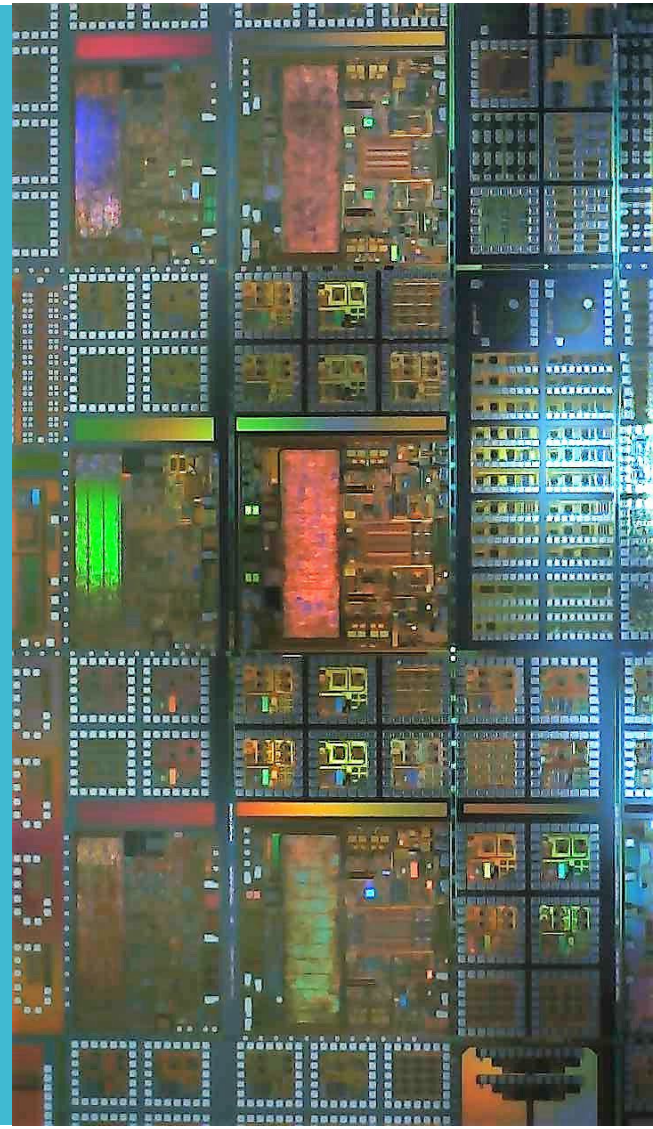
.UBAfiuba
FACULTAD DE INGENIERÍA

Class 2: Project Life Cycle

Agenda:

- Project Life Cycle
- Typical life cycle phases
- Typical life cycle phases in SC industry
  - Initiation
  - Planning
  - Execution
  - Control & Monitoring
  - Closure
- Wrap-up.



ALLEGRO microsystems

Course Overview

(15 minutes)

Class 1	Class 2	Class 3	Class 4
Introduction & Foundations	**Project Life cycle**	Risk Management	Quality Management
Class 5	Class 6	Class 7	Class 8
Scheduling Part I	Scheduling Part II	Special Assignment	Open discussion with Industry expert

Project Life Cycle vs. Project Phases

Project Life Cycle

The project life cycle is an overarching framework that represents the entire journey of a project from start to finish.

Generally, the project life cycle is consistent across most projects and includes broad stages like: ***Initiation, Planning, Execution, Monitoring and Controlling, and Closing.***

It's a macro-level concept that applies to virtually all projects regardless of industry or type.

Project Phases

Project phases are more specific, detailed segments within the project life cycle. **They represent distinct stages of work or deliverables within the project**. And they can vary significantly depending on the nature of the project, industry, or organizational preferences. Therefore, they are often tailored to the specific needs of a project or industry.

In practice, project phases are often structured within the broader project life cycle. For example, within the Execution stage of the project life cycle, you might have several project phases such as Design, Development, Testing, and Implementation.

Project Life Cycle vs. Project Phases

Difference	Project Life Cycle	Project Phases
Scope	Broader, encompassing the entire project journey	More specific, focusing on a specific set of activities
Sequence	Sequential, with phases following a predefined order	Can overlap, with activities from different phases occurring simultaneously
Flexibility	Consistent, generally following a standard framework	Can vary based on project requirements, tailoring to specific needs
Purpose	Provides a high-level overview of the project journey	Offers detailed guidance on specific activities and deliverables

