A Short Course in Project Management

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ARG Workshop Fall 2011

Break Timer

SkillRight

What Is Project Management?

"Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations."
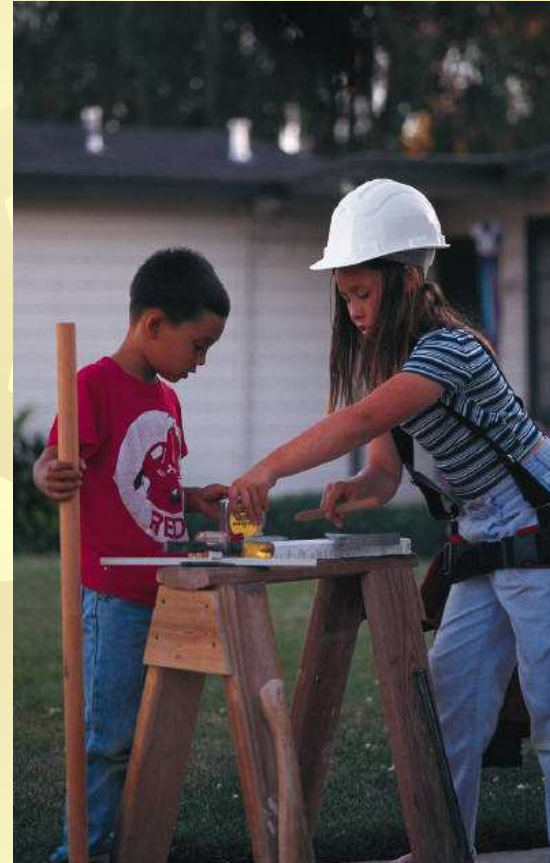
Source: Project Management Institute

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What Is a Project?

"A project is a temporary endeavor undertaken to create a unique product or service."

Source: PMI

Project Manager

"The person who is responsible for the project and will be held accountable for its success or failure."

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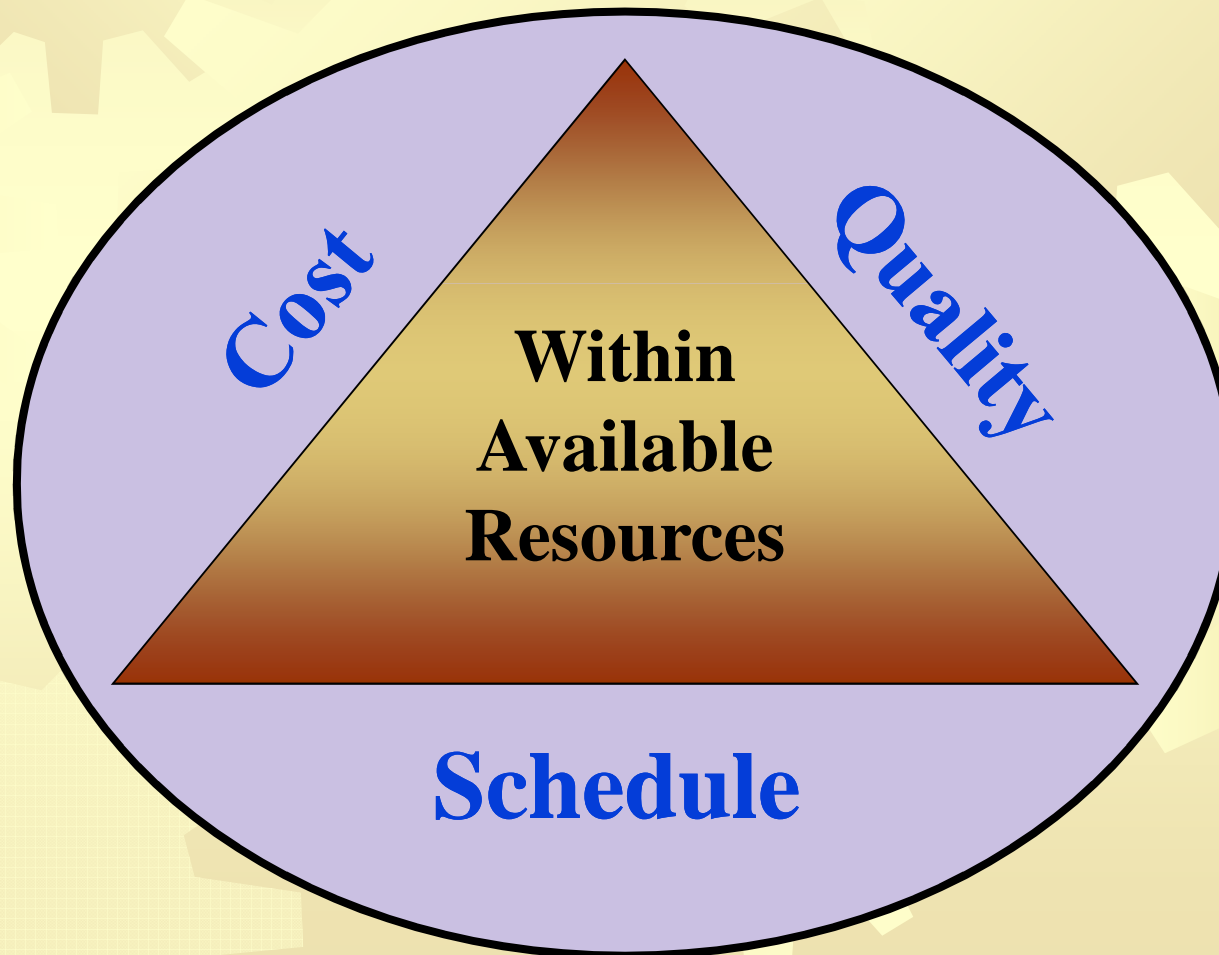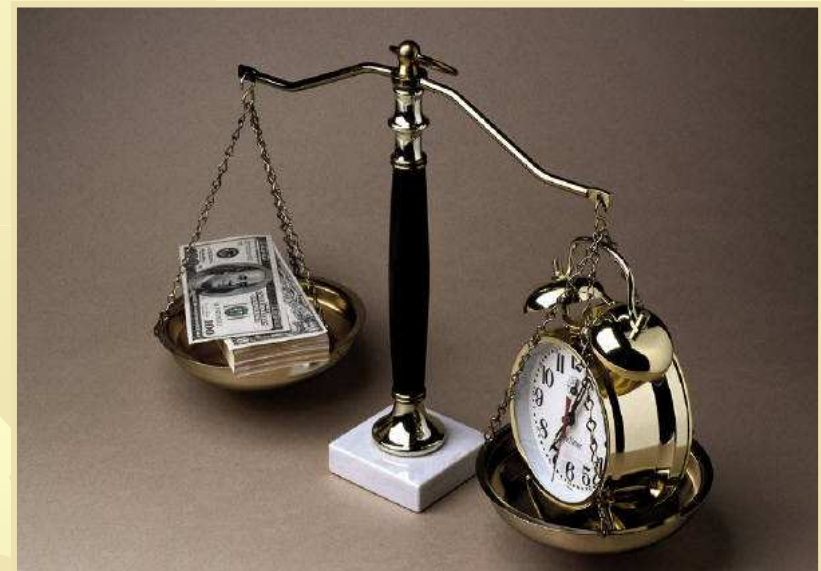
The Triple Constraint

Project Scope

Cost

Quality

Within Available Resources

Schedule

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Balancing the "Project Success Triangle"

* A clear understanding of customer priorities
* "People" skills
* Thorough planning
* An organized, structured process

