# Project Management Basics: Project Life Cycle, Constraints, Approaches

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IBA, DU

WHAT IS A PROJECT?

A PROJECT IS A PROBLEM
SCHEDULED FOR SOLUTION.

# What is Project Management?

PROJECT MANAGEMENT IS THE **PLANNING, SCHEDULING, AND CONTROLLING** OF PROJECT ACTIVITIES TO **MEET PROJECT OBJECTIVES.**


PROJECT MANAGER


PROJECT LEADER

MANAGING RESOURCE

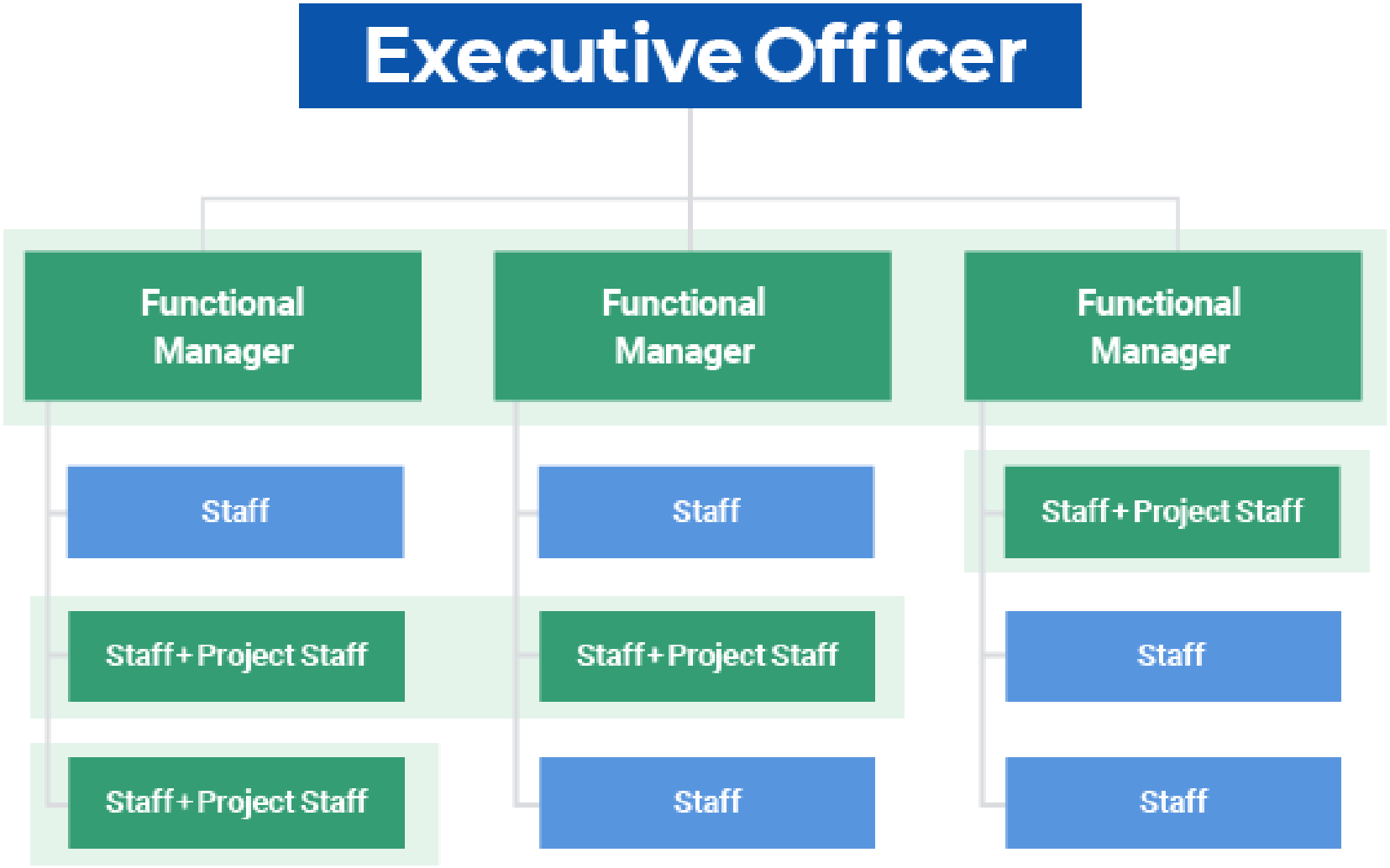
CHALLENGES OF A PROJECT MANAGER

MANAGING AUTHORITY

MANAGING PEOPLE

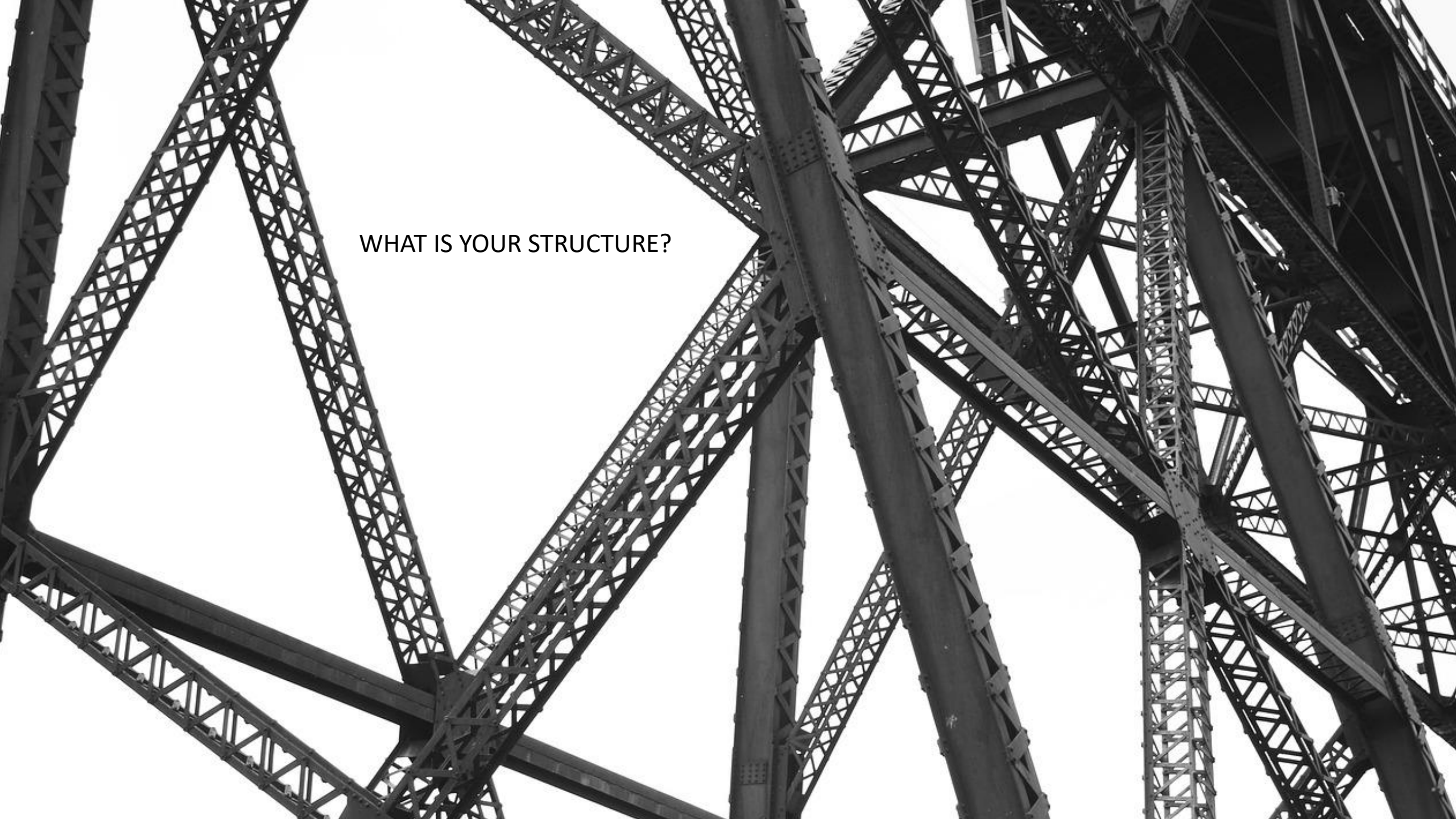
PROJECT MANAGEMENT
STRUCTURE

# Functional Project Organization Structure



# Projectized Organization Structure

# Matrix (Strong) Project Organization Structure


WHAT IS YOUR STRUCTURE?

PROJECT OBJECTIVES

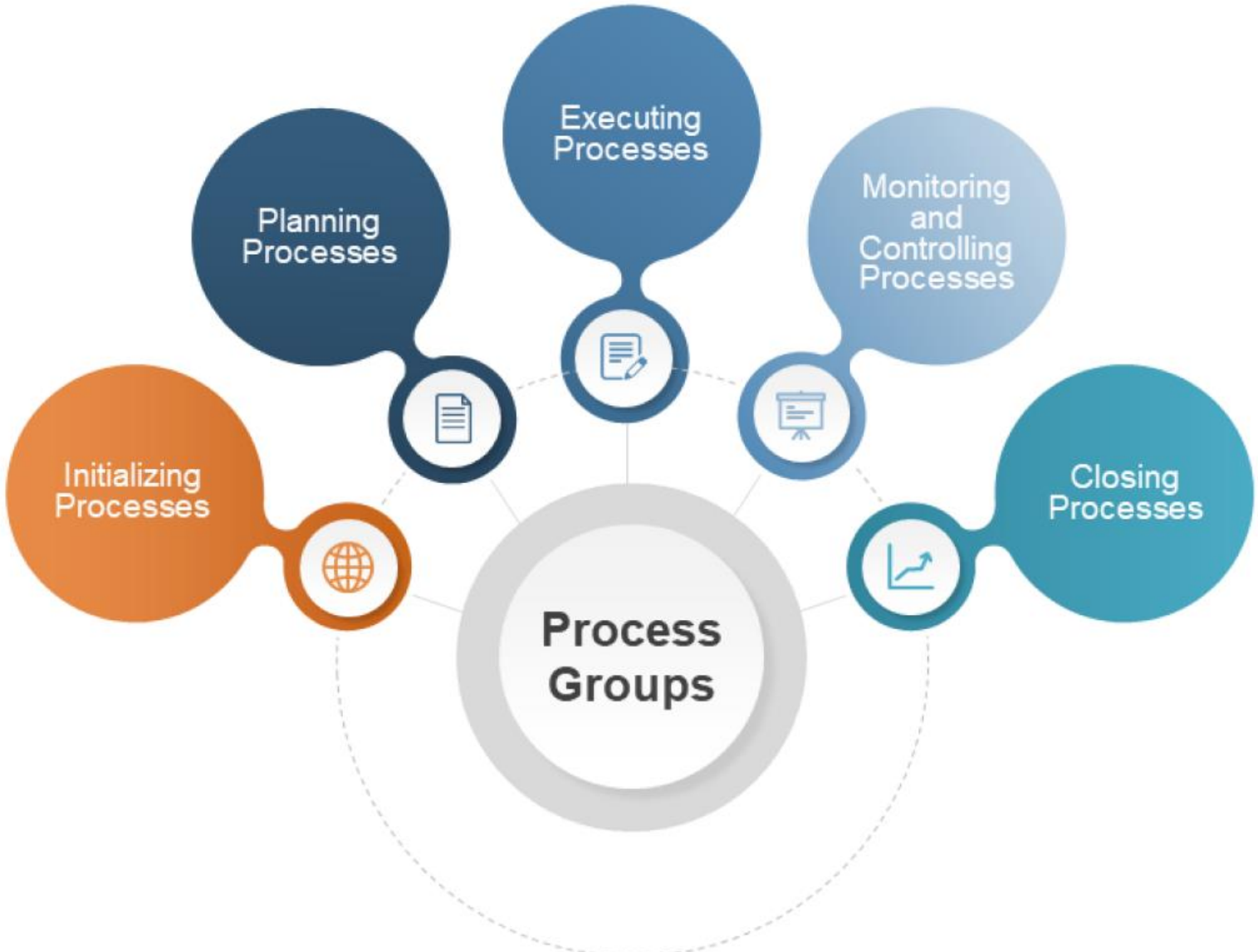
COST (C)
PERFORMANCE (P)
TIME (T)
SCOPE (S)