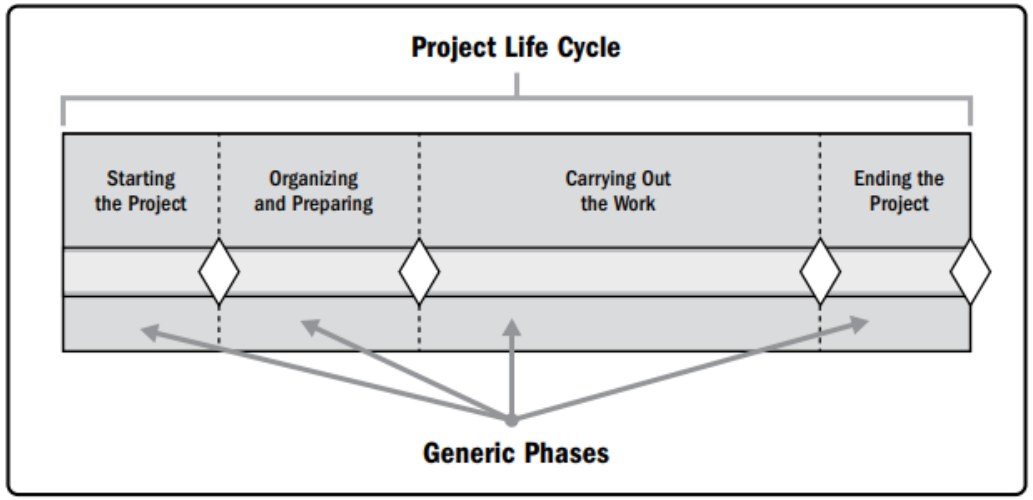
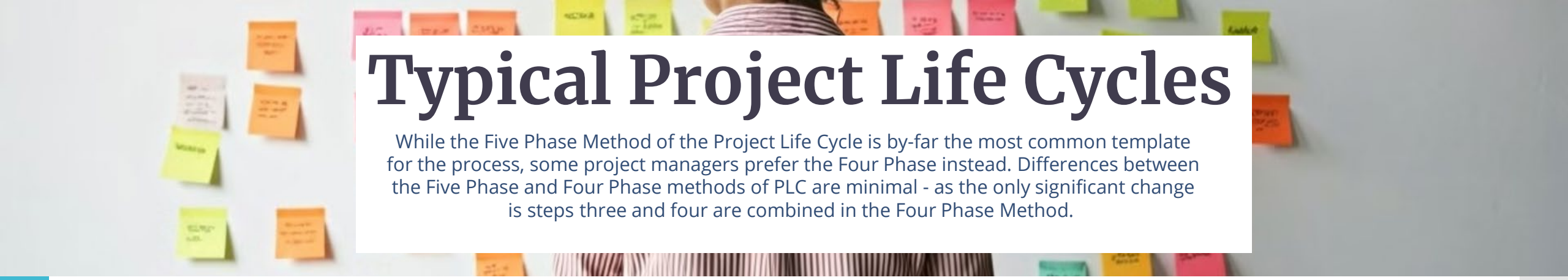


Figure 1-2. Generic Depiction of a Project Life Cycle

- Starting the project,
- Organizing and preparing,
- Carrying out the work, and
- Closing the project.

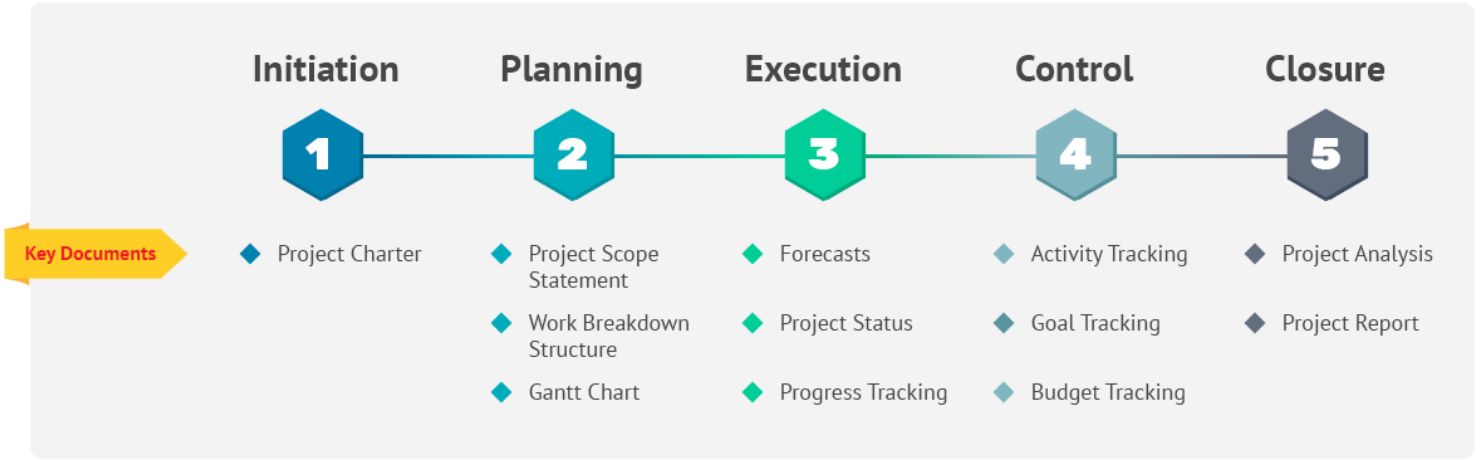


Typical Project Life Cycles

While the Five Phase Method of the Project Life Cycle is by-far the most common template for the process, some project managers prefer the Four Phase instead. Differences between the Five Phase and Four Phase methods of PLC are minimal - as the only significant change is steps three and four are combined in the Four Phase Method.