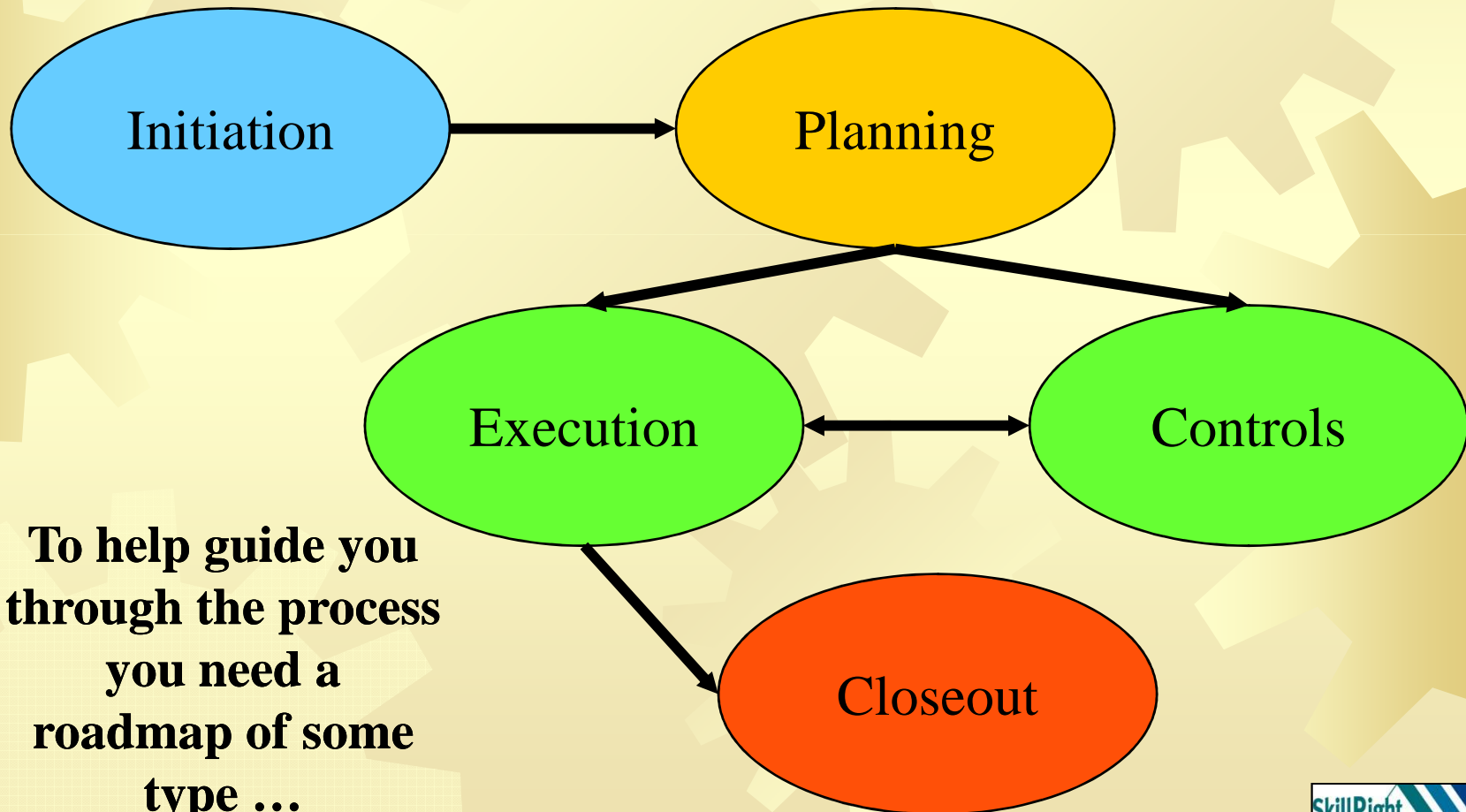Break Timer

SkillRight

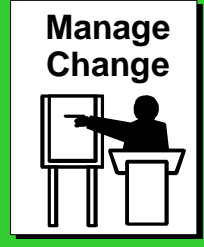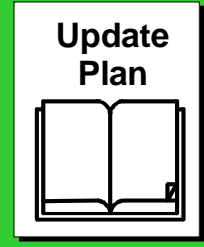# Project Management Process

Source: PMBOK

Initiation → Planning

Planning → Execution ↔ Controls

Execution → Closeout

To help guide you through the process you need a roadmap of some type …

Break Timer

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Roadmap to Project Management Success

Form Project Team

Statement of Work
- Purpose
- Project Background
- Project Deliverables

Work Breakdown Structure

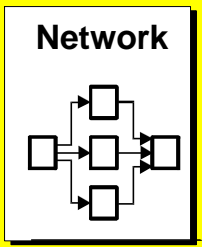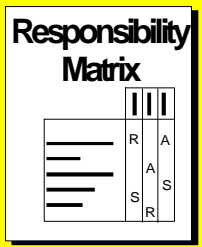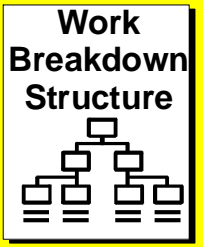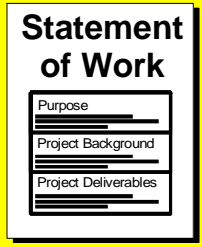**Responsibility Matrix**

Network

Gantt

Resource Plan

Budget
- TIME

PLAN

PROJECT NOTEBOOK

MEETINGS

LEADERSHIP

COMMUNICATION

LESSONS LEARNED

REPORTS

CLOSE-OUT

IMPLEMENT

Conduct Close-Out Meeting

Share Lessons Learned

Evaluate Success

Perform Tasks

Track Progress
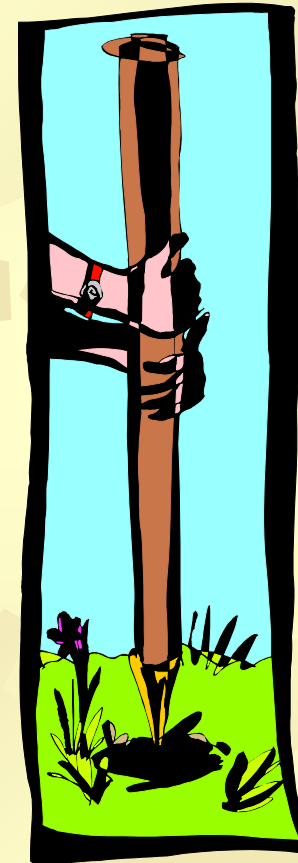
Manage Change

Update Plan

Resolve Issues

Project Stakeholders

* What is a project stakeholder?
  * *If you can gain or lose from the success or failure of a project, you have a "stake" in the project.*

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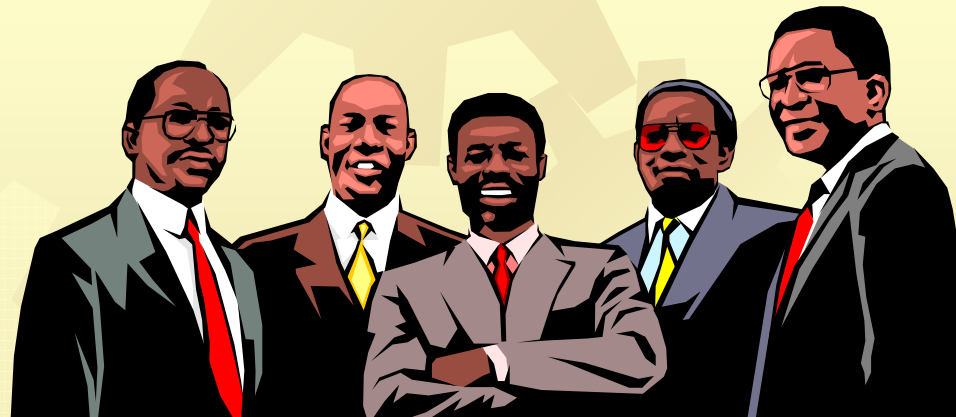
Key Project Stakeholders

✴ Customer/client

✴ Project sponsor

✴ Project manager

✴ Project team

Project Manager

* Define and manage customer expectations.
* Coordinate development of the project plan.
* Monitor and control project work according to the approved plan.
* Communicate project status by preparing status reports and conducting progress review meetings.

* Establish and follow a change management process.
* Lead the project team and resolve conflicts between team members.
* Maintain the project notebook.
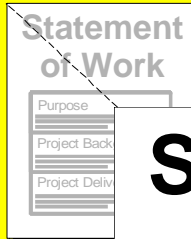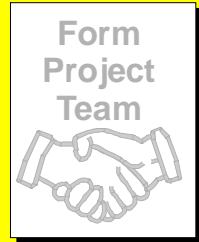* Conducting project close-out activities.

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Project Team Members

* Identify work tasks

* Estimate the duration of work tasks

* Help prepare the project network diagram

* Honestly report work status

* Keep the project manager informed on project issues

* Attend scheduled progress review meetings

* Raise issues important to the project's success

* Keep their functional managers updated
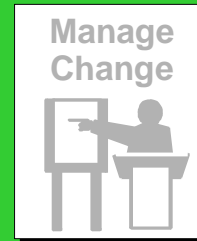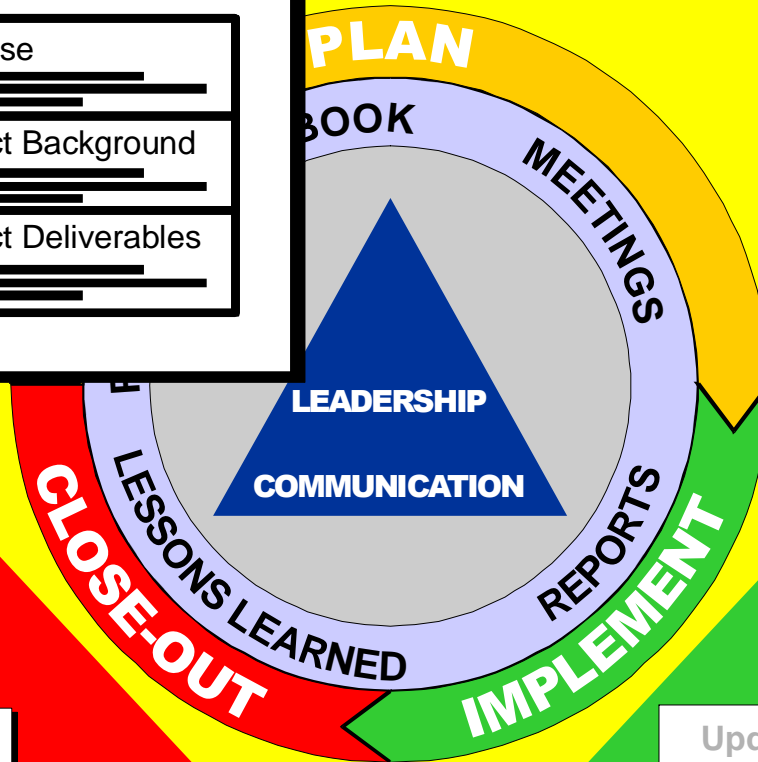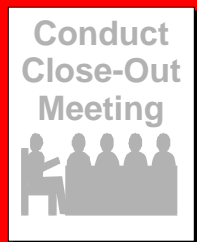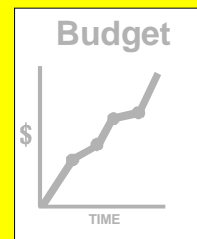
* Participate in the project close-out

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Roadmap to Project Management Success

Form Project Team

Statement of Work
Purpose
Project Back
Project Deliv

Work Breakdown Structure

Responsibility Matrix

Network

Gantt

Resource Plan

Budget
$
TIME

Statement of Work

Purpose

Project Background

Project Deliverables

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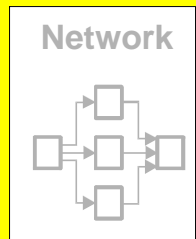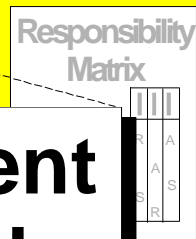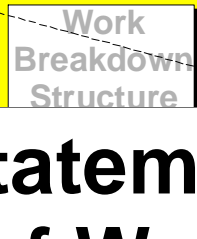
Project Plan Contents

