ways during the life of the project.

Project Charter

Created by: The project manager, with input and feedback from all stakeholders.

This document articulates why the project is being undertaken, identifies scope, objectives, risks and main stakeholders.

At this point, the expected project cost can be estimated with a 50% Technology contingency and a 15% business contingency.

High Level Project Plan

At this point a high level project plan is required. The Project Plan details how and when a project's objectives are to be achieved, by showing the major deliverables, milestones, activities and resources required on the project.

At this stage the project plan is written at a high level. It will be refined later on as more facts about the project become available. The expected project cost can be estimated with a 10% contingency for both business and Technology.

Planning

6. Gather Requirements

Determine business requirements: Gather the business requirements. Document them and get sign of. Update the project plan where applicable

What exactly does the business want us to do? When do they need it done by?

The key questions to be addressed at this point are:

What exactly does the business want us to do?
When do they need it done by?

Why are Requirements so important?

The requirements are vital for a number of reasons:

- Validation of the business case. That is, articulating in a very clear and transparent way what they business expects to be delivered at the end of the project.
- Defining the scope of the project
- Providing the basis for planning and designing the solution

Who is involved in gathering the requirements?

A number of parties have a role to play in defining the requirements.

- ***Customers/End users*** – they provide the background information that will define the requirements. They must also provide sign-off on the requirements document before any work can commence.
- ***Business Analysts*** – use their experience to ask the customers or end users the right questions, so that the requirements are as accurate and comprehensive as possible.
- ***Systems Analysts*** – take the business requirements and produce the technical specifications that will be used by the developers.
- ***The Project Manager*** – oversees the process and ensures that the requirements are signed-off prior to the commencement of development work.

Main Steps:

- Gather the business requirements from the end users
- Analyze and prioritize the requirements
- Document the requirements
- Negotiate and obtain approval of the requirements

Deliverables:

The Business Requirements Document

Created by: Business Analysts (or equivalent subject matter experts from the business)

It is important to distinguish between ***business (or functional)*** requirements and ***technical (non functional)*** requirements.

The ***business requirements*** are a non-technical customer oriented description of what the business needs in terms of features and capabilities

The ***technical requirements*** are addressed to the technical team and state how the business's requirements are going to be delivered in terms of components and specifications.

The business and systems analysts have a key role in making sure that the requirements of the business are accurately stated, and properly captured in the technical requirements.

We will come back to the technical requirements in Section 8: Design and Build.

7. Strategy/Analysis

Organize the project: Define what needs to be done to meet the business requirements. Evaluate alternatives and select best approach. Update project plan to reflect the detailed work required.

The key questions to be addressed at this point are:

You have sign-off on the business case and requirements. The customer is looking forward to seeing the final product. What next?

At this point you need to ask yourself the following questions:

- When will the project work be complete?
- Who is involved?
- How much will it cost?
- What are the tasks that need to be completed?
- What potential risks might we face?

Main Steps:

- Assemble your team
- Set the schedule
- Define Activities
- Develop budget (if required)

Deliverables

Kick-off meeting

This meeting is the first meeting with the project team and the stakeholders. The meeting introduces the members of the project team and the stakeholders and provides the opportunity to discuss the role of each team member. The overall scope, schedule etc. may also be discussed at the meeting.

Critical Path (Advanced)

The Critical Path is defined as the longest sequence of activities in a project plan which must be completed on time and in order for the project to complete on the due date. An activity on the critical path cannot be started until its predecessor activity is complete.

The critical path is not meant to represent the ideal set of tasks to be completed on the project, but rather the minimum set to be completed. It is the path that must be followed in order to reach project completion on time. Other tasks may be important to the overall scope of the project, but don't actually impact on the final delivery of the project. These can be rescheduled if circumstances demand it. But if tasks on the critical path are changed or rescheduled, then the timeline of the project will be affected.

Project managers will often use software such as Microsoft Project to calculate the critical path.

Detailed Project Plan

The project plan will become more detailed at this point in the project, as more information about the amount of work required becomes clear. Individual tasks or "work packages" can be identified and added to the plan, making it more granular and easy to monitor progress.

A key part of the Project Plan is the Work Breakdown Structure.

Work Breakdown Structure

Created by: The project manager, often using software such as *Microsoft Project.*

This a tool used to define and group a project's discrete work elements in a way that helps organize and define the total work scope of the project.