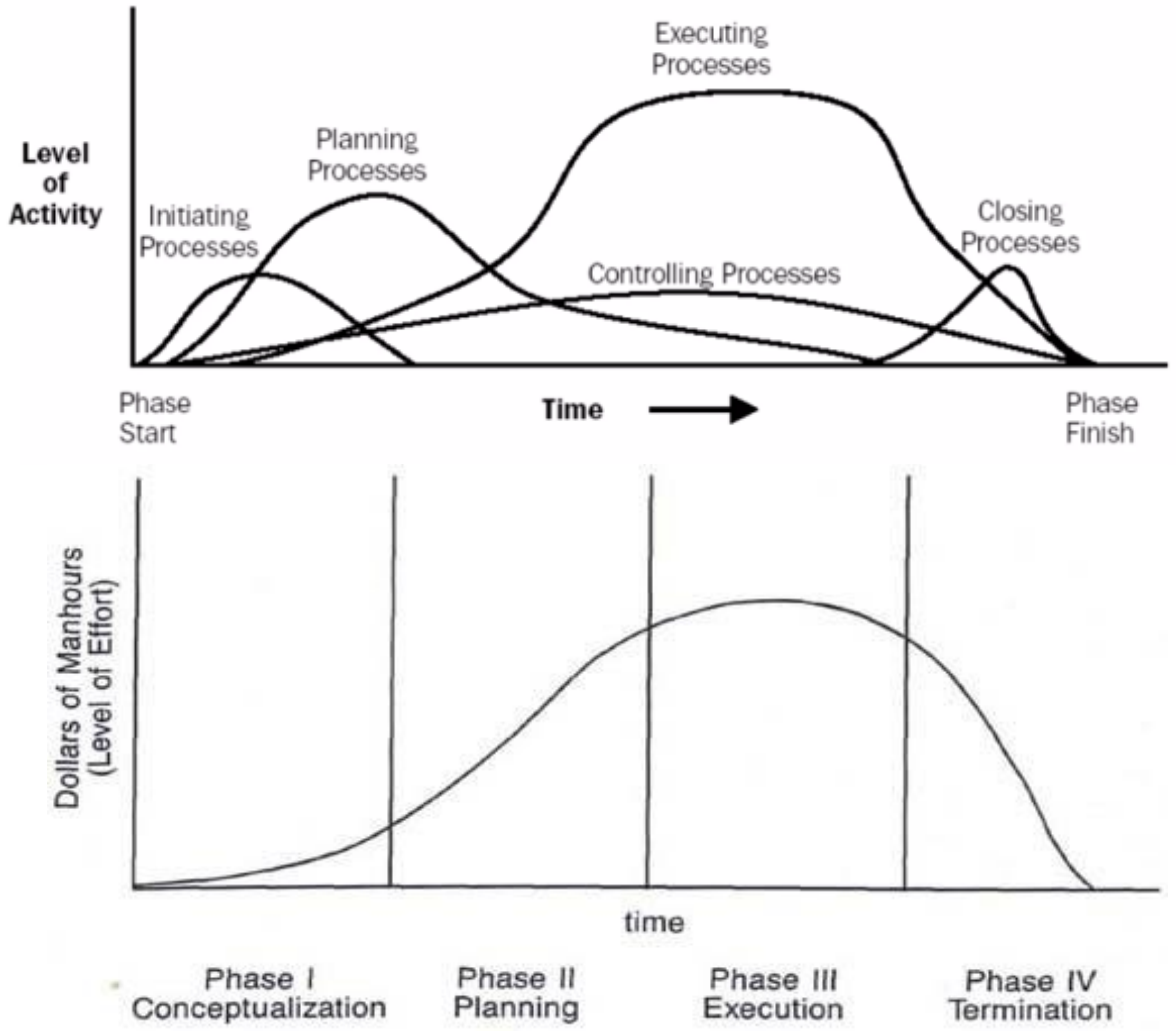
Burke, Charvat	Cleland, Frame, Dinsmore	Lewis	Meredith in Mantel	Thomsett	Morris & Pinto, Milosevic	Wysocki
Concept, analysis	Conceptualisation	Concept	Conception, selection	Feasibility	Conceptualisation	Scoping
Planning	Planning	Definition	Planning, scheduling	Analysis	Planning	Planning
		Planning				
Design	Execution	Execution	Monitoring, control	Design	Execution	Launching
Built, execute				Built, test		Monitoring, controlling
Closure	Termination	Closeout	Evaluation, termination	Ship	Termination	Closing