C = f (P,T,S)

STEPS OF PROJECT MANAGEMENT

- DEFINE THE PROBLEM
- DEVELOP SOLUTION
- PLAN THE PROJECT
- EXECUTE THE PLAN
- MONITOR AND CONTROL PROGRESS
- CLOSE THE PROJECT

# The 5 Main Phases of Project Management Life Cycle



# Project Management Cycle

## Stage 1: Project Initiation

- Feasibility studies and business cases.
- Project charter*: A formal document authorizing the project.
- Stakeholders and project sponsor.

# Project Management Cycle

## Stage 2: Project Planning

Detailed planning needed before project execution.

**Key Points:**

- Project scope, objectives, and deliverables.
- Work Breakdown Structure (WBS): Breaking the project into manageable tasks.
- Project schedule (Gantt chart), budget, risk management, and resource allocation.

# Project Management Cycle

## Stage 3: Project Execution

Putting plans into action

**Key Points:**

- Task assignment, team collaboration, communication plans.
- Importance of managing teams, keeping the project on track, and addressing issues.
- Tools used in execution: collaboration platforms, task management software.

# Project Management Cycle

## Stage 4: Monitoring and Controlling

Tracking project performance and making adjustments

**Key Points:**

- Key performance indicators (KPIs), tracking time, cost, scope.
- Risk management and issue logs.
- Earned value management: Measuring project performance.