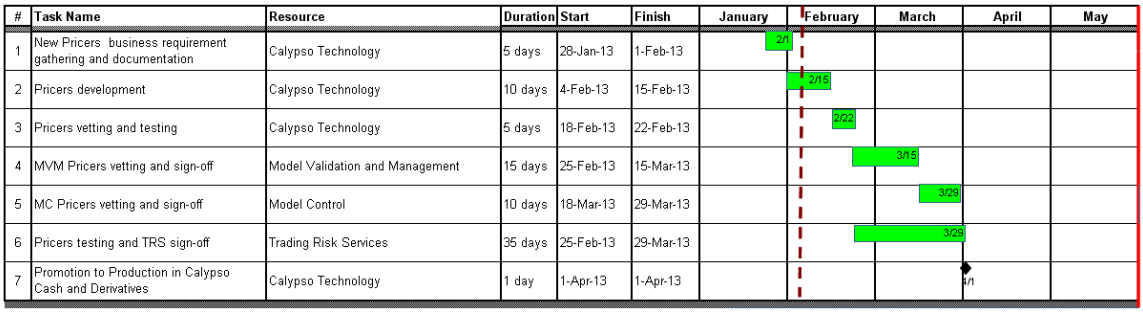
- Defines and groups a project's discrete work elements in a way that helps organize and define the total work scope of the project.
- Provides the necessary framework for detailed cost estimating and control
- Provides guidance for schedule development and control
- The WBS is a dynamic tool and can be revised and updated as needed by the project manager

	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Concept**	**1 day**	**Mon 5/16/11**	**Mon 5/16/11**		
2	Investigate alternative solutions	1 day	Mon 5/16/11	Mon 5/16/11		BA group
3	**Requirements**	**9 days**	**Wed 6/1/11**	**Mon 6/13/11**		
4	Gather business requirements	8 days	Wed 6/1/11	Fri 6/10/11		BA group
5	Write Business Requirements Documen	1 day	Mon 6/13/11	Mon 6/13/11	4	BA group
6	**Planning**	**5 days**	**Tue 6/14/11**	**Mon 6/20/11**		
7	Create Work Breakdown Structure	3 days	Tue 6/14/11	Thu 6/16/11		Project Manager
8	Get cost estimates	1 day	Fri 6/17/11	Fri 6/17/11	7	Project Manager
9	Assign resources	1 day	Mon 6/20/11	Mon 6/20/11	8	Project Manager
10	**Design**	**8 days**	**Thu 6/16/11**	**Mon 6/27/11**		
11	Create technical specifications	6 days	Thu 6/16/11	Thu 6/23/11		Development group
12	Review specifications	2 days	Fri 6/24/11	Mon 6/27/11	11	BA and Development

The project manager creates the Work Breakdown Structure by asking the by the project team to identify all the tasks that need to be done, the work effort required, in what order tasks should be done.

Once the Work Breakdown Structure is outlined with the start and complete dates identified, a schedule is effectively in place. The schedule can be depicted graphically using a Gantt Chart. This is a very useful tool for tracking the progress of a project.

#	Task Name	Resource	Duration	Start	Finish
1	New Pricers business requirement gathering and documentation	Calypso Technology	5 days	28-Jan-13	1-Feb-13
2	Pricers development	Calypso Technology	10 days	4-Feb-13	15-Feb-13
3	Pricers vetting and testing	Calypso Technology	5 days	18-Feb-13	22-Feb-13
4	MVM Pricers vetting and sign-off	Model Validation and Management	15 days	25-Feb-13	15-Mar-13
5	MC Pricers vetting and sign-off	Model Control	10 days	18-Mar-13	29-Mar-13
6	Pricers testing and TRS sign-off	Trading Risk Services	35 days	25-Feb-13	29-Mar-13
7	Promotion to Production in Calypso Cash and Derivatives	Calypso Technology	1 day	1-Apr-13	1-Apr-13



Roles and Responsibilities

Identify the stakeholders in your project, and the people who will make up the project team. Define what their roles and responsibilities are. A powerful tool to achieve this is the RASCI matrix.

RASCI stands for Responsible, Accountable, Support, Consulted and Informed.

Responsible: This is the person who has to do the work to complete the task, with the help of others through consultation if required. There can be multiple resources responsible

Accountable: Designates the person who is answerable for the deliverable being delivered on time and accurately. There must be exactly one "A" specified for each task.