- Statement of work (SOW)
- Work breakdown structures (WBS)
- Responsibility assignment matrices
- Project schedule
- Resource plans/histograms
- Budget

- Risk management plan
- Communications plan
- Quality plan
- Verification and validation plan

Plan C

Plan B

Plan A

Break Timer

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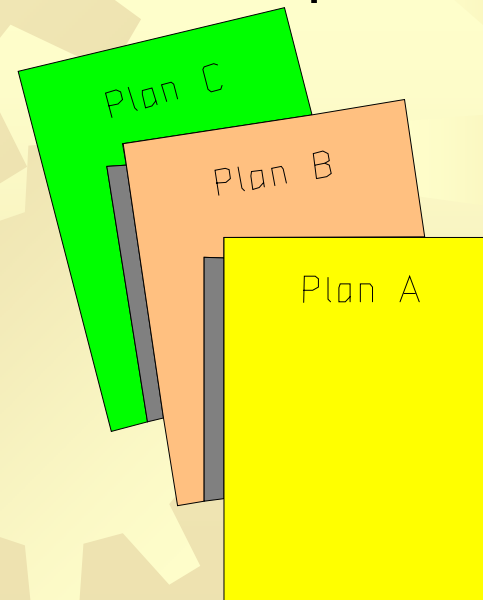
Project Plan Benefits

* Provides an effective communication tool to ensure understanding of project goals and the means to achieve them

* Defines outcomes and commitments

* Establishes guidelines and standards

* Establishes the baseline for evaluating and reporting progress

* Forms the basis for scope control and change management

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Project Notebook

- Project Pre-plan
  - Background information
  - Customer data
  - Third-party data (vendors, suppliers, etc.)
- Project Plan
  - Statement of Work (SOW)
  - Work Breakdown Structure (WBS)
  - Organization/responsibility charts
  - Schedule data
  - Budget/capital plan
  - Risk management
- Project Implementation
  - Meetings (agenda/minutes)
  - Team/management/customer/third party progress reports
  - Customer change requests/decision matrix issue resolution forms/reports
- Project Close-out
  - Final evaluation of measurable success indicators
  - Close-out meeting (agenda/minutes)
  - Final project report
  - Reference letters
  - Lessons learned
- Project Administration
  - Contractual documents
  - Invoices
  - Expenses
  - Correspondence
  - Contact log

Break Timer

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Statement of Work — Purpose

* Define the scope of the project

* Establish customer expectations

* Serve as a "contract" if necessary

Break Timer

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A Good SOW will answer …

* What is the purpose or goal of the project?
* Why is the project being done?
* Who is the initial customer?
* Who is the end user or final customer?
* What are the customer deliverables?
* What technical support is required for the deliverables?

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And continue to answer ...

* What is the budget?
* What is the final date for the deliverables?
* What are the measurable success indicators (metrics)?
* What kind of support is required from the customer?
* What contingency plans are in place?

Break Timer

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SOW — Generic Contents

* Customer
* Project
* Title
* Purpose
* Background
* Deliverables
* Measurable success indicators
* Customer support
* Risk plans

Break Timer

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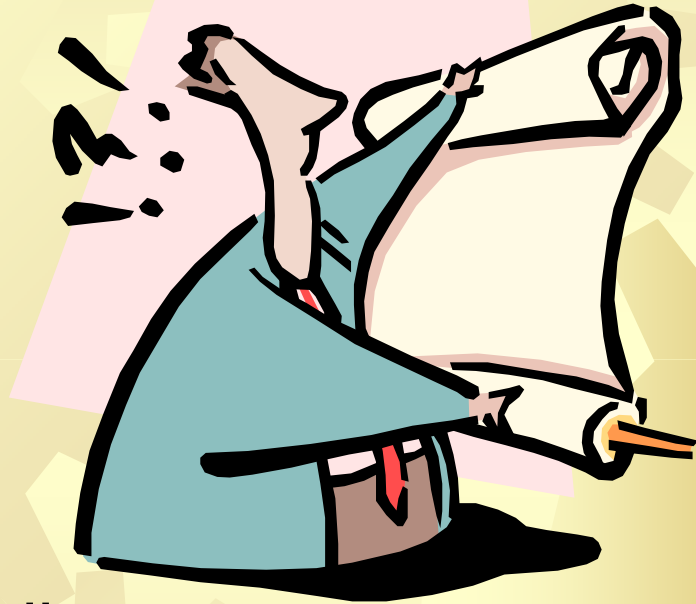
Work

* Divide in groups

* Work on an SOP

* Follow the guidelines

Break Timer

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Roadmap to Project Management Success

Statement of Work

Work Breakdown Structure

Responsibility Matrix

Network

Gantt

Resource Plan

Budget

Form Project Team

Work Breakdown Structure

Conduct Close-Out Meeting

PLAN

PROJECT NOTEBOOK

MEETINGS

LEADERSHIP

COMMUNICATION

CLOSE-OUT

LESSONS LEARNED

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Perform Tasks

Track Progress

Share Lessons Learned

Evaluate Success

Update Plan

Resolve Issues

Manage Change
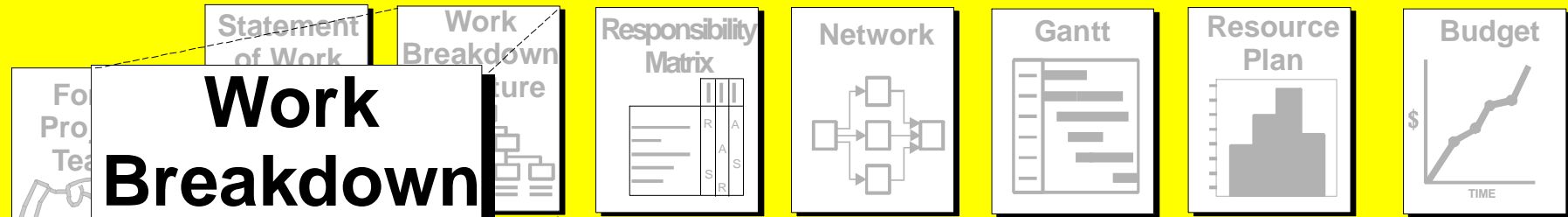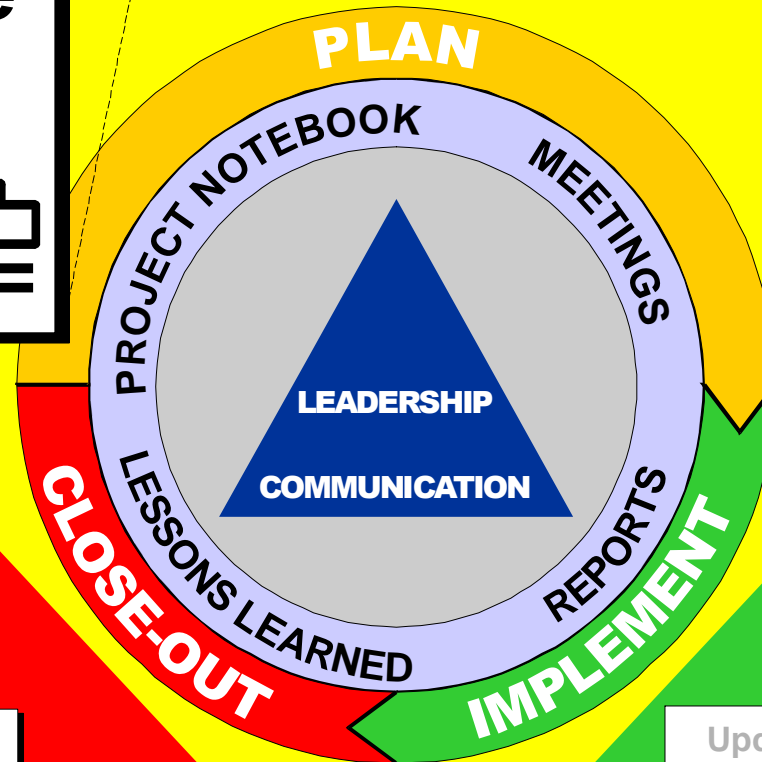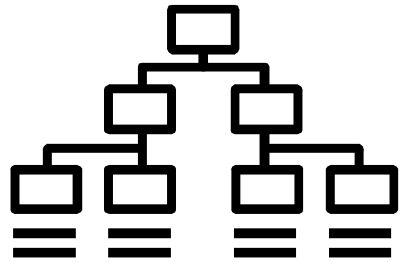
Work Breakdown Structure—Purpose

* Identify all of the work that needs to be done to complete the project.

* Structure the work into logical components and subcomponents.

* Define the work to a level of detail so individual responsibilities can be assigned.

* Summarize and report project data.