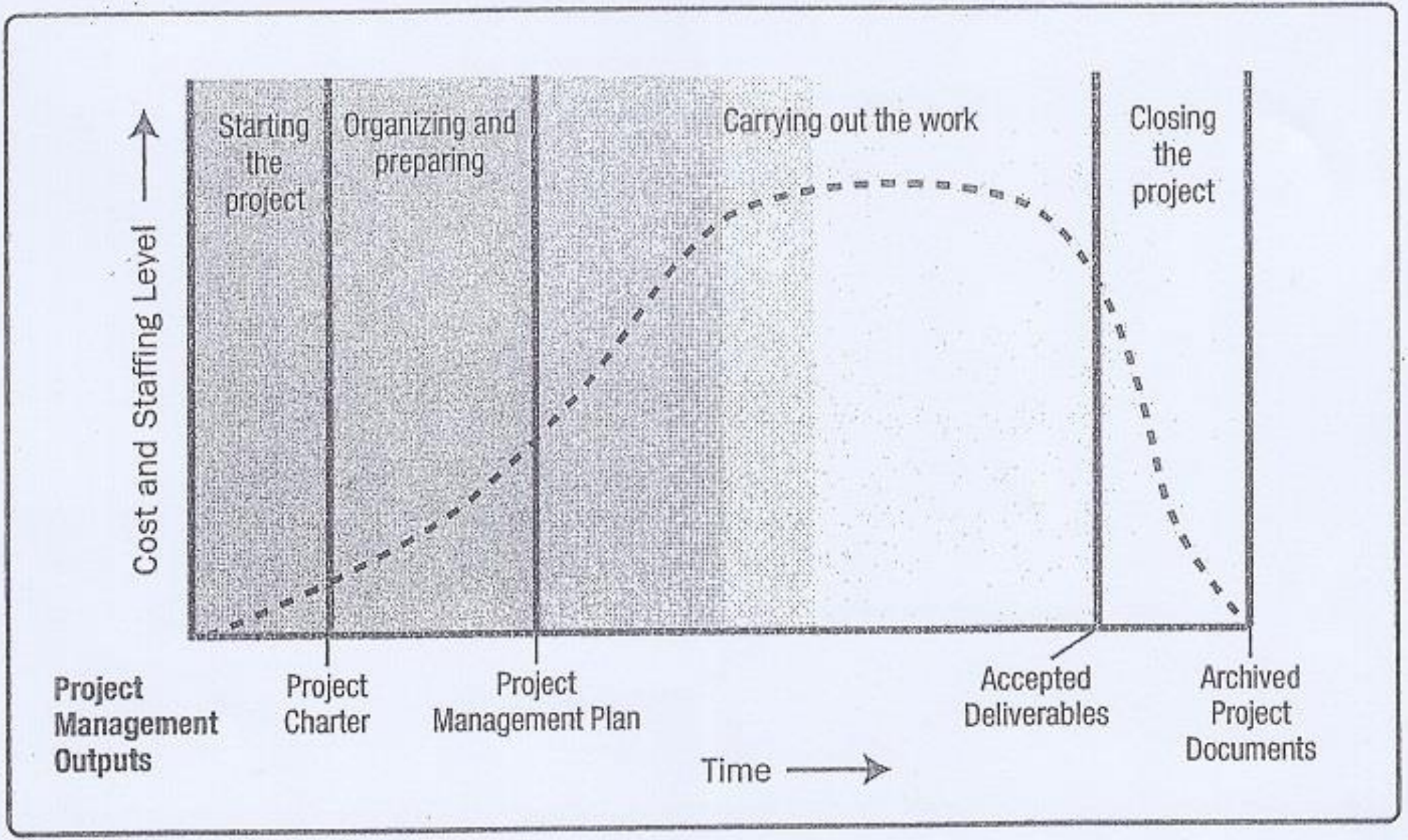
# Project Management Cycle

## Stage 5: Project Closure

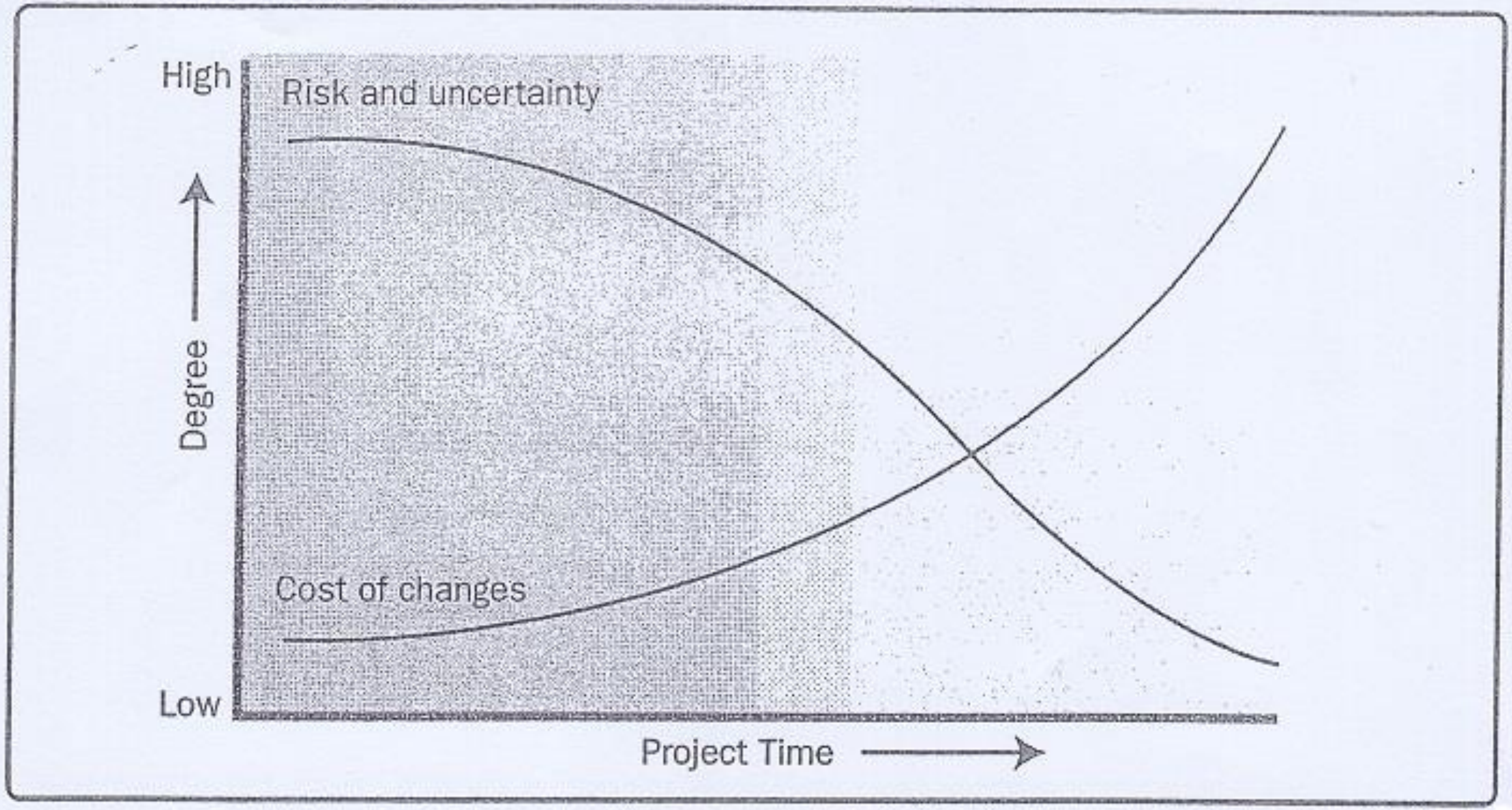
Final steps in completing a project.

**Key Points:**

- Deliverables review and acceptance.
- Post-project evaluation: Lessons learned.
- Formal closing: Documentation and release of resources.




**Typical Cost and Staffing Levels Across a Generic Project Life Cycle Structure**




**Impact of Variable Based on Project Time**

MANAGING UNCERTAINITIES?

