Project Management

Lecture Slide #1

What is a Project?

- **Definition:** A temporary endeavor with a clear start & end.
- Creates a **unique product, service, or result**.
- Managed under **scope, time, cost, and quality constraints**.

What is a Project?

- **Projects have a start and an end**
  - Start may be unclear as ideas evolve
  - End must be clearly defined
- **Projects deliver unique outcomes**
  - Tangible (e.g., software)
  - Intangible (e.g., guidelines)

Project vs. Operations

- **Projects:** Temporary, unique, goal-oriented
- **Operations:** Ongoing, repetitive, sustain existing systems
- Example:
  - Project → Develop a new mobile app
  - Operation → Maintain university IT servers

What is an IT Project?

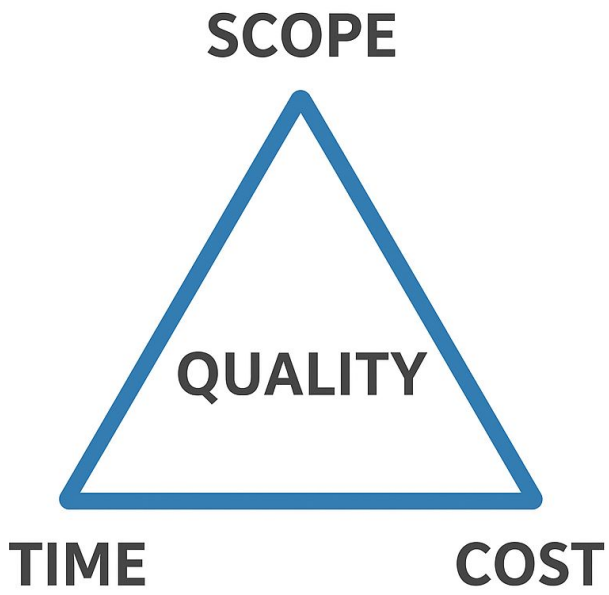
- Involves technology-based solutions.
- Examples:
  - Software development
  - Cloud migration
  - Cybersecurity implementation
  - ERP/CRM deployment
- Typically **complex, high-risk, and dynamic**.

Project Agreement

- Document written for a client that defines:
  - the scope, duration, cost and deliverables for the project.
  - the exact items, quantities, delivery dates, delivery location.
- Can be a contract, a statement of work, or a business plan.
- **Client:** Individual or organization that specifies the requirements and accepts the project deliverables.
- Deliverables (= Work Products that will be delivered to the client):
  - Documents
  - Demonstrations of function
  - Demonstration of nonfunctional requirements
  - Demonstrations of subsystems

When is a project successful?

- The traditional view on project success consists of three parts and is also called the iron triangle or triple-constraint:
  - The project scope is well-defined
  - The project is executed on time.
  - The project is executed within budget.
  - The project produces an outcome of high quality.