Sources: Burke (2003), Charvat (2003), Cleland (2007), Dinsmore (2010), Frame (2003), Lewis (2007), Meredith in Mantel (2009), Miloševic (2003), Thomsett (2002), Morris & Pinto (2007b), Wysocki (2009)



1. **Initiation**: The first stage where you **figure out the 'why'** of the project's existence. You map out the project's objective, pick a manager, and clarify your approach. The key deliverable of this stage is the project charter.
2. **Planning**: This is where you use your **PM knowledge to develop a detailed plan** for the project's execution. You'll define the project's scope, create a WBS, and map out a schedule. All the heavy lifting - communication plans, risk management plans, etc. - is done in this stage. Some of the key deliverables are the WBS, Gantt chart, and project plan.
3. **Execution**: This is the "do" phase of the project where you **actively track assigned tasks** and ensure that the project stays on course. You'll hold meetings, send out status reports, and ensure that the project runs smoothly.
4. **Control**: The 'control' phase **runs alongside the Execution** phase and is focused on monitoring the project's progress. You'll monitor milestones, goals, and activities to keep the **project** on track.
5. **Closure**: In this fifth and final stage, you'll hand over all deliverables to stakeholders and formally close the project. You'll also review the project for lapses, insights, and positives. The key deliverable in this stage is the project report.

Project Processes Activity Levels



Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

1. Initiation Phase

1 Purpose

- Develop a business case for the project, and
- Build the core project team.

2 Key Activities

1. Conducting feasibility studies and identify risks.
2. Develop a Business Case
3. Develop Project Charter
4. Build the Project Team (aka Core Team)

3 Tools and Techniques

- **SWOT** analysis which helps identify project strengths, weaknesses, opportunities, and threats.
- **SMART** objectives: objectives must be specific, measurable, achievable, relevant and time-based.

4 Deliverables

A. **Project charter:** which outlines the project's purpose, scope, objectives, and key stakeholders. It also grants the project manager the authority to allocate resources.

B. **Preliminary Feasibility Report:** A document summarizing the findings of the preliminary feasibility analysis, including any risks or challenges identified.