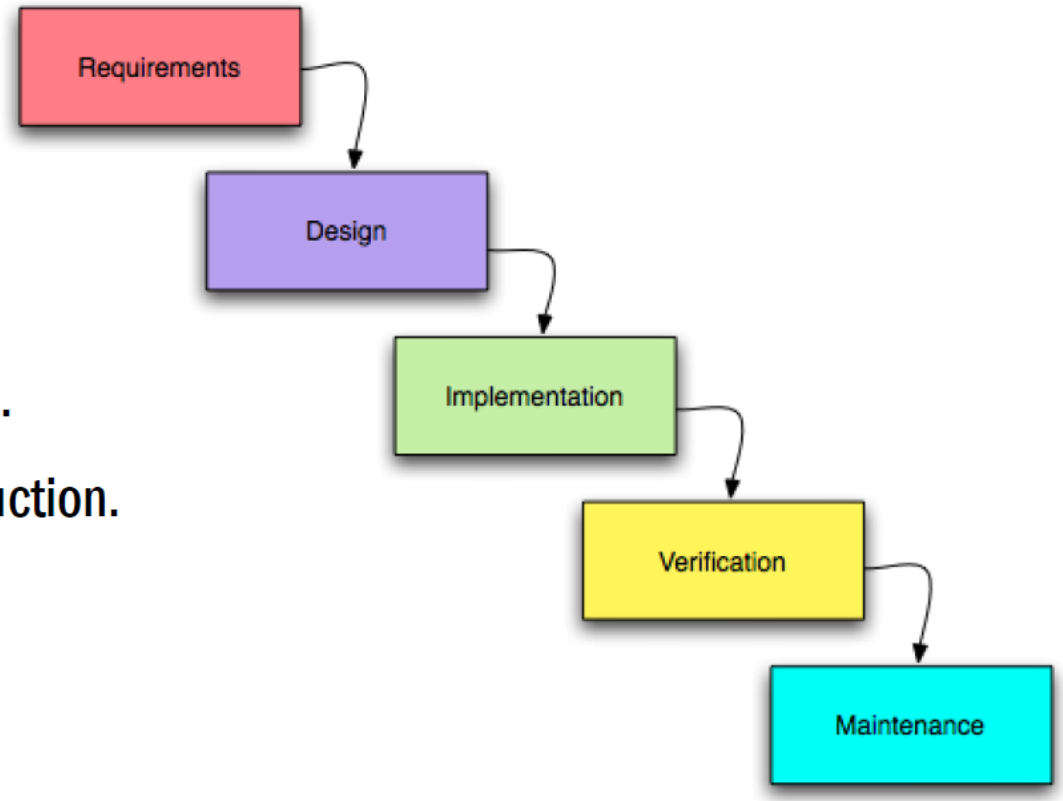
MANAGING COSTS?

WHERE DO YOU FACE CHALLENGES?

# Project Management Approaches

## Traditional (Waterfall) Approach

### Linear, sequential approach to Project Management




**Key Points:**

- Phases: Requirements gathering, design, implementation, testing, deployment.
- Suitable for well-defined projects where changes are minimal.
- **Example**: Using Waterfall for software development or construction.

# Project Management Approaches

## Agile Approach

Iterative, flexible approach to Project Management

**Key Points:**

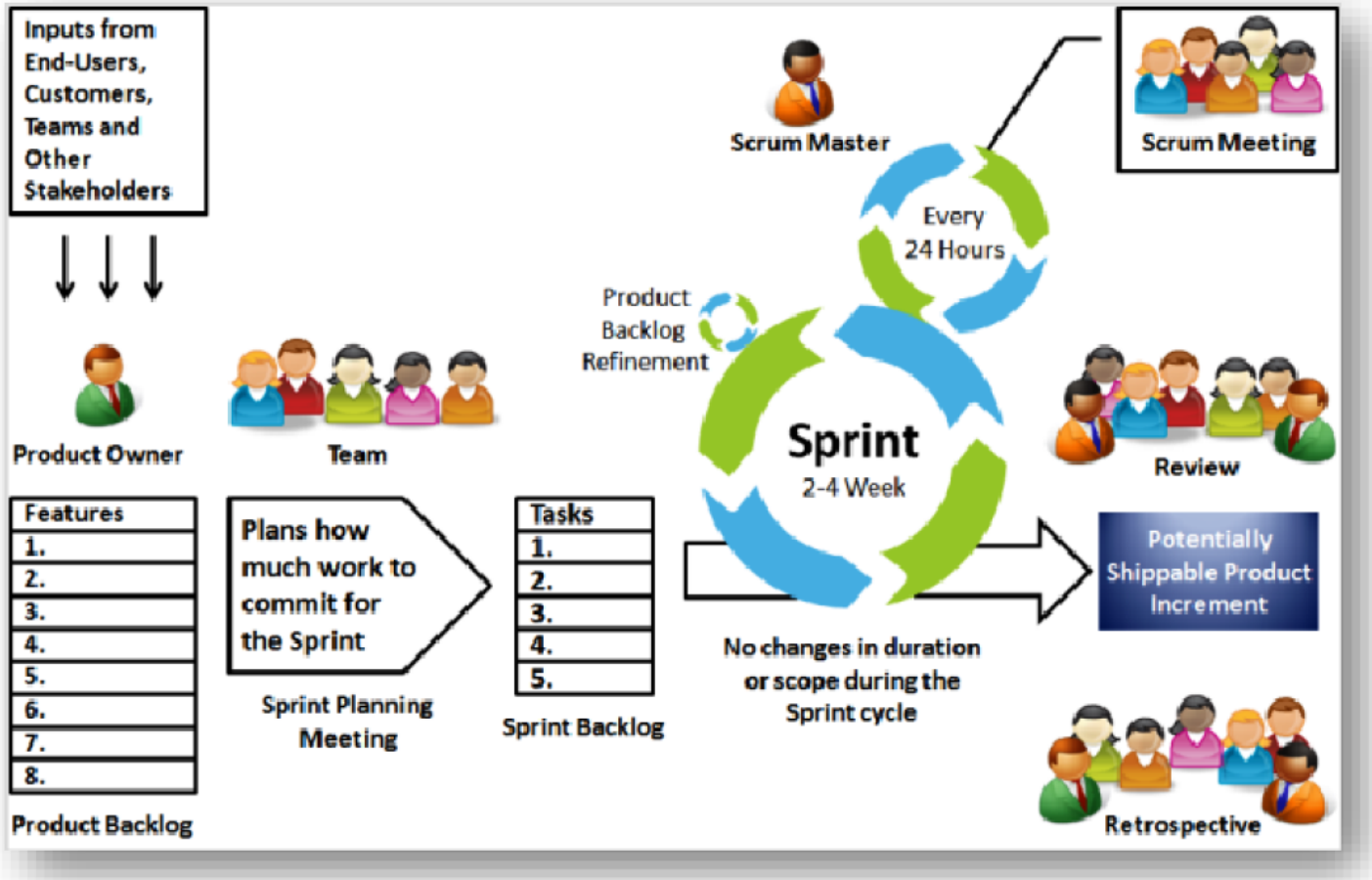
- Focus on collaboration, customer feedback, and iterative work cycles (sprints).
- Agile frameworks: Scrum and Kanban.
- Benefits: Adaptability to change, faster delivery of results.