Break Timer

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Representative Work Breakdown Structure

Level I
(Noun)

Level II
(Noun)

Level III
(Action Verbs)

Level IV
(Action Verbs)

```
                              ┌─────────┐
                              │  TITLE  │
                              └────┬────┘
        ┌──────────────┬──────────┼──────────────┬──────────────┐
 ┌───────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────────┐
 │DELIVERABLE│  │  PHASE   │  │ FUNCTION │  │ "CHUNK" OF│  │   PROJECT    │
 └─────┬─────┘  └──────────┘  └──────────┘  │   WORK   │  │ MANAGEMENT   │
       │                                    └──────────┘  └──────────────┘
   ┌───┴───┐
┌──────────┐  ┌──────────┐
│ ACTIVITY │  │ ACTIVITY │
└────┬─────┘  └────┬─────┘
     │             │
  ─ TASK        ─ TASK
  (WORK PACKAGE)  (WORK PACKAGE)
```

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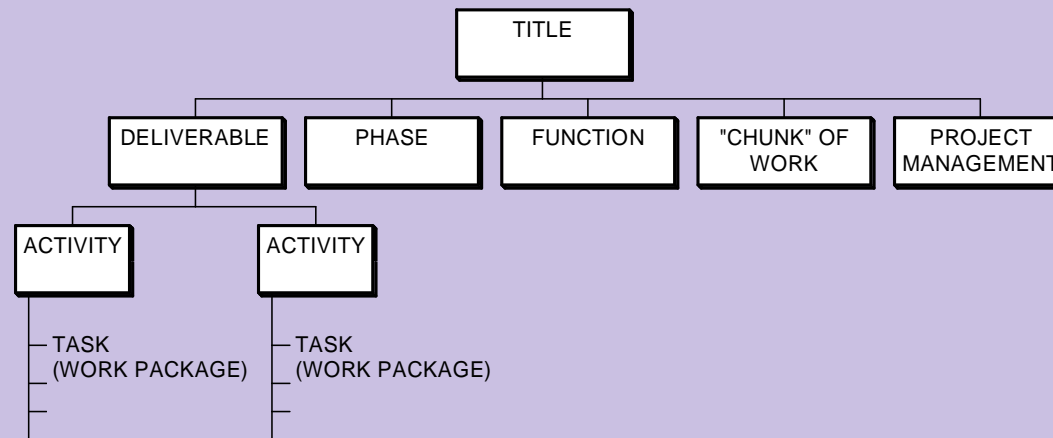
WBS — Outlining Approach

I. Main Project Deliverable ········· *Level 1*

   A. Major Element ·············· *Level 2*

      1. Activity ······ *Level 3*

      2. Activity

         a. task

         b. task ······ *Level 4*

         c. task

      3. Activity ·············· *Level 3*

   B. Major Element ·············· *Level 2*

      1. Activity ······ *Level 3*

      2. Activity

The outline approach is used by Microsoft® Project®

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Roadmap to Project Management Success

Form Project Team

Statement of Work
- Purpose
- Project
- Project

Work Breakdown

Responsibility Matrix
- R A S

Network

Gantt

Resource Plan

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$
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Responsibility Matrix

R A

A S

S R

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Responsibility Assignment Matrix (RAM) — Purpose

* Ensure that all tasks are assigned to people

* Show levels of involvement of people to work

Responsibility Assignment Matrix

RASIC Method

MARKETING STUDY	PROJECT MANAGER	CUSTOMER	TEAM MEMBER	SENIOR MANAGEMENT	SUPPORT STAFF
IDENTIFY POTENTIAL MARKET	C		S	R	
IDENTIFY SURVEY POPULATION	C	R	S	I	
DEVELOP SURVEY	R	I	S	I	
TEST SURVEY ON SAMPLE	R	I	S		S
FINALIZE SURVEY	R	A	S	I	S
CONDUCT SURVEY	R	I	S	I	S
COLLECT SURVEY	R	I	S		
ANALYZE DATA			R/S		I
REPORT RESULTS AND SUGGESTION	R	A	S	A	S

LEGEND

R - RESPONSIBLE
A - APPROVE
S - SUPPORT (DOES THE WORK)
I - INFORM
C - CONSULT

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RASIC Coding System

* R = Responsible
  * Ensures that the assigned work is completed
* A = Approve
  * Approves that the work meets all requirements
* S = Support
  * Does the work
* I = Inform
  * Is kept informed of work status
* C = Consult
  * Is consulted on the work

Break Timer

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Exercise 2

✶ Do a WBS and Assign Responsibilities

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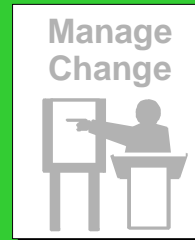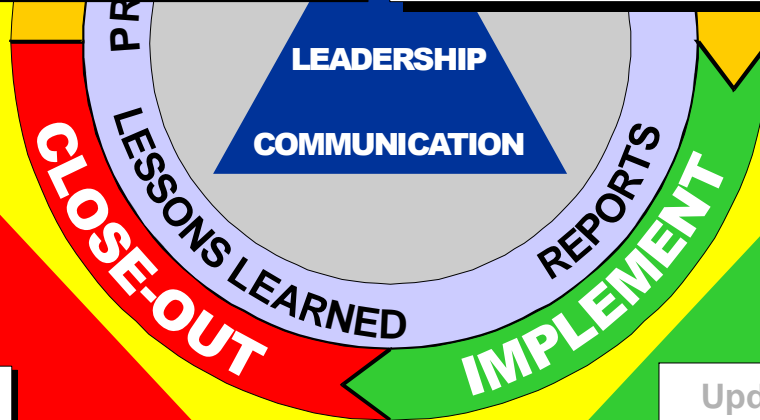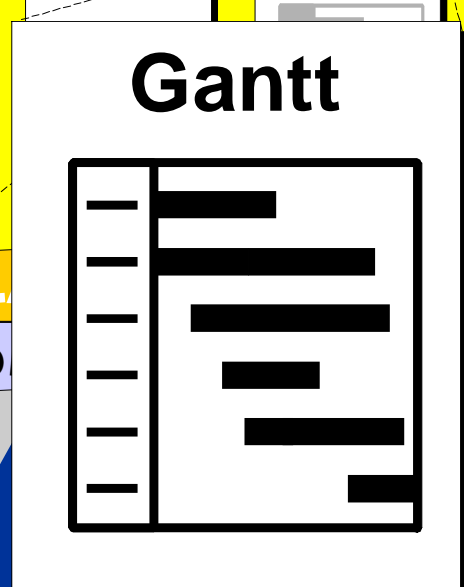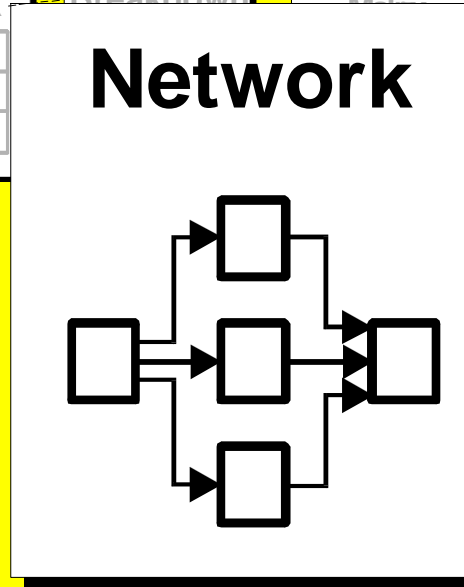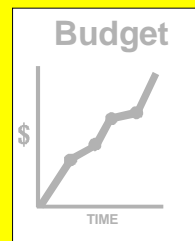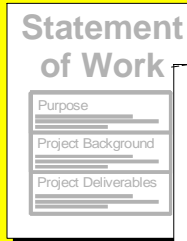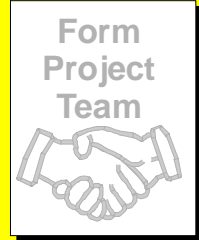
Project Schedule — Purpose

* Determine if requested completion date is possible.

* Identify start and completion dates of all work.

* Determine the controlling sequence of activities.

* Provide data for resource allocation.

* Track progress by providing a baseline.

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Scheduling

Step 1: Estimate Activity Durations

Step 2: Determine Activity Sequence By Creating a Network Diagram

Step 3: Calculate the Schedule Using Critical Path Method (CPM) Procedures

Step 4: Show the Schedule by Drawing Gantt and/or Milestone Charts

WBS/Network Diagram Linkage
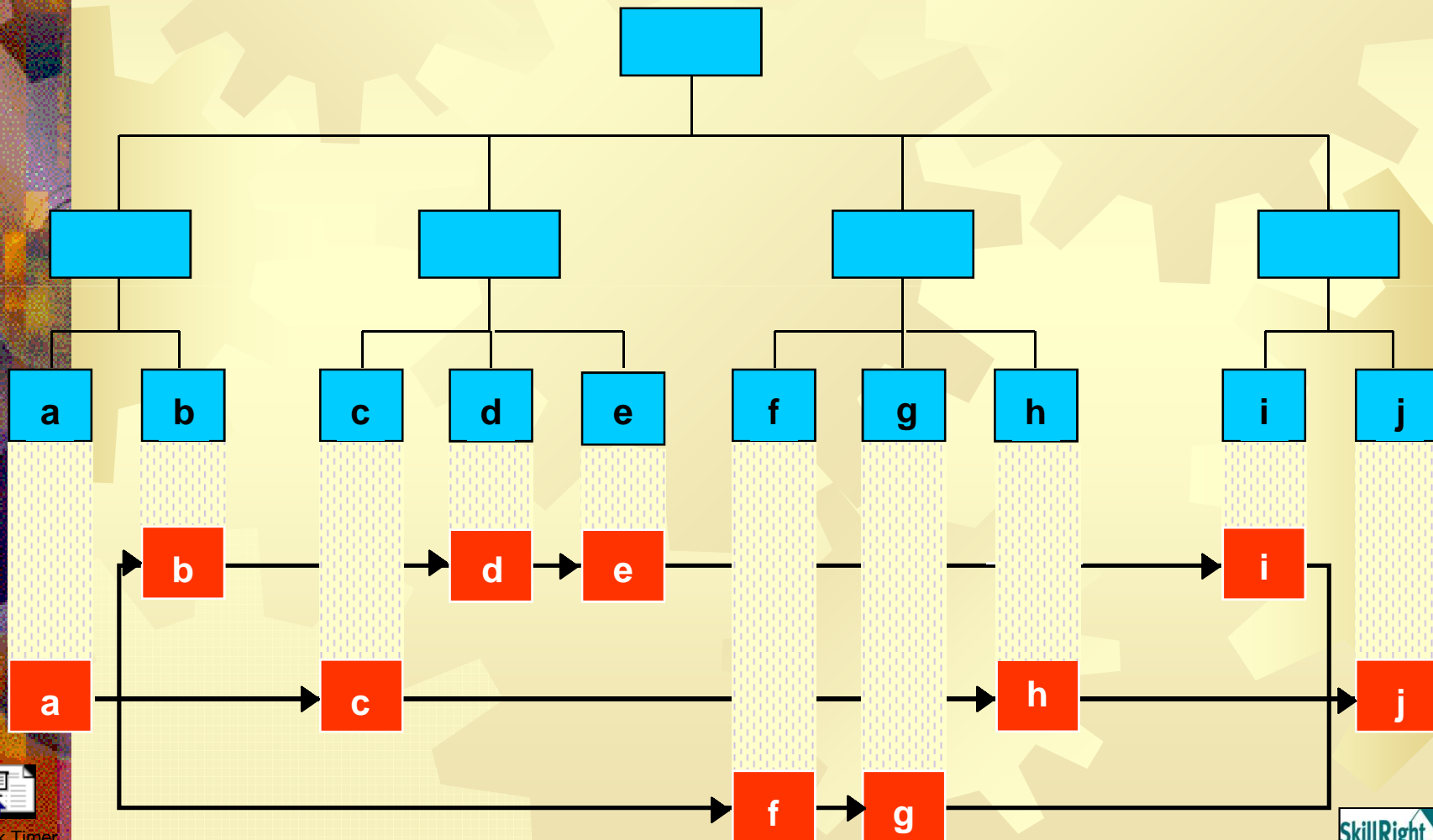
Network Diagram Methods