C. **Business Case**

1. Initiation Phase

(A) Project Charter

ONE-PAGE PROJECT CHARTER TEMPLATE

PROJECT NAME	PROJECT MANAGER	PROJECT SPONSOR

EMAIL	PHONE	ORGANIZATIONAL UNIT
	000-000-0000	

ESTIMATED COSTS	EXPECTED SAVINGS	EXPECTED START DATE	EXPECTED COMPLETION
$0	$0	00/00/0000	00/00/0000

PROJECT OVERVIEW

PROBLEM OR ISSUE	
PURPOSE OF PROJECT	
BUSINESS CASE	
GOALS / METRICS	
EXPECTED DELIVERABLES	

PROJECT SCOPE

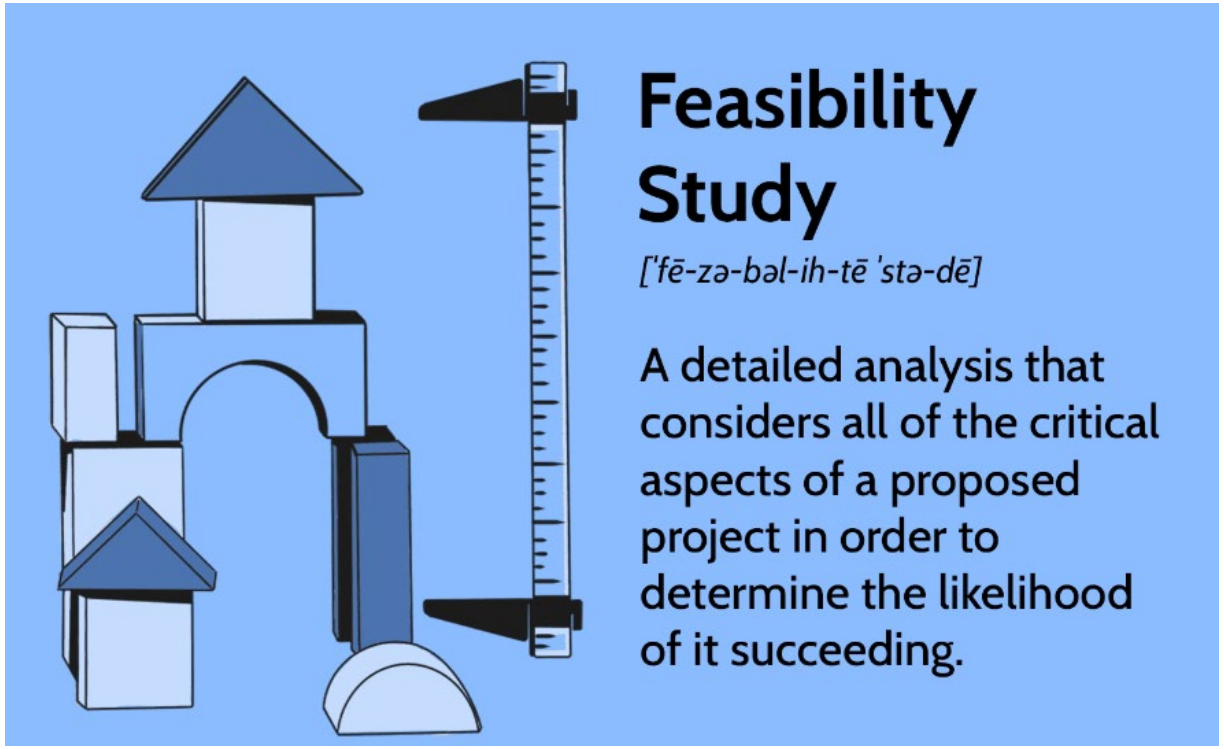
WITHIN SCOPE	
OUTSIDE OF SCOPE	

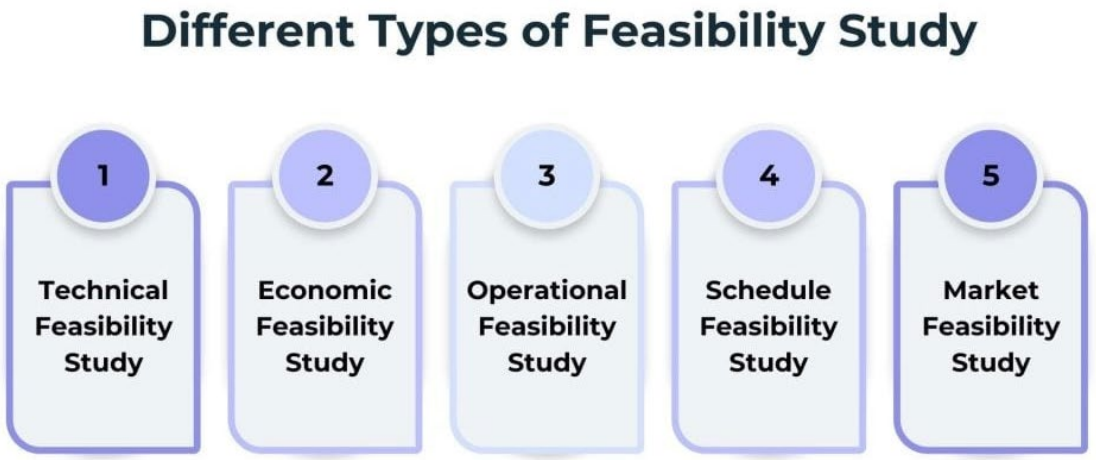
TENTATIVE SCHEDULE

KEY MILESTONE	START	FINISH
Form Project Team / Preliminary Review / Scope	00/00/0000	00/00/0000
Finalize Project Plan / Charter / Kick Off	00/00/0000	00/00/0000
Define Phase	00/00/0000	00/00/0000
Measurement Phase	00/00/0000	00/00/0000
Analysis Phase	00/00/0000	00/00/0000
Improvement Phase	00/00/0000	00/00/0000
Control Phase	00/00/0000	00/00/0000
Project Summary Report and Close Out	00/00/0000	00/00/0000

1. Initiation Phase

(B) Feasibility Study

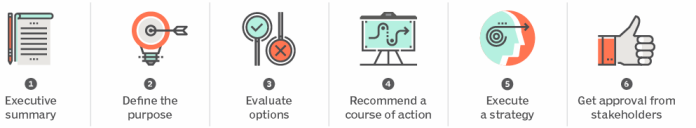




Initiation Phase

(c) Business Plan

The 6 steps to create a business case



Feasibility Study

- Assess viability and feasibility of an idea
- Aims to provide preliminary assessment of viability of business
- Conducted early in the business
- Users include entrepreneurs, business owners and potential investors

Business Plan

- Outlines goals, strategies, and financial projections of a business
- Aims to provde a comprehensive overview of business structure
- Developed after feasibility study
- Users include leders, investors, partners, employees and other stakeholders

Business case checklist

1 Executive summary

- ☐ Include a high-level summary of the project.
- ☐ Ensure the executive summary is the first section and is written last.
- ☐ Provide a brief overview of the entire business case, conveying essential information and communicating the complete story.

2 Define the purpose

- ☐ Clearly state the purpose of the business case.
- ☐ Define the problem or opportunity the business case will address.
- ☐ Answer questions on problems, required actions and alignment with business strategy.
- ☐ Support statements with data on the state of the economy and market competitiveness.

