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Project Management, and Quality Assurance

(Capacity Building Training)

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PROJECT MANAGEMENT



Balance and tradeoff



The double triangle diagram of project constraint

The first triangle (Conventional constraints).

- Scope** (what needs to be done)
- Time** (how long it will take)
- Cost** (how much it will cost)

The second triangle (Modern Constraint or Support factors)

- Quality** (The standard or grade of deliverables)
- Resources** (People, tools, materials available)
- Risk** (Uncertainties that might impact the project)



Management Skill with Game-Project (10 minutes)

Game 1: Triangle Pyramid (Playing Card Challenge)

Objective:

Build a **triangular pyramid** (3-2-1 layers) using playing cards.

Rules:

- Time limit (5 minutes)
- Total cards (20 total)
- One chance to submit final build
- Maximum score = 100 (based on stability, shape, creativity)



Game 2: Paper Airplane Project

Objective:

Design an airplane using **A4 sheet (s)** that flies **at least 20 meters** and **lands smoothly**.

Rules:

- Time limit (5 minutes)
- 2 design attempts allowed
- Maximum Scoring 100 (Distance (40 pts); Stability/flight path (30 pts), Aesthetic (10 pts); Documentation of steps (20 pts))



🎮 Game 1: Triangle Pyramid (Playing Card Challenge)

Objective: Build a triangular pyramid (3-2-1) using 6 playing cards

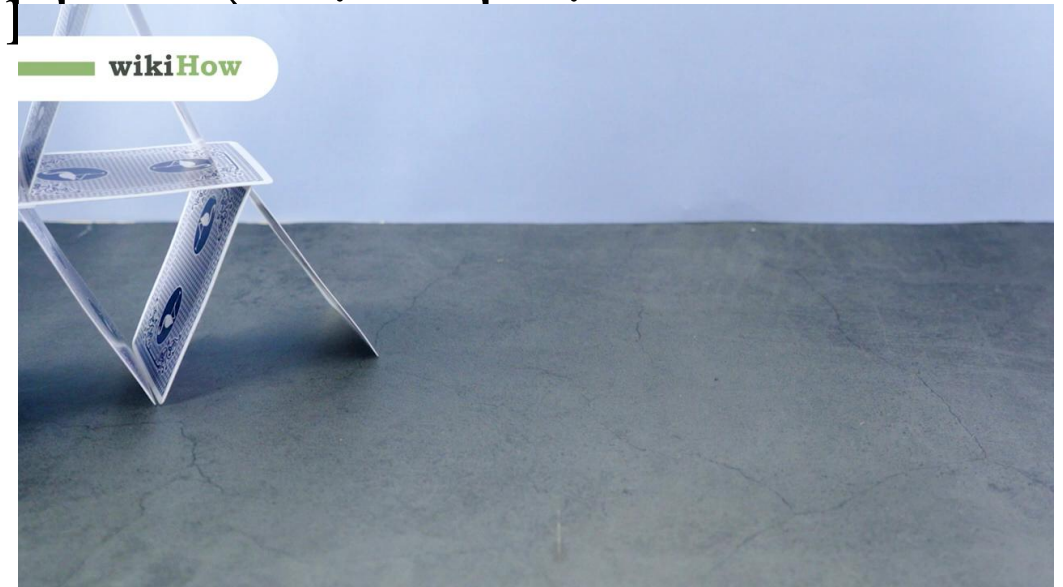
Constraints:

Resource: 20 cards

Time: 5 min

Quality: Shape accuracy

Scoring criteria = **scope**



Reference: <https://www.youtube.com/watch?v=xWDnJt1McT4>

Debrief:

- What could be the focus: more on stability (quality) or speed (time)?
- What trade-offs will you make if you have to work with limited cards (resources)?
- Relate to first triangle: **Scope-Time-Cost**
- And second: **Quality-Resources-Risk**





Game 2: PaperPlane

Objective: Design an airplane using **A4 sheet (s)** that flies **at least 20 meters** and **lands smoothly**

Constraints:

Resource: 20 cards

Time: 5 min

Quality: Shape accuracy

Scoring criteria = **scope**

Debrief:

- What would be the focus: more distance (scope) or stability and smooth landing (quality)?
- How did that focus influence the airplane's flight outcome?