Arrow Diagram Method
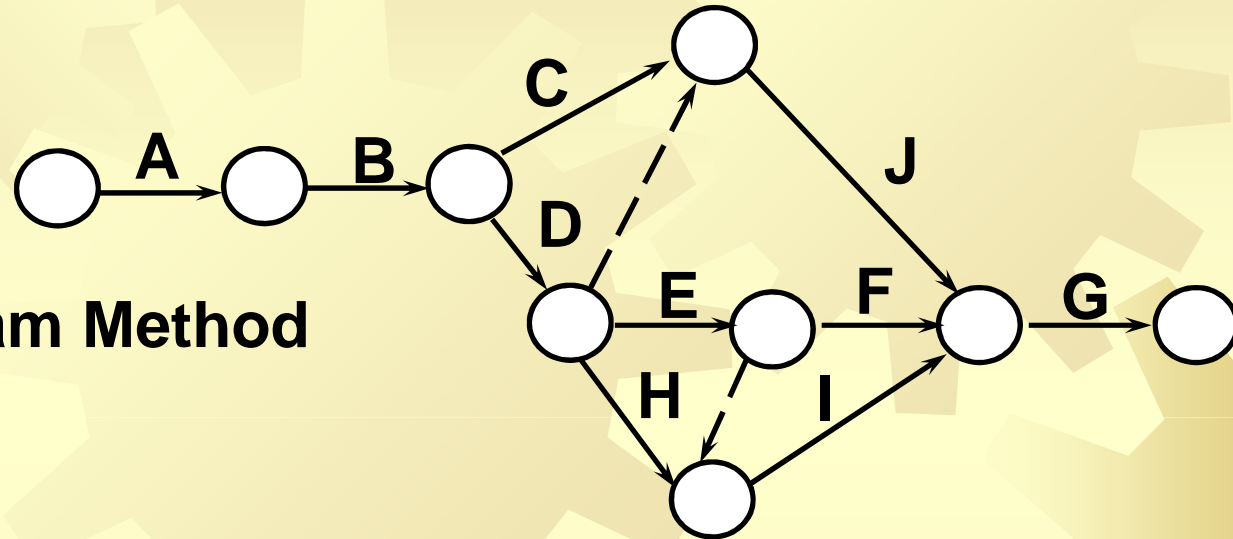
Precedence Diagram Method

Break Timer

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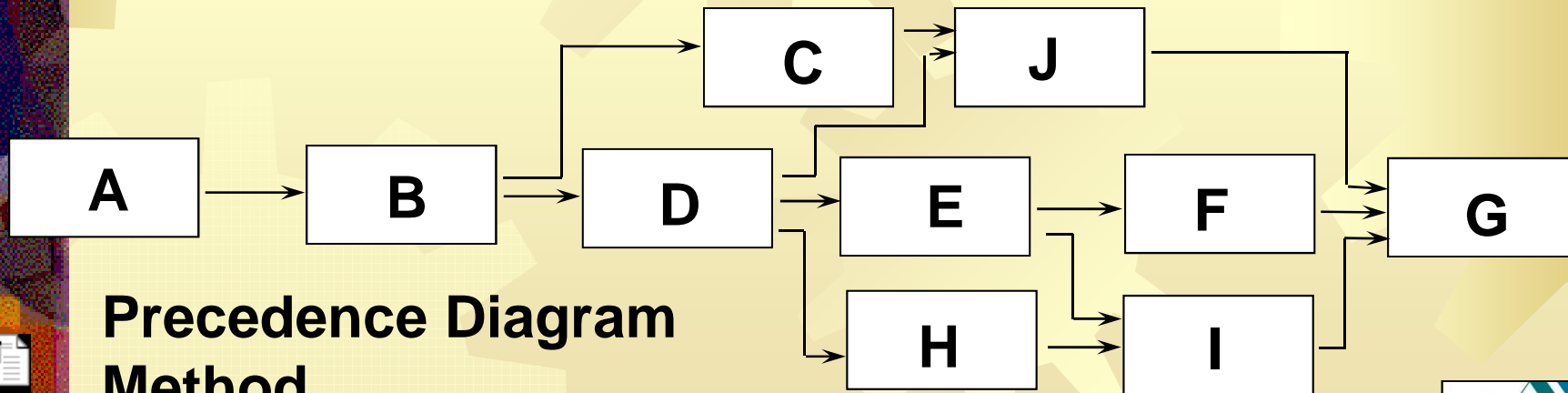
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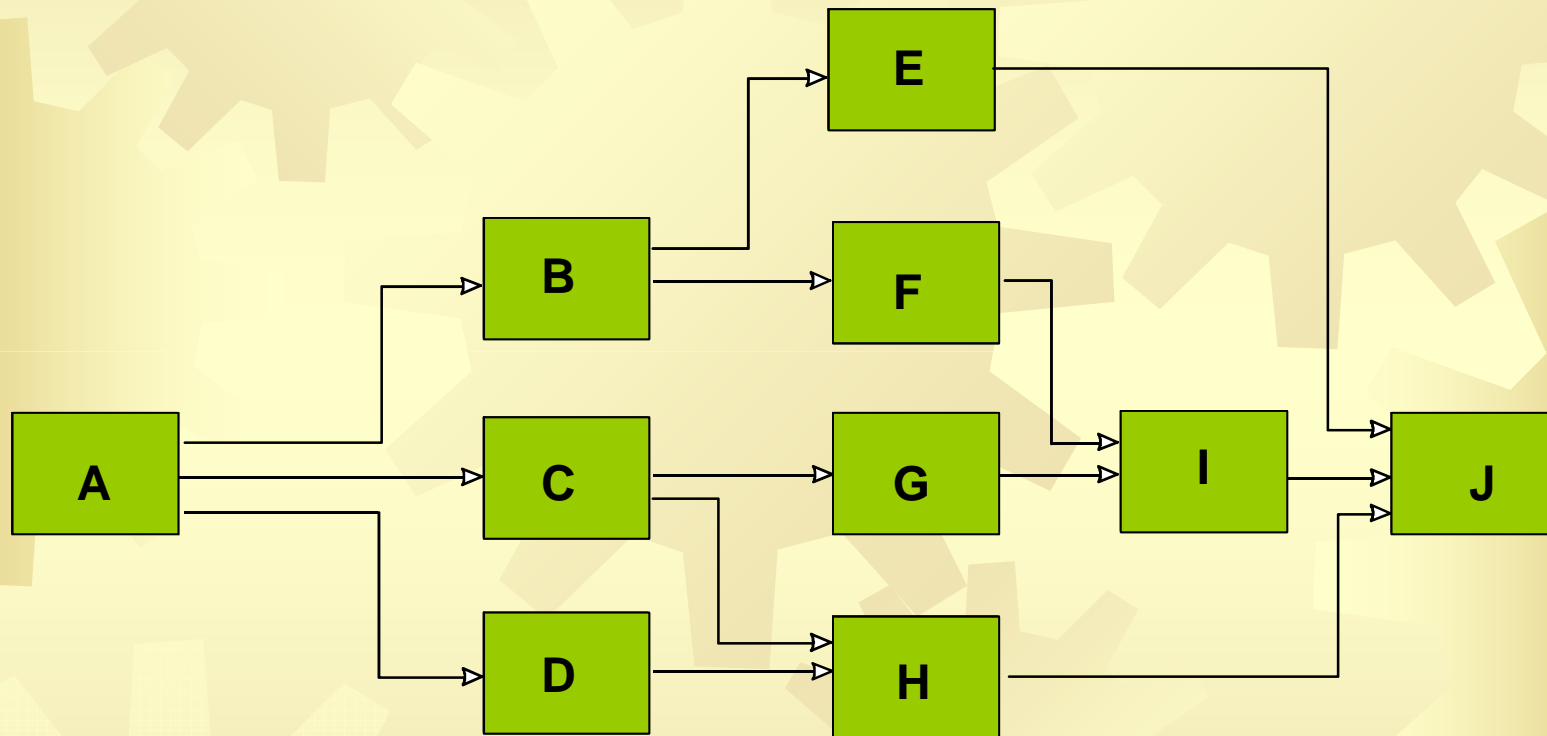
Logic Connection

Activity

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What's is the Critical Path?

✳ Path with least slack

✳ Path with longest duration

✳ **_Critical Path Method_** _is_ a project management technique that analyzes what activities have the least amount of scheduling flexibility (i.e., are the most mission-critical) and then predicts project duration schedule based on the activities that fall along the "critical path."

   ✳ Activities that lie along the critical path cannot be delayed without delaying the finish time for the entire project.