# Project Management Approaches

## Agile Approach

### Scrum:

Scrum is an Agile framework focused on delivering projects through iterative, time-boxed cycles called **sprints** (usually 1-4 weeks).
Scrum emphasizes frequent feedback, adaptability, and continuous improvement through daily standups, sprint planning, sprint reviews, and retrospectives.



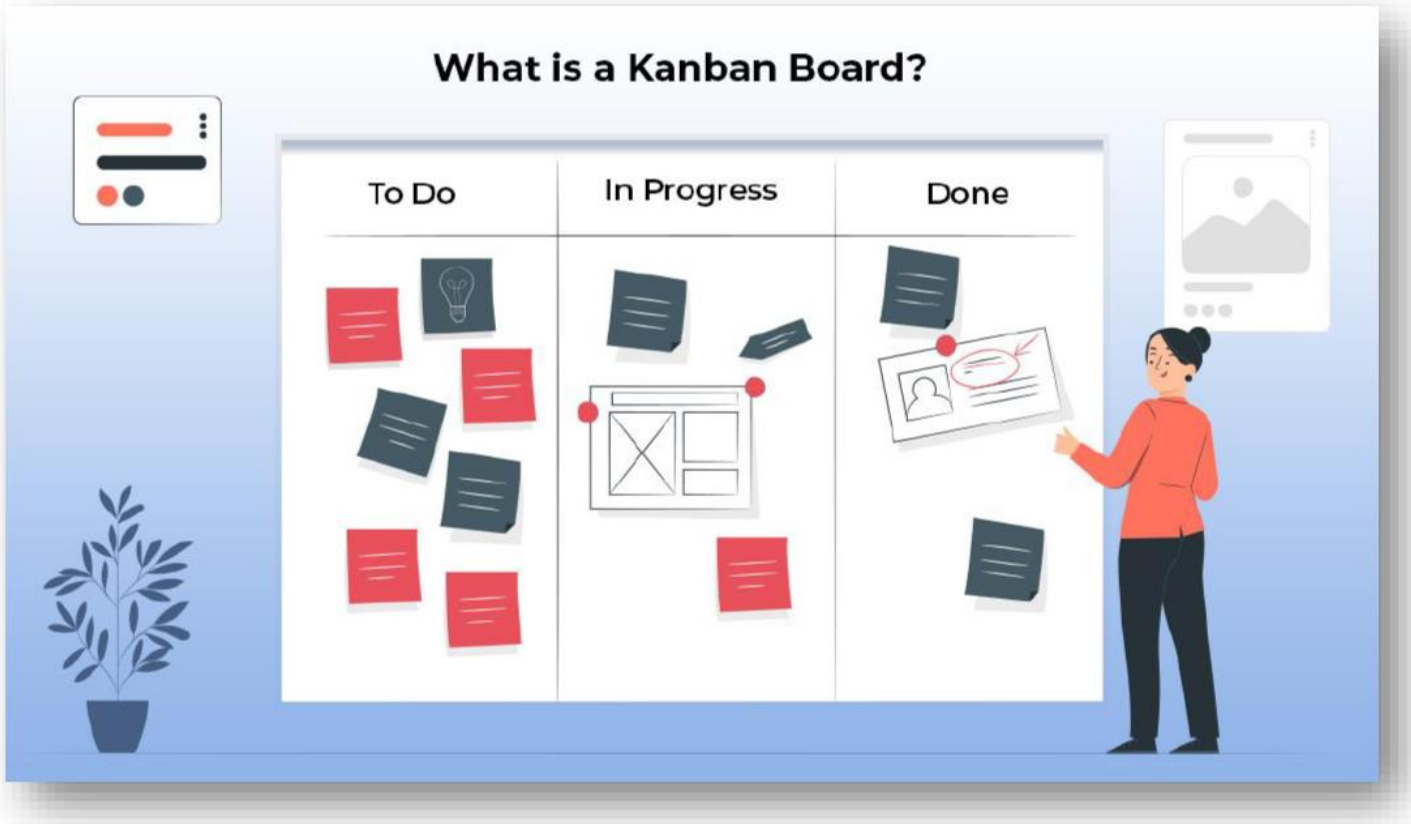
# Scrum in Just 3 Minutes!

# Project Management Approaches

## Agile Approach

### Kanban

Kanban is a visual method for managing workflow, focusing on continuous delivery without the strict time limits found in Scrum. Tasks are visualized on a **Kanban board**, usually organized into columns like “To Do,” “In Progress,” and “Done.”



# Kanban in 1 minute

# Project Management Approaches

## Hybrid Approach

Combining Agile and Waterfall can benefit certain projects.

**Key Points:**

- Using Waterfall for clear phases and Agile for flexibility within each phase.
- **Example:** A large project that requires detailed planning (Waterfall) but iterative execution (Agile) in product development.