Support: Supports in completing the task

Consulted: The individual whose expertise is sought in the course of the project

Informed: Need to be kept informed of the progress of deliverables, and of any issues during the project

An example of a RASCI Matrix will show how the roles and responsibilities for the entire project team can be displayed in a table:

Legend	Role	Deliverables					
R - Responsible A - Accountable S - Support C - Consulted I - Informed		Project Initiation Agreement	Project Plan	Meetings/Minutes	Status Reports	Business Requirements	Technical Requirements
	Project Manager	R/A	R/A	R/A	R/A	C	C
	Business Consultant	C	C	C	C	A	A
	Senior Manager	C	C	I	C	I	I
	Business Lead/Service Level Manager	C	C	I	C	R	C
	Technical Lead	C	C	I	C	C	R
	Delegate Sponsor	C	C	I	I	-	-
	Project Owner	C	C	I	I	C	I
	Project Sponsor	C	C	I	I		

Remember the rule: For every deliverable, at least one person must be accountable!

Budget

Used as a tool to plan how much the project is expected to cost at the outset and to monitor spend as the project progresses to ensure it stays on track.

Develop a realistic budget and schedule – Cost estimates will change as the amount of work becomes clearer and work plans become more specific and granular.

When the project is first proposed, the cost estimate may have an error factor of about 50%. Later on that will reduce to 20% and finally at the planning stage the cost estimate should be within 10% of the actual amount spent.

Risk Assessment

Identifies the risks or uncertainties in the project, their potential impact and likelihood of occurring

You can't control every risk, or even predict every possible risk that you might face. But you can do your best to anticipate the most likely obstacles that you may face and take action early to minimize the impact on your project if and when things start to go wrong.

There are 4 ways of dealing with risks

- Avoid
- Transfer
- Mitigate
- Accept

Avoiding a risk can be achieved by changing the project plan to eliminate the risk.

Transferring a risk means shifting the risk to a third party. Insurance is an example of risk transference.

Risk mitigation is done by reducing either the probability or impact of the risk.

Risk can also be accepted, and contingency reserves can be built into the plan to accommodate the occurrence of the risk.

Particular attention should be paid to this area because potential risks can very quickly turn into actual issues.

Exit Criteria

At this stage, the entrance and exit criteria for testing should be documented, agreed upon and signed-off by the stakeholders.

Execution

8. Design and Build

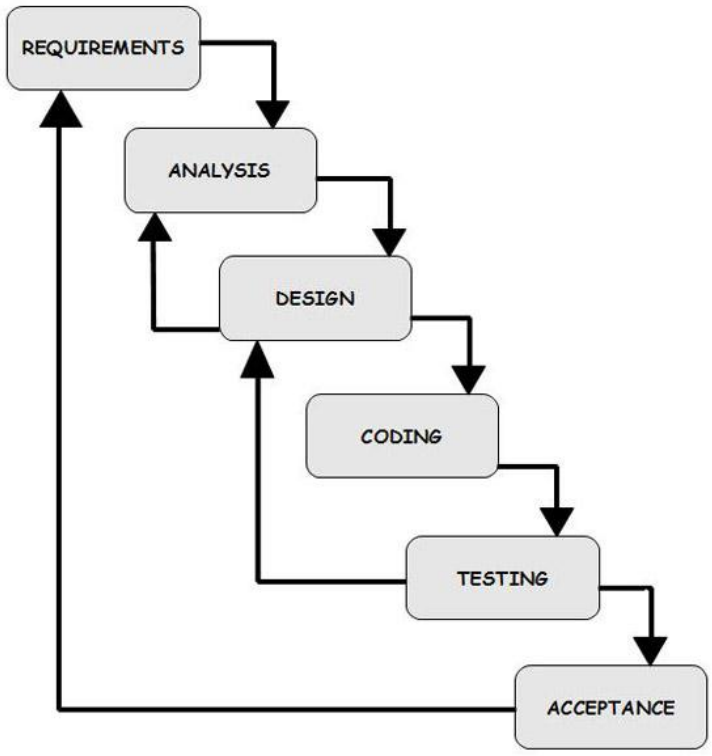
When the scope and deliverables have been agreed and articulated in the business requirements, the next step is to design the solution. This is done through the creation of the technical requirements.

There are a number of methodologies that can be used in the design and build stage. We will take a look at two of the most common.

- Waterfall
- Agile

Waterfall

The Waterfall model is a sequential design process. It's called "Waterfall" because progress is seen as "flowing" through the different phases from the top of the bottom, as shown in the diagram below.