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Project X — Critical Path Solution

Activity Name			
Float			
Duration			
ES	EF	LS	LF

E — 2 — 4 — | 3 | 7 | 5 | 9 |

B — 1 — 1 — | 2 | 3 | 3 | 4 |

F — 1 — 3 — | 3 | 6 | 4 | 7 |

A — 0 — 2 — | 0 | 2 | 0 | 2 |

C — 0 — 3 — | 2 | 5 | 2 | 5 |

G — 0 — 2 — | 5 | 7 | 5 | 7 |

I — 0 — 2 — | 7 | 9 | 7 | 9 |

J — 0 — 1 — | 9 | 10 | 9 | 10 |

D — 5 — 1 — | 2 | 3 | 7 | 8 |

H — 3 — 1 — | 5 | 6 | 8 | 9 |
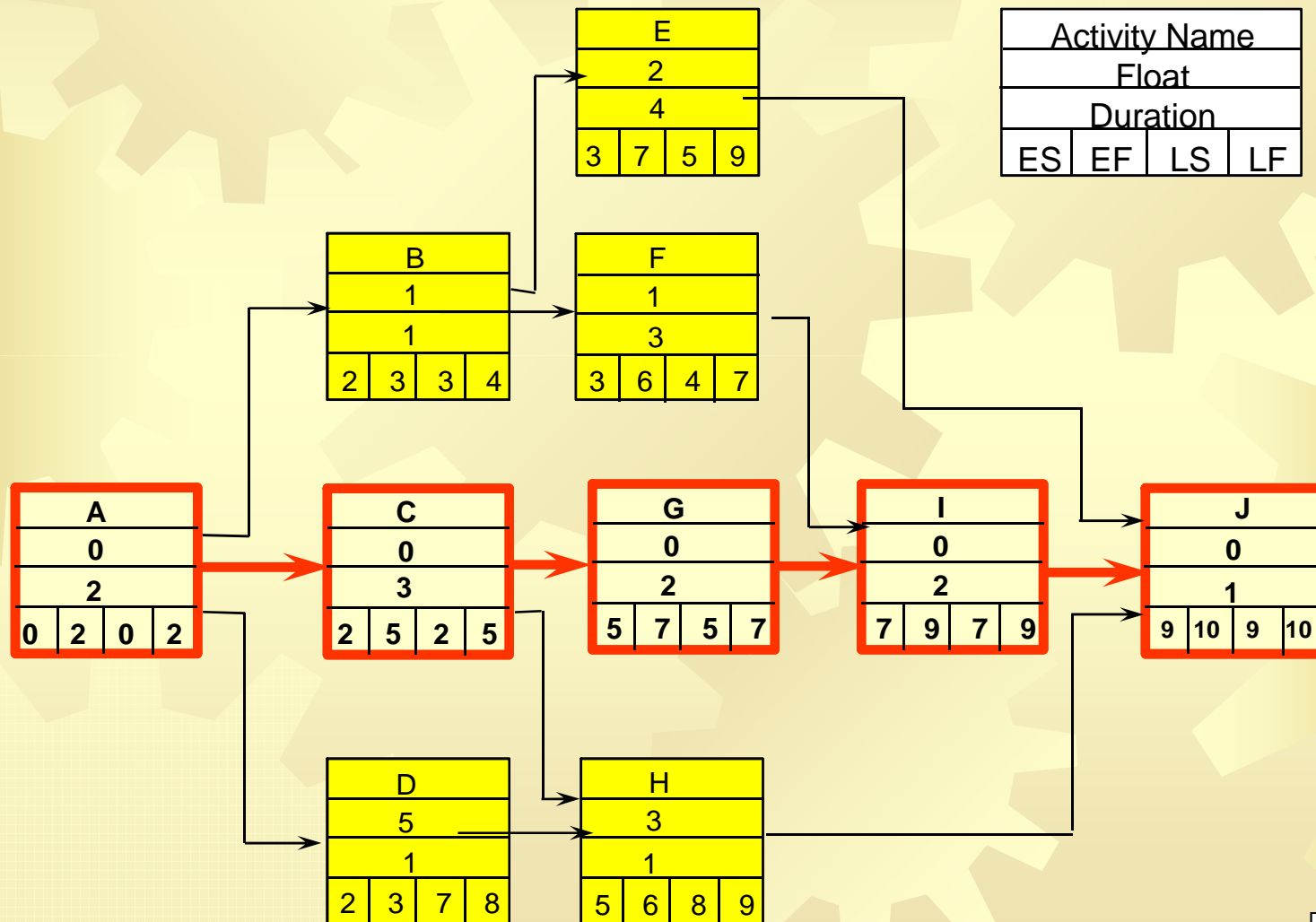
Break Timer

Project X — Gantt Chart Solution

Time		1	2	3	4	5	6	7	8	9	10
Activity	**Duration**										
A	2	██	██								
B	1			▓	░						
C	3			██	██	██					
D	1			▓	░	░	░	░	░		
E	4				▓	▓	▓	▓	░	░	
F	3				▓	▓	▓	░			
G	2						██	██			
H	1						▓	░			
I	2								██	██	
J	1										██
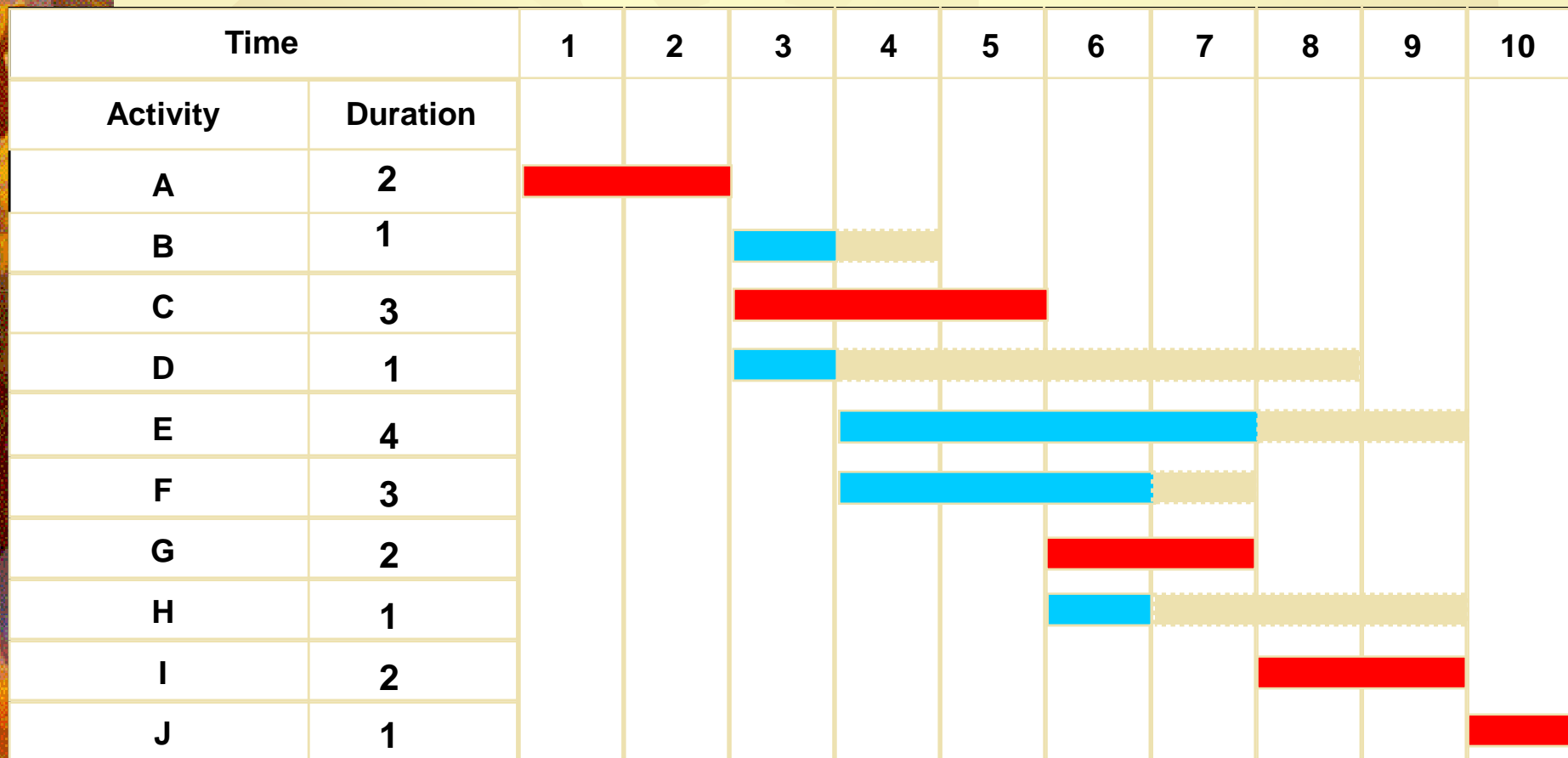
██ - Critical   ▓ - Non-Critical   ░░░ - Slack/Float

Enhanced Gantt Chart

	Jan	Feb	Mar	April	May	June
Task A	▬▬					
Task B		▬▬▬▬▬▬▬▬▬				
Task C					▬▬▬▬▬▬▬	
Task D	▬▬	┄┄				
Task E		▬▬▬▬▬		┄┄		
Task F		▬▬	┄┄┄┄			

▬▬ - Critical   ▬▬ - Non-Critical   ┄┄┄ - Slack/Float

Break Timer

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Assigning Resources

A schedule is not complete until all the resources necessary to complete the project have been committed or assigned.