PROJECT INITIATION

# PROJECT CHARTER

PROJECT CHARTER

- OBJECTIVE
- OVERVIEW
- DETAILS
- PERSONNEL
- RESOURCES
- COMMUNICATION PLAN
- SCHEDULE
- RISK MANAGEMENT PLAN
- EVALUATION METHOD

SAMPLE

| | | | |
|---|---|---|---|
| Project name: OrangeDelivery App | | | |
| Project description: | A mobile application for ordering foodstuffs and other products from OrangeSupermarket stores. The app will be available onGoogle Play and App Store. | | |
| Project objectives: | Facilitate ordering foodstuff and other products published on OrangeSupermarket store website via a mobile phone. | | |
| Project is considered successful when: | 1. The app has a high number of downloads on Google Play and App Store.<br>2. The app has ratings of 4-5 stars on Google Play and App Store and more than 10 positive reviews on each platform.<br>3. The number of OrangeSupermarket store customers grew by 10%. | | |
| Project participants: | Title: | Name: | |
| | Investor<br>Project manager<br>Finance manager<br>Team members:<br>Front-end developer<br>Back-end developer<br>QA engineer | Jake McKinsey<br>John Smith<br>Anna Murry<br><br>James Thomson<br>Andrew Michaelson<br>Kirsty Watts | |
| Available resources: | Budget: $3,000<br>Testing environment: Apple iPhone 11 Pro; Xiaomi Redmi Note 7 | | |
| Milestones: | Status: | Due: | Deadline: |
| | 1. Build 1.0 Main functions presentation<br>2. Build 2.0 Adding new features after beta-testing | 1/03/2020<br><br>1/04/2020 | 3/03/2020<br><br>4/04/2020 |
| Potential risks: | 1. The team may not meet deadlines due to adding unplanned in the specification features.<br>2. The team may run out of the budget due to extending development or testing time. | | |
| Approval: | Title and name: | | Date: |
| | Investor: John Smith<br>signature_____<br>Project manager: Ivan Johnson<br>signature_____<br>Finance manager: Anna Murry<br>signature_____ | | 1/02/2020 |

SAMPLE

# Project Charter: Website Redesign

## Part I: Project Overview

| | | | |
|---|---|---|---|
| **Project Name** | Website Redesign | | |
| **Project Charter Author** | Amanda Etches & Randy Oldham | | |
| **Creation Date** | Nov 12, 2012 | **Last Revision Date** | February 3, 2013 |
| **Project Requestor** | Randy Oldham | **Project Manager** | Randy Oldham |
| **Project Charter Status (Pending/Approve/Reject)** | Approved | | |
| **Project Sponsor Signature** | Amanda Etches and W&IA Cross-Functional Team | **Date of Project Approval** | January 2013 |
| **Proposed Project Start & End Date** | Start: December 2012<br>End: January 2014 | | |

# Project Charter – uWaterloo Mass Email Technology Investigation

SAMPLE

## Introduction

Through campus-wide consultations with university stakeholders who use email for both internal and external communications, it was identified that there are deficiencies with the way that mass emails are handled on campus.

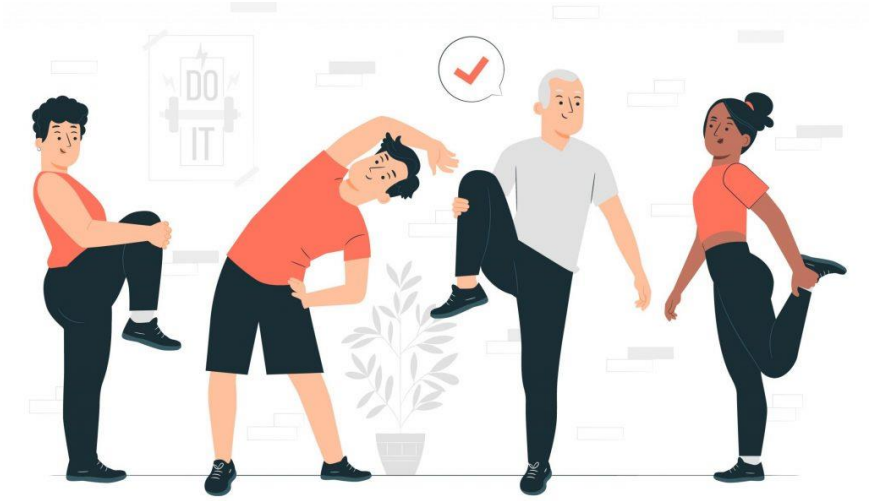
Some key issues identified include:

1. There are many different mass email implementations - both open-source and commercial - used by areas on campus. Some areas maintain their own lists in applications such as Excel, Filemaker, Microsoft Access, Microsoft Outlook, and others.
2. There are many issues with formatting between different operating systems and software packages that cause mass emails to appear differently than how the sender designed the emails, and intended for them to be delivered.
3. Many unproductive hours are spent ensuring that mass emails are sent out properly and, in most cases, there are still errors that occur.
4. There is a need to make mass emails more personable.
5. Many departments have been using social media (e.g. twitter) for communicating with clients, and others are thinking about doing so. CPA is working on social media guidelines, and it is important that departments are aware of and adhere to the guidelines. This project will help with this awareness.