3 Evaluate alternate options

- ☐ Conduct thorough research to gather necessary information.
- ☐ Identify all viable options.
- ☐ Research potential benefits of each option.
- ☐ Address all potential alternatives, benefits, costs and risks.

4 Recommend a preferred course of action

- ☐ Rank preferred options using criteria and a scoring mechanism.
- ☐ Assign scores (1-10) based on cost and benefit.
- ☐ Consider business priorities while scoring.
- ☐ Introduce complexity to ensure comprehensive coverage.

5 Develop the execution strategy

- ☐ Create an execution plan for the selected option.
- ☐ Outline steps to accomplish business goals.
- ☐ Specify project team members and required resources.
- ☐ Designate responsibilities for each milestone.
- ☐ Address risk reduction strategies.
- ☐ Include a plan for monitoring and evaluating progress.

6 Get approval from stakeholders and decision-makers

- ☐ Verify the suggested course of action.
- ☐ Prepare necessary documentation for approval.
- ☐ Submit the business case for approval to the board.
- ☐ Answer key questions on benefits, drawbacks, inaction costs and investment costs.
- ☐ Ensure a strategic and persuasive presentation to stakeholders.
- ☐ Adhere to any specified standards for business case writers.

2. Planning Phase

1 Purpose

- The planning phase transforms the high-level vision of the project charter into actionable steps.
- It's about defining how the project will be executed, monitored, controlled, and ultimately delivered.

2 Key Activities

1. Develop the Project Management Plan
2. Create the Work Breakdown Structure (WBS) + Project Schedule
3. Determine Resource Requirements
4. Develop the Project Budget
5. Identify and Analyze Risks
6. Plan for Quality
7. Establish Communication Channels

3 Tools and Techniques

- Project Management Software (MS Project, P6, Smartsheet, etc)
- PMBOK – 10 knowledge areas techniques.

4 Deliverables

- Project Management Plan: The comprehensive document guiding project execution.
- Work Breakdown Structure (WBS): The hierarchical decomposition of project work.
- Project Schedule: The detailed timeline of project activities.
- Resource Plan: The plan for acquiring and allocating project resources.
- Project Budget: The approved financial plan for the project.
- Risk Register: A document listing identified risks, their potential impact, and planned responses.
- Communication Plan: The plan for stakeholder communication.

2. Planning Phase

Project Management Plan

This is the core document guiding the entire project. It consolidates all planning aspects into a comprehensive roadmap.

Resource Plan

Each work package in the WBS is analyzed to determine the type and quantity of resources (human, materials, equipment) needed.

Risk Identification and Planning

Potential risks that could impact the project are systematically identified, assessed for likelihood and impact, and response strategies are planned.

Communication Plan

This step involves setting up communication channels, defining communication protocols, and determining the frequency and format of project updates.

1

2

3

4

5

6

7

Create Work Breakdown Structure (WBS) + Project Schedule

This hierarchical decomposition breaks down the project into smaller, more manageable work packages, providing a structured view of the entire project scope. Using the WBS as a foundation, a detailed project schedule is created, outlining activity sequences, durations, dependencies, and milestones.

Project Budget

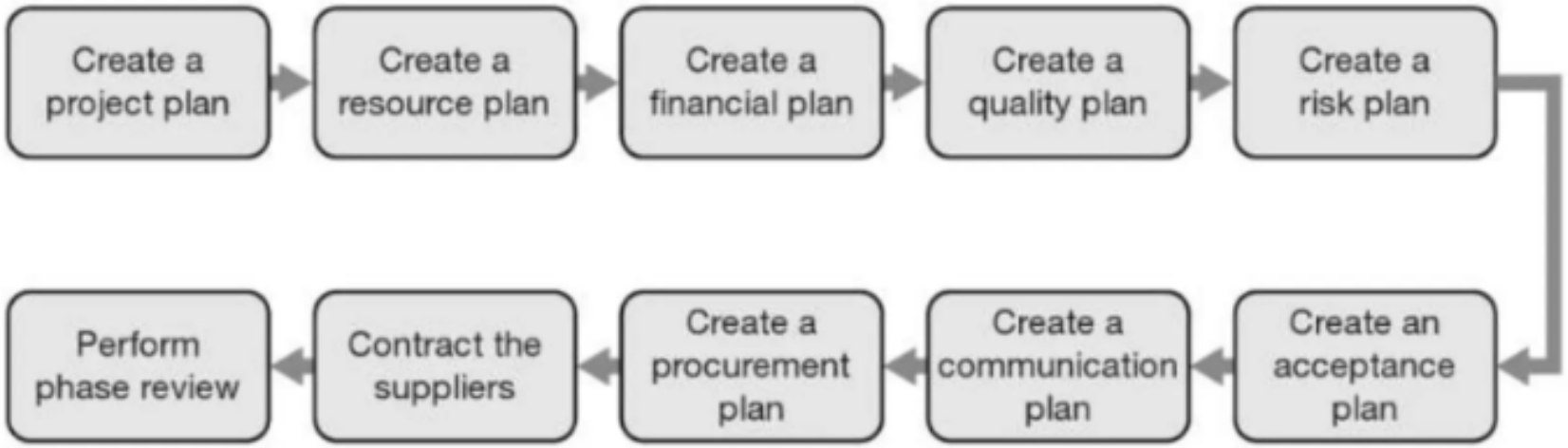
Based on resource estimates, activity durations, and other cost factors, a detailed project budget is developed.