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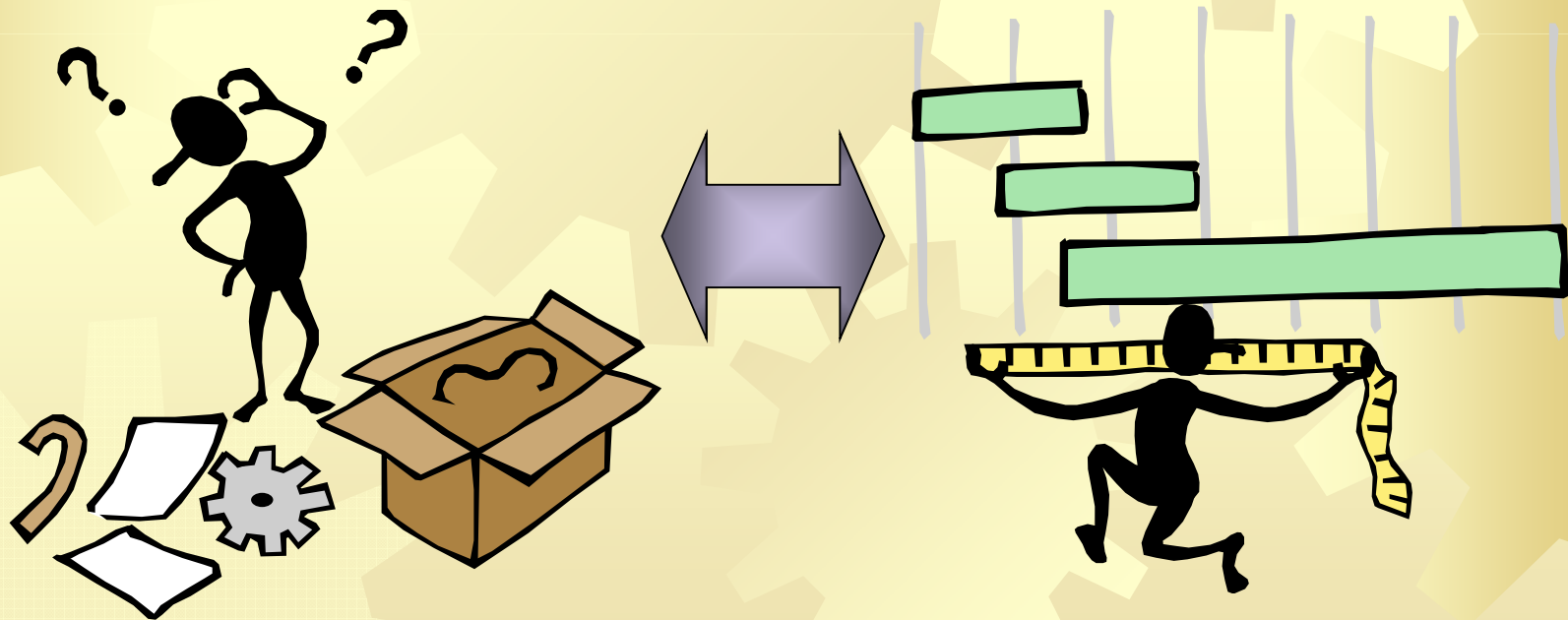
Non-Labor Resources

* Lab time

* Facilities

* Prototype parts/systems

* Equipment

* Materials

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Roadmap to Project Management Success

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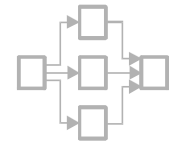- Purpose
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Cost Budgeting

➢ Cost Budgeting involves allocating overall cost estimates to individual work items in order to establish a cost baseline for measuring project performance. Using cost estimates, the WBS, the project schedule, and cost estimating tools, the project team develops a time-phased budget. This budget will be used to measure and monitor cost performance on the project."

Source: PMI

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Gantt

Resource Plan
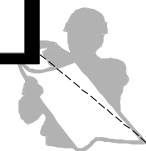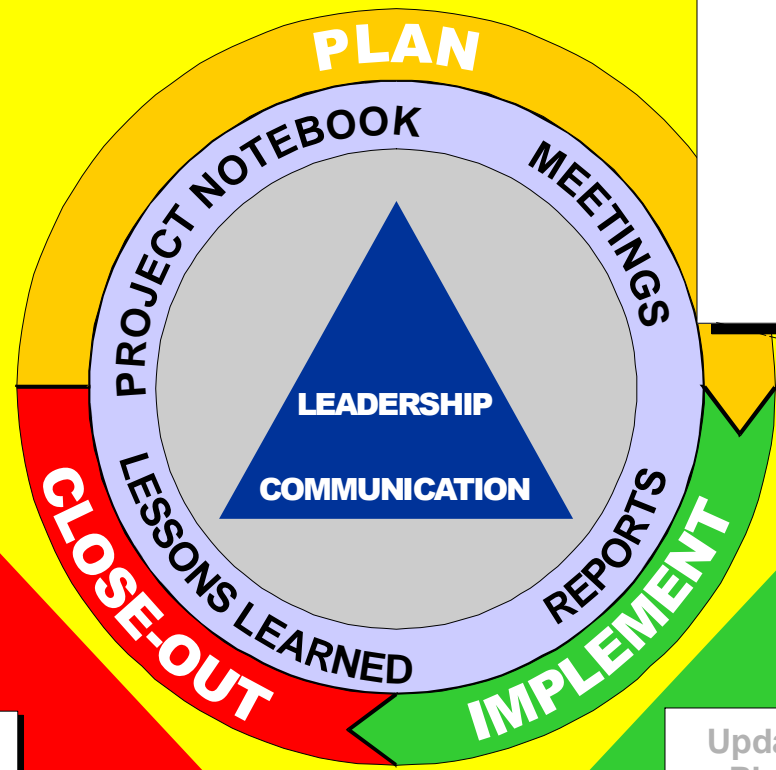
Budget
$ TIME

Conduct Close-Out Meeting

Share Lessons Learned

Evaluate Success

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What Is Risk?

Risk can be defined as:

"Any threat to project success."
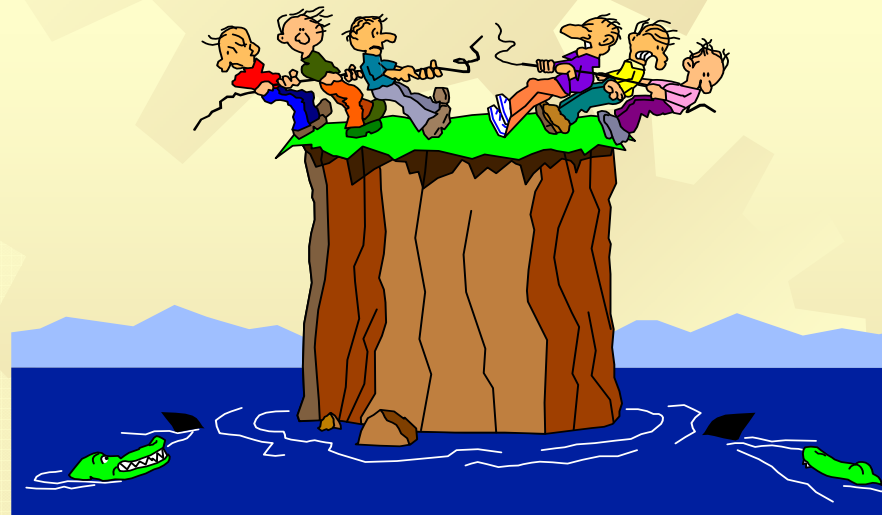
Prioritizing & Planning

Probability of Occurrence

100%

PRIORITY 2 RISKS **(High Probability)** **(Low Impact)** **Reactive Measures**	**PRIORITY 1 RISKS** **(High Probability)** **(High Impact)** **Proactive and Reactive** **Measures**
PRIORITY 3 RISKS **(Low Probability)** **(Low Impact)** **Monitor Only**	**PRIORITY 2 RISKS** **(Low Probability)** **(High Impact)** **Reactive Measures**

50%

0%

Low   Medium   High

Negative Impact on Scope/Quality/Cost/Schedule
(Risk Event Value)

Break Timer

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Project Management Process

Source: PMBOK

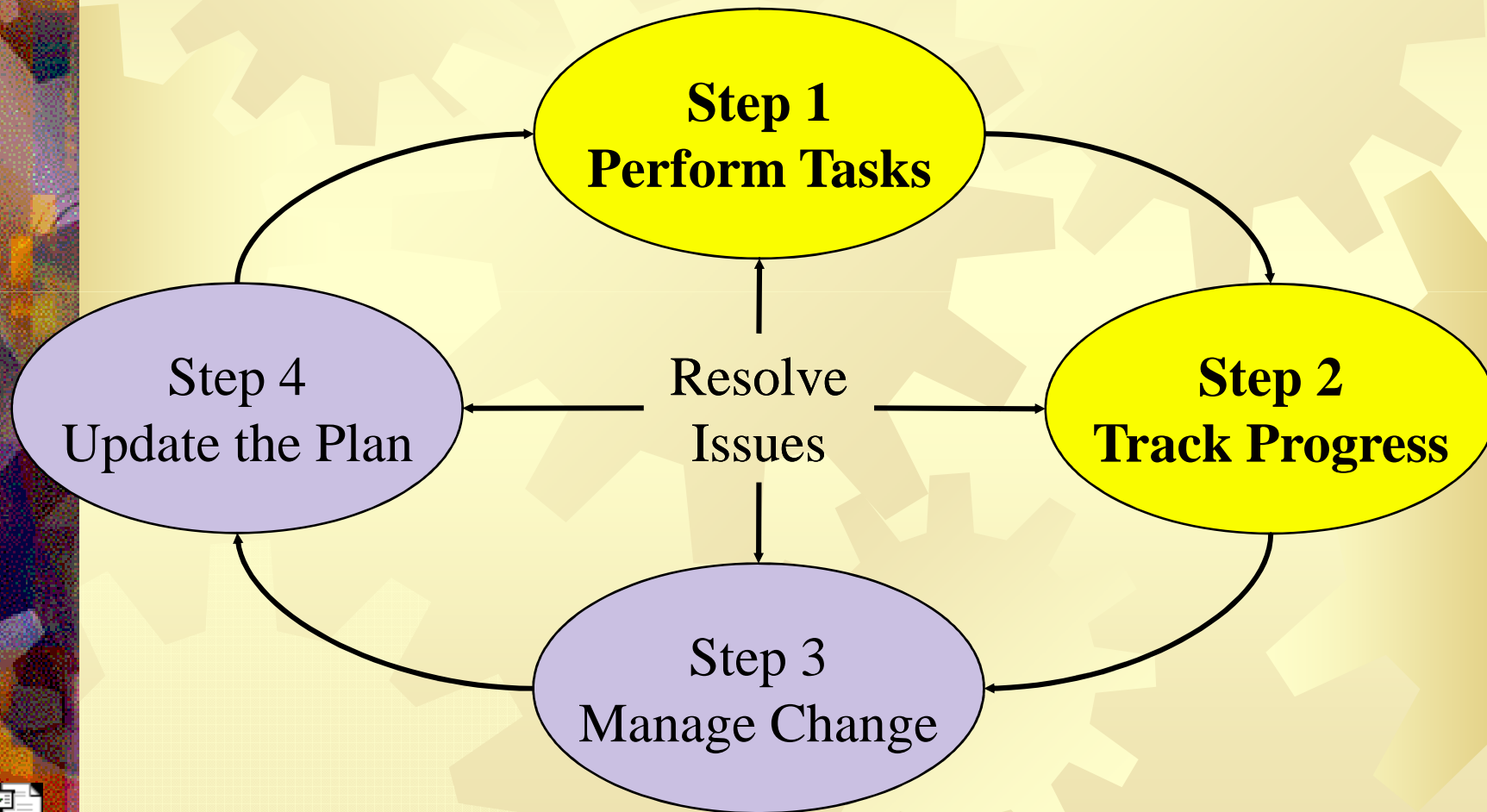Initiation → Planning → Execution ↔ Controls → Closeout