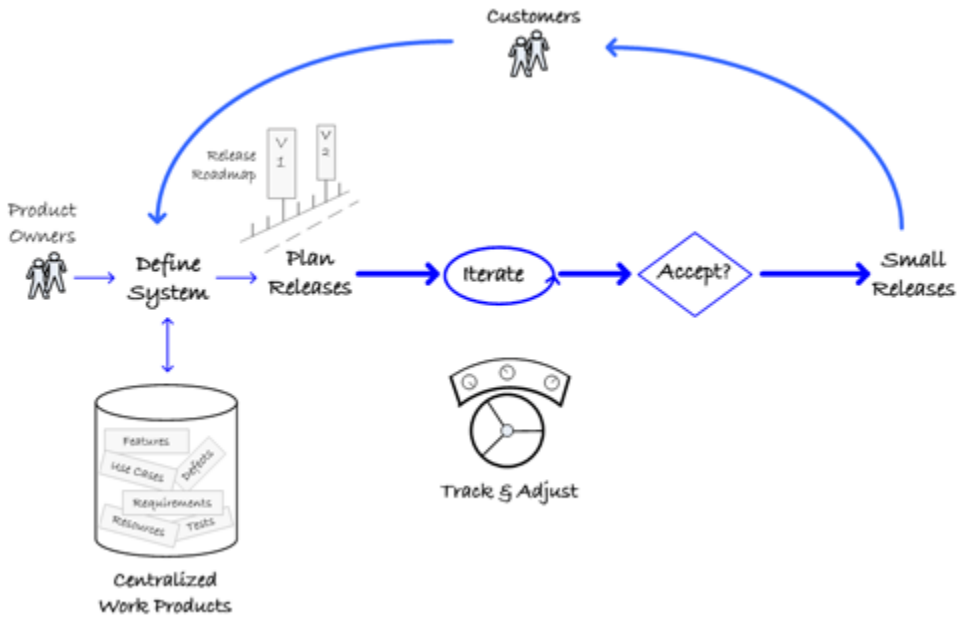


In the Waterfall methodology, **each phase needs to be completed before moving on to the next**. But for many projects this is not feasible. Oftentimes in software development projects for instance, details of system capabilities only become apparent as progress is made in the system's implementation. This means that assumptions that were made in the original requirements gathering phase become invalidates. This results in expensive rework as requirements have to be updated and new code deployed.

A more flexible approach to designing, building and implementing projects is necessary in such instances. One such methodology is Agile.

Agile

Unlike Waterfall, Agile is an iterative or incremental development methodology



In Agile, requirements and solutions evolve during the project life-cycle. It depends very much on collaboration amongst cross functional teams. This is a far more advanced approach than the Waterfall.

Monitoring and Control

9. Control the work

Monitor progress of work being carried out against timeline. Track costs. Monitor risks and issues taking corrective action as required. Generate progress reports and report at status meetings.

Change Management: Monitor, control and document changes to budget, timeline and scope.

Any changes to the budget, timeline or scope of the project have to be justified and agreed to by the stakeholders. This is documented in the Change Log.

The key questions to be addressed at this point are:

How are we doing?

Is everyone delivering as expected?

Main Steps:

- Stay on the Critical Path
- Delegate work to the right people
- Monitor the project's progress and risks
- Deal with issues
- Manage change requests
- Monitor budget (if applicable)
- Record all decisions made by stakeholders and team members

Deliverables

- ***Weekly Status Reports***

Created by: The project manager

Project team members and stakeholders need to be kept up to date with the status of the project. Weekly meetings should be scheduled, and minuted for your records. The Project Dashboard is the best tool to show the current status of the project.

It is very important to provide minutes for all project meetings, in order to capture all decisions, action items, issues and risks.

- ***Project Dashboard***

Created by: The project manager

The dashboard presents an overview of project measures, risks and issues. It is used to keep stakeholders and project team members informed about the project's progress.

- Tracks the progress of deliverables
- Highlights milestones in the duration of the project
- Keeps stakeholders informed about the status of the project
- Helps team members identify possible risks before they develop

The overall status should be clearly communicated in the dashboard. The convention is generally to use colour coded status.

Green – The Project is on track.
Yellow – There are challenges that may impact the project cost, scope or timeline but these are being addressed by the project team.
Red- The project is going off track, the cost, scope or timeline will be impacted and immediate senior management intervention is needed.