# TEAM EXERCISE: (TEAM OF FIVE)

CREATE A PROJECT CHARTER FOR

## “Ed-Tech Platform Project with web and mobile apps”




- OBJECTIVE
- SCOPE
- DELIVERABLES
- PERSONNEL
- OTHER RESOURCES
- SCHEDULE/ TIMELINE
- RISKS
- RISK MANAGEMENT PLAN
- EVALUATION METHOD

# APPROACHES TO PROJECT SELECTION

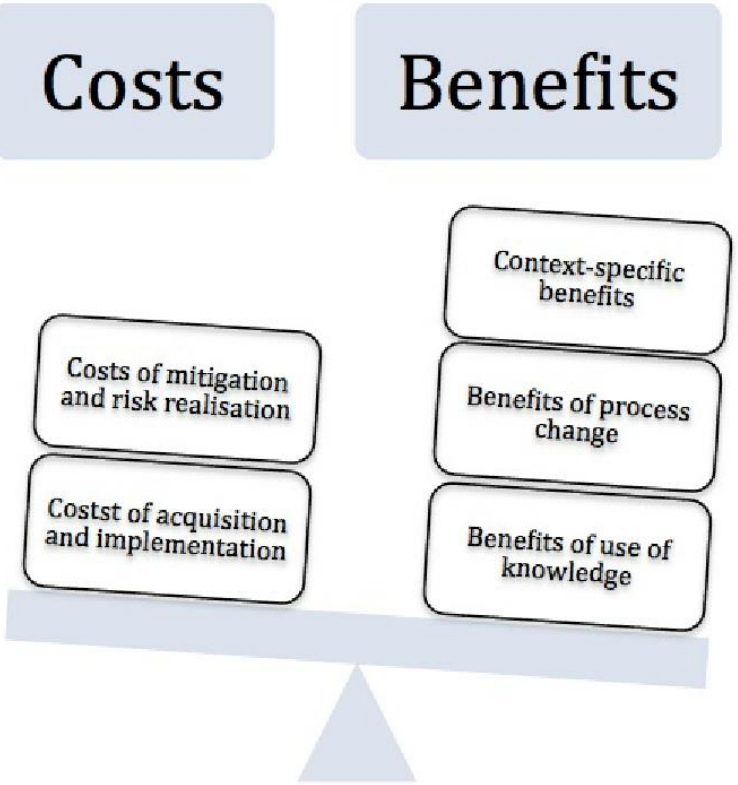
**NUMERICAL**

APPROACHES TO PROJECT SELECTION

- COST-BENEFIT ANALYSIS
- SCORING MODELS (WT, NON-WT)
- PAYBACK PERIOD
- NET PRESENT VALUE
- INTERNAL RATE OF RETURN

COST-BENEFIT ANALYSIS

A cost-benefit analysis is the process of comparing the projected or estimated costs and benefits (or opportunities) associated with a project decision to determine whether it makes sense from a business perspective.



# SCORING MODELS (WT, NON-WT)

| **Non-weighted** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Time (0-5) | Cost (0-5) | Manpower (0-5) | Complexity(0-5) | Return (0-5) | Score |
| | Project A | 3 | 3 | 5 | 4 | 4 | 19 |
| | Project B | 4 | 2 | 1 | 2 | 3 | 12 |
| | Project C | 4 | 3 | 2 | 4 | 5 | 18 |
| | Project D | 2 | 2 | 2 | 2 | 2 | 10 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| **Weighted** | Weight | 10% | 25% | 10% | 20% | 35% | |
| | | Time (0-5) | Cost (0-5) | Manpower (0-5) | Complexity(0-5) | Return (0-5) | Score |
| | Project A | 3 | 3 | 5 | 4 | 4 | 3.75 |
| | Project B | 4 | 2 | 1 | 2 | 3 | 2.45 |
| | Project C | 4 | 3 | 2 | 4 | 5 | 3.9 |
| | Project D | 2 | 2 | 2 | 2 | 2 | 2 |

PAYBACK PERIOD

| Year | Cash flow | Remainder |
|---|---|---|
| 0 | -300 | -300 |
| 1 | 20 | -280 |
| 2 | 30 | -250 |
| 3 | 50 | -200 |
| 4 | 70 | -130 |
| 5 | 100 | -30 |
| 6 | 120 | 90 |
| 7 | 150 | 240 |

# NET PRESENT VALUE AND INTERNAL RATE OF RETURN

Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. By contrast, the internal rate of return (IRR) is a calculation used to estimate the profitability of potential investments.

NPV and IRR are two discounted cash flow methods used for evaluating investments or capital projects.

IRR is useful when comparing multiple projects against each other or in situations where it is difficult to determine a discount rate. NPV is better in situations where there are varying directions of cash flow over time or multiple discount rates.

NET PRESENT VALUE

| Year | | | | Year | Cash in | Cash out | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | -400 | 10% | | 0 | -400 | | -400 | | 10% |
| 1 | 200 | $102.60 | | 1 | -100 | 300 | 200 | | |
| 2 | 100 | | | 2 | -100 | 200 | 100 | | $102.60 |
| 3 | 50 | | | 3 | -30 | 80 | 50 | | |
| 4 | 60 | | | 4 | -10 | 70 | 60 | | |
| 5 | 100 | | | 5 | 0 | 100 | 100 | | |
| 6 | 100 | | | 6 | 0 | 100 | 100 | | |
| 7 | 100 | | | 7 | 0 | 100 | 100 | | |

INTERNAL RATE OF RETURN

| Year | Cash flow | | | | |
|---|---|---|---|---|---|
| 0 | -300 | | | | |
| 1 | 20 | | | | |
| 2 | 30 | | IRR | 12.6% | |
| 3 | 50 | | | | |
| 4 | 70 | | | | |
| 5 | 100 | | Cost of capital | 15% | NOT GOOD |
| 6 | 120 | | | 10% | GOOD |
| 7 | 150 | | | | |

**NON-NUMERICAL**

APPROACHES TO PROJECT SELECTION

- SACRED COW
- COMPETITIVE NECESSITY

# THANK YOU