Project Implementation

Break Timer
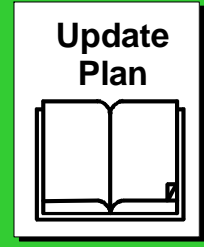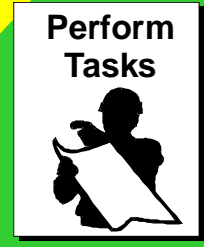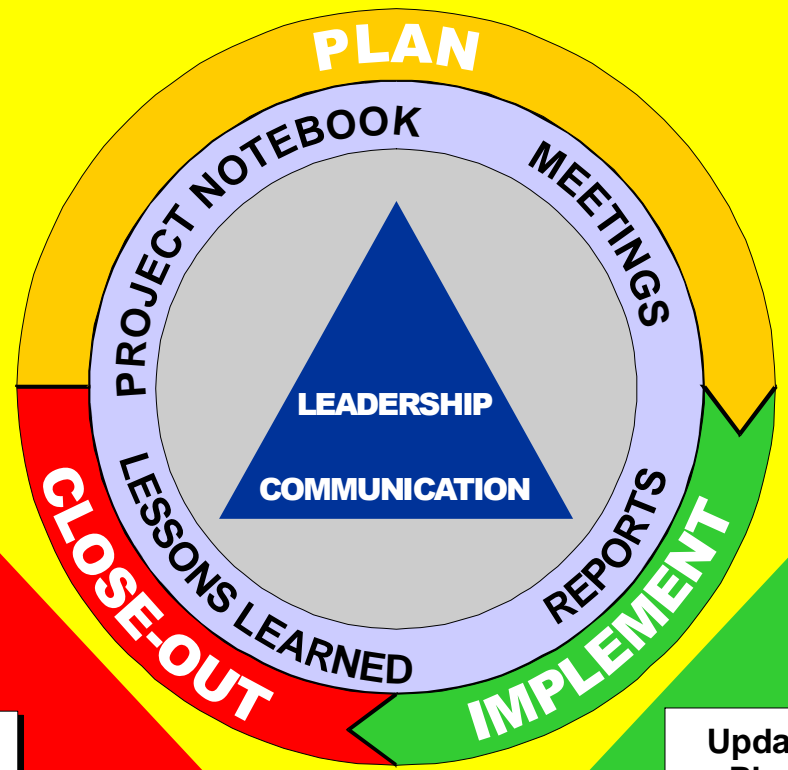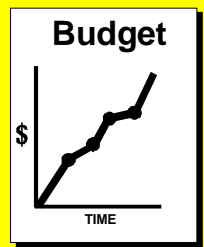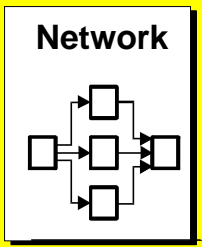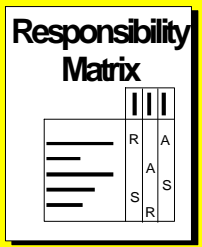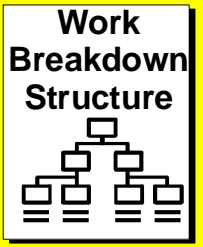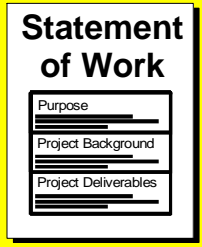
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Roadmap to Project Management Success

Form Project Team

Statement of Work
- Purpose
- Project Background
- Project Deliverables

Work Breakdown Structure

Responsibility Matrix

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Gantt

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Implementation Model

**Step 1
Perform Tasks**

**Step 2
Track Progress**

**Step 3
Manage Change**

**Step 4
Update the Plan**

Resolve
Issues

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Reporting Project Progress

* Progress review meeting
* Project reports

Project Progress Review Meetings

* Review of action items from last meeting
* Update on activities and schedule
* Problem identification and corrective action planned
* Review of issues (closed, open, new)
* Change request status
* Risk status
* Plan for next period
* **WRITE MINUTES!!!!!**

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Project Tracking and Control

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Manage Change

Managing Project Change

Step 1
Perform Tasks

Step 2
Track Progress

Step 3
Manage Change

Step 4
Update the Plan

Resolve Issues

Break Timer

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Addressing Project Changes

* Call a team meeting.

* Explain what the change is.

* Obtain feedback from team members.

* Identify alternative corrective options.

* Prepare a decision matrix.

* Select a recommended option(s).

* Present information to upper management/customer.

* Implement the approved course of action.

Break Timer

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Conduct Close-Out Meeting

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Manage Change

Issue Resolution

* Disagreements that should be …
  * Documented
  * Assigned
  * Scheduled
  * Tracked
  * Escalated
  * Resolved

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Update Plan

Plan Updates

Step 1
Perform Tasks

Step 2
Track Progress

Step 3
Manage Change

Step 4
Update the Plan

Resolve
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Closeout

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Roadmap to Project Management Success

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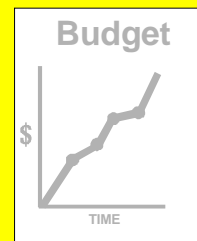
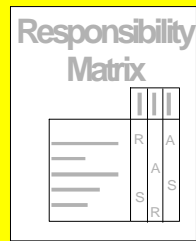**Manage Change**

Project Manager's Role During Project Close-Out
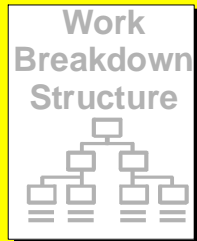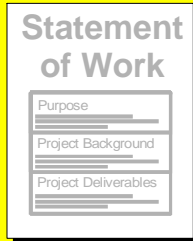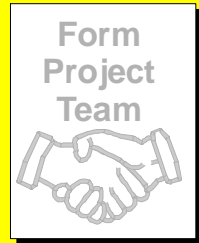
* Ensure that all project deliverables have been completed and formally accepted by the customer.

* Determine if the measurable success indicators were achieved.

* Conduct project close-out meetings, both internal and external.

* Write the final project report.

* Document and share lessons learned.

Break Timer

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Evaluating Project Success

* Project purpose

* Deliverables

* Measurable success indicators

  * Quality

  * Schedule

  * Cost
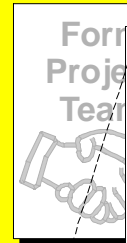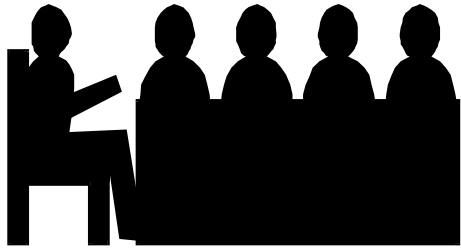
Break Timer

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Conduct Close-Out Meeting
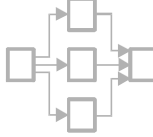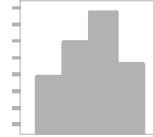
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Track Progress

Share Lessons Learned

Evaluate Success

Update Plan
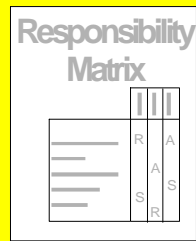
Resolve Issues

Manage Change

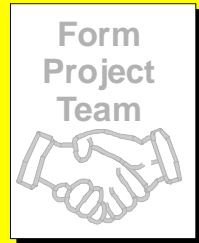# Roadmap to Project Management Success

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Success

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Sharing Lessons Learned

* **Lessons Learned Database**
  * Categorized electronic project information database

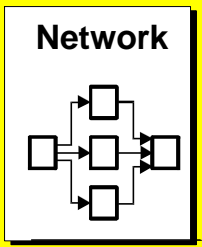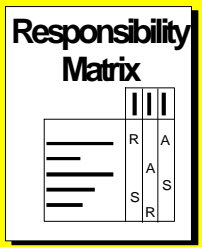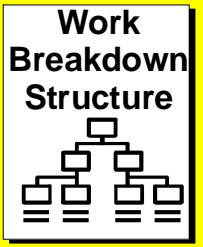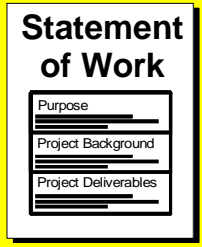* **Continuous Improvement Recommendations**
  * Project Management Process
  * Forms
  * Standards

Break Timer

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Thank You!!!!

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