See Appendix 1 Project Dashboard for an example

- ***Issue/Action/Decision Log***

Any Issues, actions items or decisions to be made that arise during the course of the project should be documented in an Issue/Action/Decision Log, “IAD Log”. This will allow follow up with the person to whom the item has been assigned, and the task can be tracked against an agreed-to due date.

- ***Project Change Request/Change Log***

A formal request to change in some way the original requirements as documented in a project plan.

Changes to the scope of a project that occur during the execution phase are tricky to deal with. All good project managers are acutely aware of “Scope Creep” whereby the customer keeps requesting additions or changes to the scope of the project, with the result that the previously agreed to completion date can no longer be achieved with the allocated resources.

Scope Creep: Uncontrolled changes or continuous growth in a project’s scope. This phenomenon can occur when the scope of a project is not properly defined, documented, or controlled.

There will often be situations where the scope of the project can legitimately change. This can be because of changing market conditions, or because of unforeseen problems, or simply that a key feature was forgotten about during the planning process.

Whatever the reason for the change, it has to be managed. There are a number of actions that have to be taken.

1) The magnitude of the change has to be measured. How will it affect the scope of the project? Will it result in project timelines being impacted?

2) Have the stakeholders agreed to the change in scope? Are they aware of the impact that it will have on the project?

3) Have alternatives to the scope change been considered?

4) The Project Scope has to be changed, which means that the Scope Statement and Project Charter have to be amended and agreed to by the stakeholders.

A Change Management form needs to be filled in, detailing the following:

Proposed Change Description and References - Describes the change being proposed and clearly identifies whether the change is relates to a system, organization or procedure. Any reference material that will assist in supporting the change request should be attached

Justification - A discussion of why the change is being proposed and how the project/customer will benefit from the change. This can include a cost benefit analysis if applicable.

Impact Statement –If the change is implemented, how will it impact the cost and timeline of the project? If the change is not implemented, how will it adversely affect the project/customer?

Alternatives - List at least one alternative (more if possible) to the proposed change, and indicate why the proposed change is better. Briefly indicate why the alternative is not the better choice.

When complete, submit to the Project Change Manager or equivalent in the organization
.

All change requests should be reviewed by the stakeholders, a project Change Control Board set up for the purpose or equivalent forum.

10. Delivery/Roll Out

Implement the deliverable(s): Implement the finished product, train people.

Before the final product of the project can be delivered and the project closed, the customer and project sponsor need to provide their sign-off to approve the deliverable. This signifies that the quality of the deliverable met their expectations. If the customer is not happy with the final product then the project cannot be considered to have been a success.

Sign-off on testing results (confirming exit criteria have been met) must be provided by the stakeholders before implementation could take place.

It is always possible that some issues will crop up after implementation. This does not signify that the project was a failure, just that some small issues remained undetected during the course of the project.

A good project manager will ensure that an adequate level of support is provided to deal with bug fixes as well as other areas of support such as training.

A log of post-production issues should be maintained to make sure that all issues are managed to resolution.

Closure

Wrapping Things Up

Close the project. Carry out project review.

- Provide users/stakeholders with all project information
- Prepare final cost and schedule reports
- Assess Operational Readiness
- Start operations/production
- Thank team members for their contribution
- If required, prepare and conduct a lessons learned exercise
- Celebrate the project's success with a social occasion if desired

The key questions to be addressed at this point are:

Did we deliver what the business expected?
Did we deliver on time and within our budget?
If we did not deliver on time and within budget, what caused the deviation?
What lessons did we learn for future projects?

Main Steps

- Review Project Results
- Get Stakeholder sign-off on the final deliverable
- Post Implementation Review
- Hold lessons learn session and document.
- Acknowledge efforts and achievements of project team

Deliverables

Stakeholder sign-off on Project Deliverable

In order to close out the project, the main stakeholder must sign-off on the project deliverable, indicating that the final deliverable has met all their expectations.

Lessons Learned Session/Document

Created by: Someone other than the project manager, with input from all members of the project team.

This is a forum for project participants to discuss what did or didn't go well on a project, how to replicate success, and what to do differently in the future.

A good Lessons Learned session:

- Highlights successful outcomes
- Identifies undesirable outcomes, and examines what could be done to avoid recurrences
- Does not place blame, seeks to focus on fixing things for the future.

11. Afterword

Project Management is a complex, challenging, dynamic and often frustrating discipline to master. But when done right it is extremely rewarding. Only by being organized, flexible, patient and persistent can you excel at it.

Become familiar with the tools and techniques outlined in this primer, always be willing to learn and you will be successful.