What trade-offs did you face while designing within the 15-minute time limit and using only A4 sheets?

How did limited time or materials affect creativity and testing?



Project Management Dimensions

<u>Dimension</u>	<u>Game 1: Card Pyramid (One Shot)</u>	<u>Game 2: Paper Plane (Two Tries)</u>
Scope Definition	Fixed – Build a specific 3-2-1 triangle tower/pyramid	Flexible – Just "must fly 20m" with potential for creativity
Time Constraint	Hard deadline (single, final build)	Time-boxed, but allows for testing and adaptation
Resource Limitation	Limited playing cards (fixed resource budget)	One A4 paper per trial (replenished with learning)
Risk Exposure	High – No retry; failure = total score impact	Medium – First trial allows for risk and learning
Quality Expectation	High precision and structural integrity	Balance of flight performance, direction, and aesthetics
Learning Opportunity	Low – Must apply knowledge upfront	High – Learn by doing, test-and-adapt loop
Flexibility	Low – Must plan well before execution	High – Can adjust based on outcome
Decision-Making Style	Conservative, careful planning, risk-avoidant	Experimental, fast feedback, risk-tolerant
Project Manager Type	Suited for PMs in construction, infrastructure, compliance-heavy domains	Suited for PMs in R&D, software, design-thinking environments
Trade-Off Awareness	Strong on Scope–Time–Cost awareness (Iron Triangle focus)	Strong on Quality–Risk–Resources balancing (Extended triangle)
Team Dynamics	Tends to rely on preassigned roles and clear execution	Encourages team feedback and iteration



Project Management Mind Map



QUALITY MANAGEMENT



Four Pillars of Quality Management

"Decide what quality means for this task"
Before the activity: Setting clear goals.

Make it better next time



Are the things happenings according to quality plan from the start

Check if it meets the standards

Quality Management- In relation to the project

Simple Definition:

Quality management is making sure the final result meets the expectations through careful planning, checking, improving, and controlling the process.

1. Quality Planning – “Decide what quality means for this task”

When: *Before the activity starts*

Purpose: Define what a successful (quality) outcome looks like and make the plan for achieving the outcome.

In the game-project example:

Before starting, teams shall discuss:

- What are key features (quality) of paper plane (e.g., flies straight, covers a certain distance).
- What are key features of pyramid (e.g., stands on its own, and stability).

This ensures everyone understands the quality expectations from the beginning.

2. Quality Assurance (QA) – “Are the things happenings right from the start”

When: *During the project preparation and building phase*

Purpose: Make sure the process is set up according to quality plan for assuring quality outcomes.

In the game-project example:

- Teams should have clear about quality instructions, design templates, and expected quality standards.
- They are shown how to properly fold a plane or build a pyramid.

This supports teams in doing things correctly the first time.



Quality Management- In relation to the project

3. Quality Control (QC) – *"Check if it meets the standards"*

When: *After the task is completed*

Purpose: Test and verify if the final product meets the quality goals.

In the game example:

- Check if the pyramid stands without collapsing (QC)
- See if the paper plane flies smoothly the required distance

This is the step where results are measured against the expectations set during planning.