Quality Plan

Specific quality standards and metrics are defined, and a plan is created to ensure that these standards are met throughout the project lifecycle.

2. Planning Phase

Undertaken activities during the planning Phase:



3. Execution Phase

- The project execution phase is where all the action happens.
- Is typically the longest phase of the project in terms of duration.
- This can either be the easiest part of project management or the hardest. It all depends on how much effort you've put into planning.

1 Purpose

- Accomplish project objectives
- Produce project deliverables

2 Key Activities

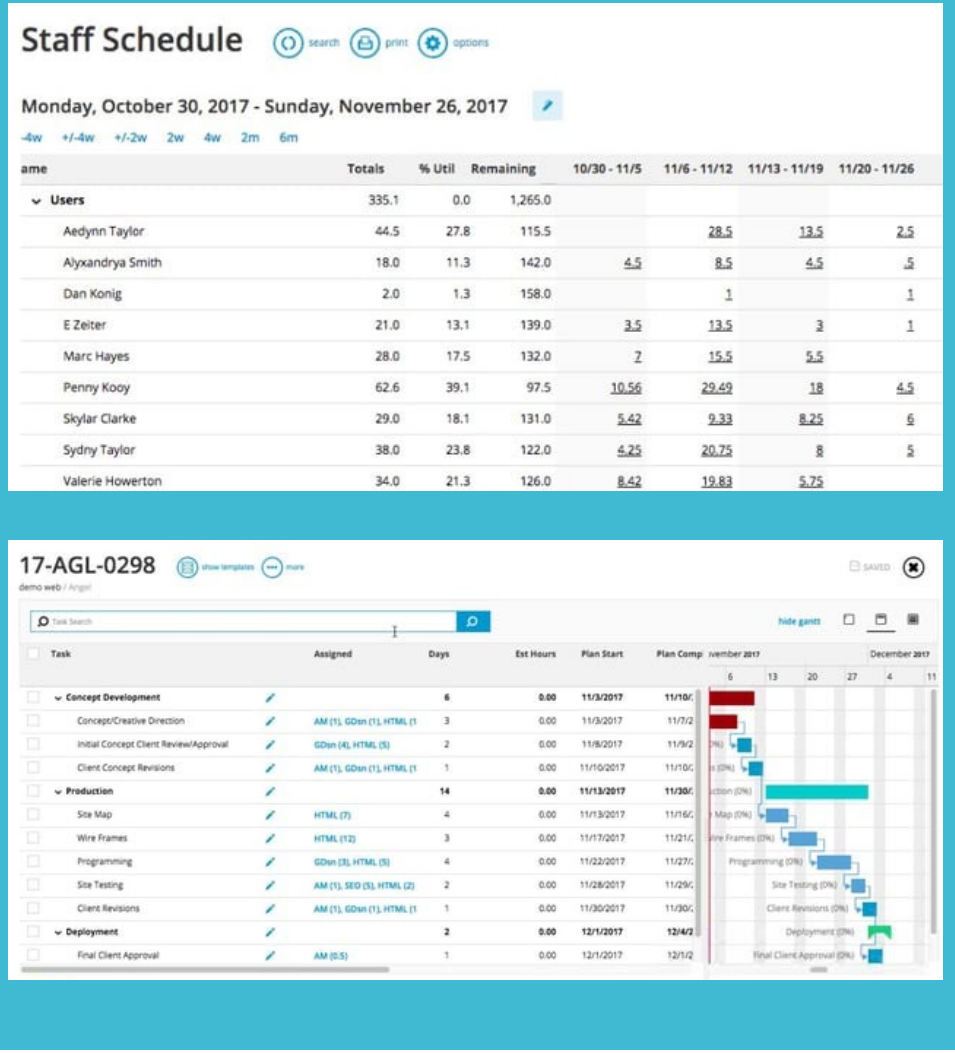
1. Direct and manage project work
2. Manage project knowledge
3. Manage quality
4. Acquire and develop team
5. Manage communications
6. Implement risk responses
7. Conduct procurements
8. Manage stakeholder engagement

3 Tools & Techniques

- Project Management Software (MS Project, P6, Smartsheet, etc)
- PMBOK – 10 knowledge areas techniques.