4. Quality Improvement – *"Make it better next time"*

When: *After the first round or iteration*

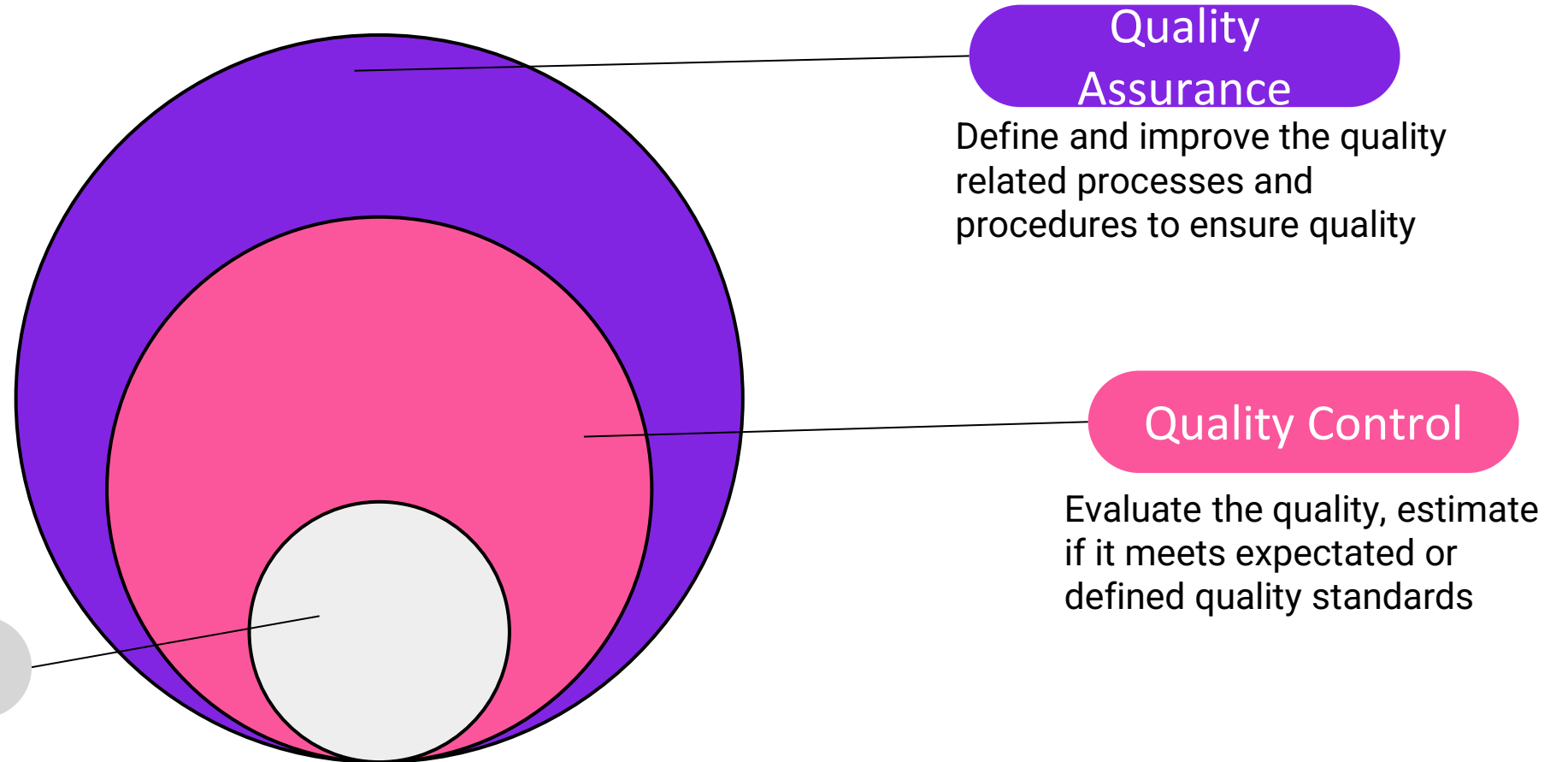
Purpose: Learn from mistakes and improve future performance.

In the game example:

- Teams reflect on what went wrong.
- They discuss how to fold the plane better or make the pyramid more stable.
This step focuses on continuous improvement and learning from experience.