4 Deliverables

- Project deliverables
- Work performance data
- Change requests
- Project management plan updates
- Project document updates



Monitoring & Control Phase

Project monitoring & control is only a nominally distinct phase in project management. In practice, it takes place alongside project execution.

Track Progress

The monitoring and control phase involves continuously tracking project progress and comparing actual performance to the planned schedule, budget, and scope. This phase ensures that the project is on track to achieve its objectives.

Manage Changes

Changes to the project scope, schedule, or budget are managed through a formal change control process, ensuring that all changes are documented, reviewed, and approved before implementation.

Risk Monitoring and Control

Risks are monitored to assess their current status and identify any new risks that may have emerged. Mitigation strategies are implemented as needed to minimize the impact of risks on the project.

Monitoring & Control Phase

CHOOSE YOUR KPIS. As Peter Drucker once said, ***"if you can measure it, you can improve it"***. To track the progress of a project, you'll first need to settle on your target Key Performance Indicators (KPIs)

Some KPIs you can use are:

- **On-time completion:** Track how many tasks are completed on time, expressed as a percentage figure. This is a good indicator of the timeliness of the project.
- **Budget variance:** Track how much the actual budget varies from the planned budget (as a percentage value). Too much variance can tell you to rein in your spending.
- **Planned vs. actual hours of work:** Compare the difference between the hours of work as planned vs. the actual hours of work put in. If you're spending more time than planned, it might be wise to re-estimate the project schedule.
- **Schedule variance:** Compare the planned time and budget vs. actual time and budget spent on the project to date. The difference between these values is the schedule variance. A positive figure shows that you're on track and have an additional budget left.
- **Missed milestones:** Track how many milestones you've missed and by how much. This will tell you whether you're on schedule or not. Missing too many milestones is an indicator of poor planning or execution.

5. Closure Phase

Deliver Final Product

The closure phase marks the end of the project. The project team delivers the final product or service to the client or stakeholders, ensuring that it meets the agreed-upon requirements.

Obtain Formal Acceptance

Formal acceptance of the final deliverables is obtained from the client or stakeholders, signifying that the project has met its objectives.

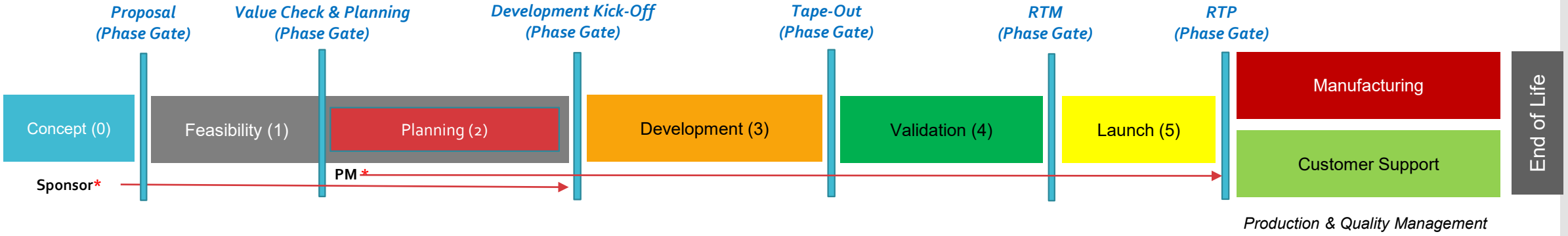
Conduct Post-Project Review

A post-project review is conducted to evaluate the project's performance and identify lessons learned. This review helps improve future projects by analyzing what went well and what could be improved.

Archive Project Documents

All project documents are archived, creating a historical record of the project for future reference and knowledge sharing.

Typical Project Life Cycle in SC industry



Check Point	Criteria	Key Deliverables
Concept	Project aligns with corporate strategy and portfolio roadmap, and has appropriate scope	• Product Concept Overview • Business Opportunity • Prelim Value Prop
Value Check	Project addresses need in the market and demonstrates a clear value proposition.	• Value Proposition • Prelim Business case • Feasibility Plan • Business Risk Assessment • Out-of-Bound criteria
Kick-off	Project is feasible with defined resources and schedule in consideration of mitigated and accepted risks	• Schedule - locked baseline • KO Checklist • Business Case (ROI) • Feasibility Summary
Tape-Out	Design & layout are rigorous to prevent bugs and additional DSC	• Tape Out Master Checklist • Production Test Plan • Silicon Characterization Plan
RTM	Product meets requirements and business case is still valid	• QAF • PPR-RTM Checklist Complete • Production Test Programs complete and ready • Updated Business Case
RTP	Product is manufacturable while meeting cost targets	• Product Launch Checklist • OAI Closed • Safe Launch (As needed) • PPAP (As needed) • PTC Optimized (TTR, flow, etc.) • ASIL Certificate/Assessment