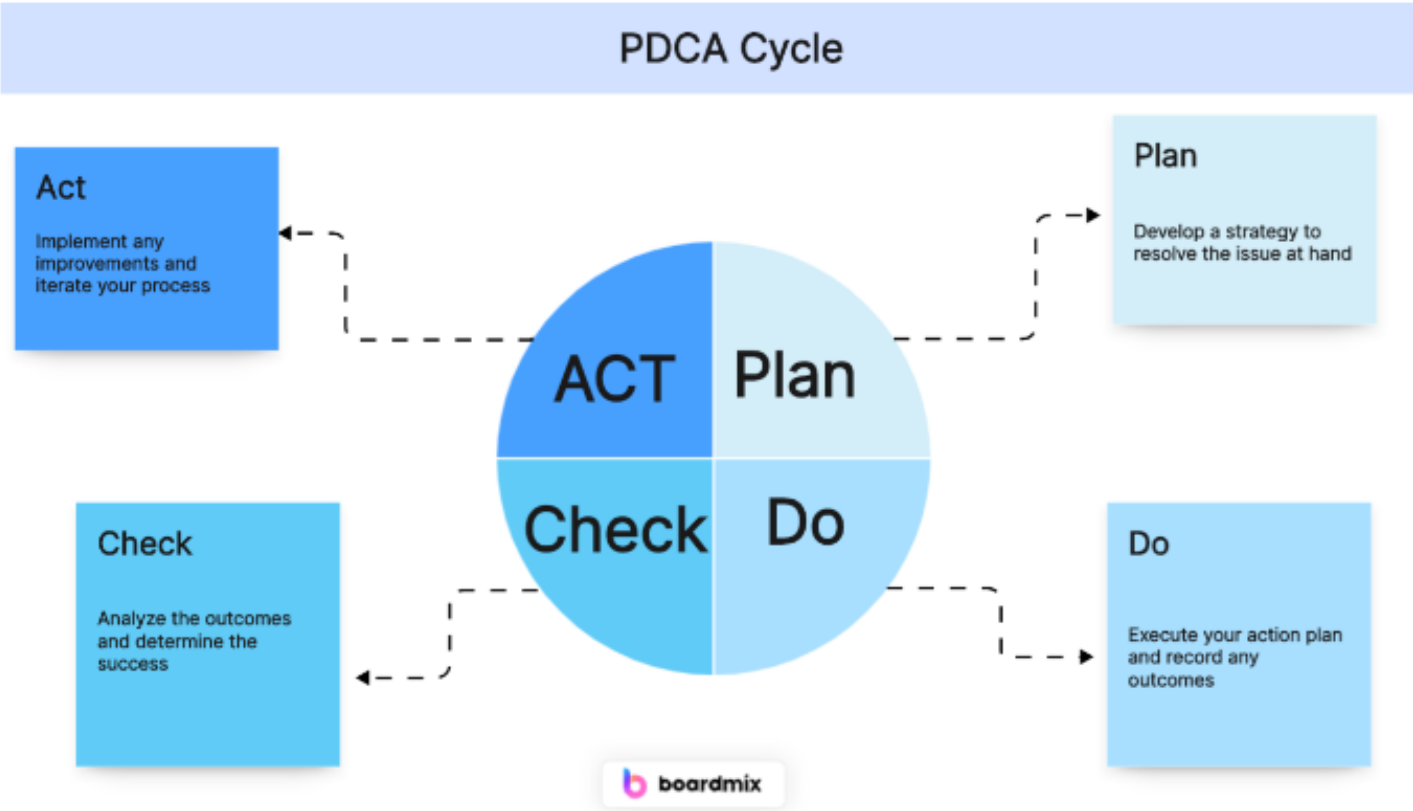


Quality Control Vs Quality Assurance



Quality improvement

A cyclic method for continuous improvement of a process





For more information
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