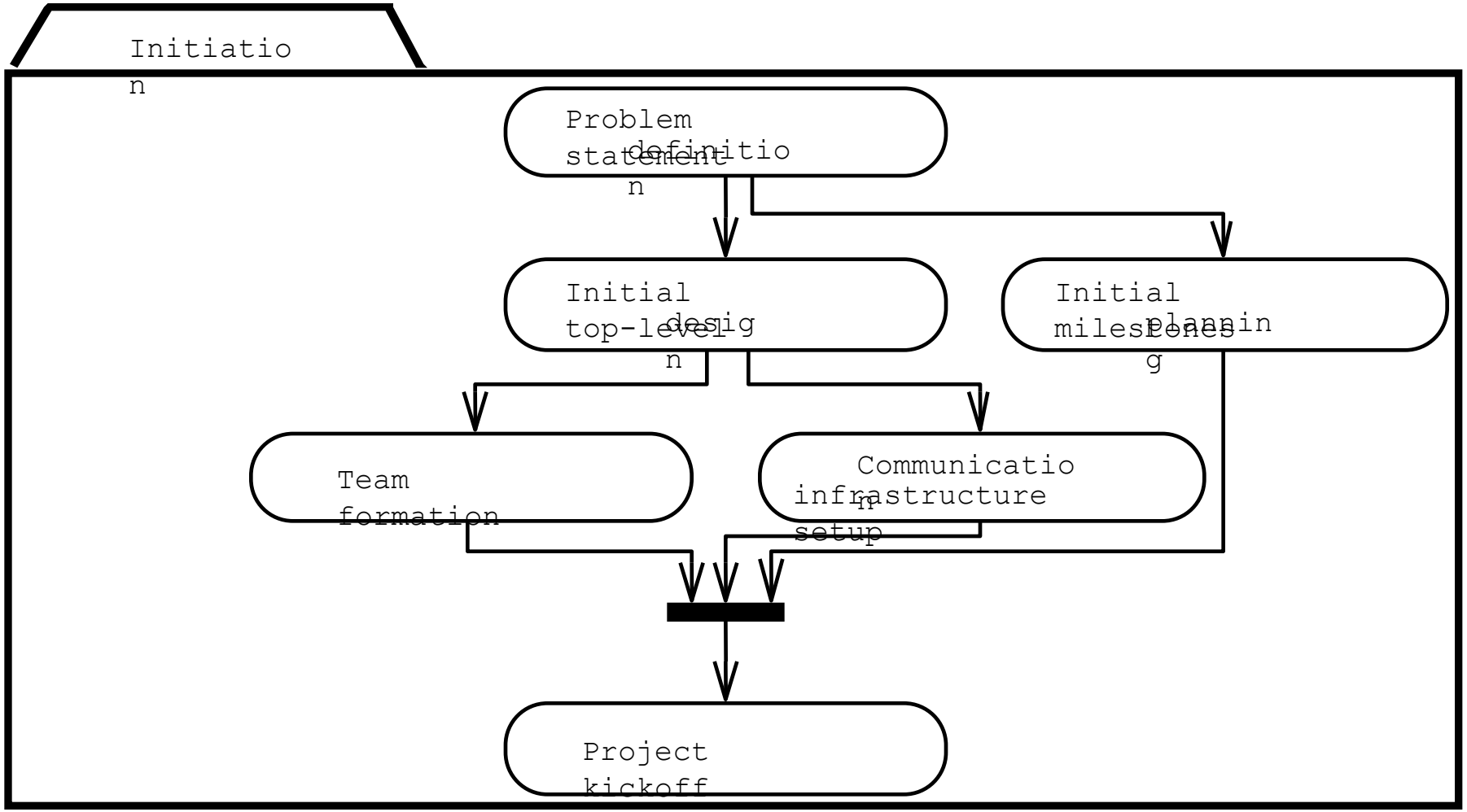


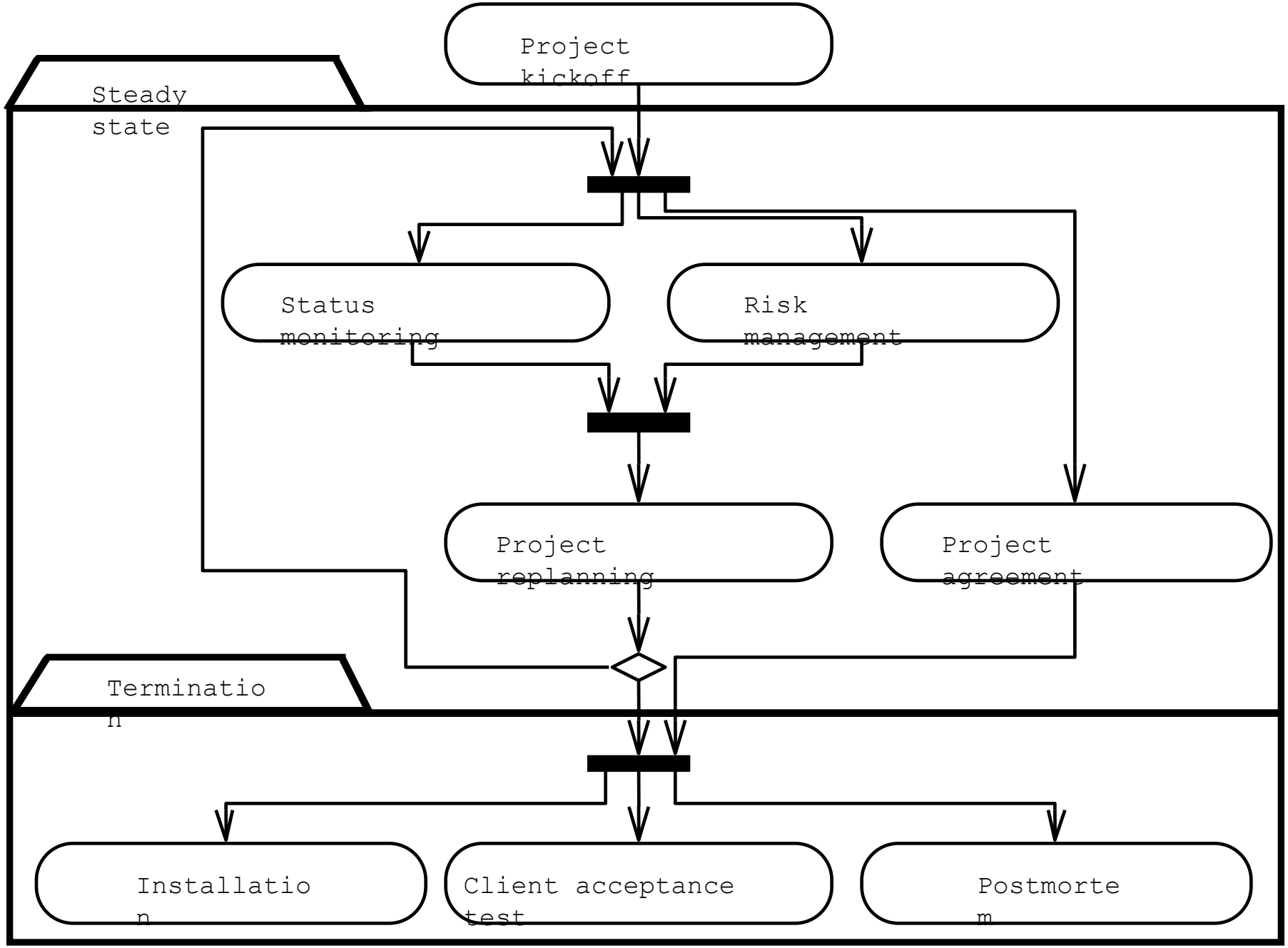
What is Project Management?

- The application of knowledge, skills, tools, and techniques to meet project requirements.
- Deliver unique outcomes **on time, within budget, and with desired quality**.

- **Goal:** Balance the **iron triangle** (Scope–Time–Cost) while ensuring quality and stakeholder satisfaction.

Project Management Activities (continued on next slide)




Project kickoff
Steady state
Status monitoring
Risk management
Project replanning
Project agreement
Terminatio n
Installatio n
Client acceptance test
Postmorte m

Project Management Methodologies

- Different frameworks, standards, and methodologies with respect to project management have been established. For example:
  - PMBOK
  - Prince2
  - Agile Project Management
  - Waterfall
  - Scrum
  - Kanban
  - Six Sigma

PMBOK Overview

- **Full Name:** Project Management Body of Knowledge (PMBOK)
- **Publisher:** Project Management Institute (PMI)
- **Recognized by:** ANSI, IEEE, **Popular in USA**
- **Defines 47 processes** → tools & techniques to achieve project results
  - Organized into 5 Process Groups:
    - **Initiating,**
    - **Planning,**
    - **Executing,**
    - **Monitoring & Controlling,**
    - **Closing**

PMBOK Overview

- Additionally, PMBOK also organizes these 47 processes into 10 Knowledge Areas:
  - Project Integration Management
  - Project Scope management
  - Project Schedule Management
  - Project Cost Management
  - Project Quality Management
  - Project Resource Management
  - Project Communications Management
  - Project Risk Management
  - Project Procurement Management
  - Project Stakeholder Management

Prince2 Overview

- **Full Name:** PRojects IN Controlled Environments
  - Origin: UK Government (Information Systems Projects)
  - Popular in: **UK, EU, Australia**
- **41 activities** grouped into **7 processes:**
  1. Starting Up a Project
  2. Initiating a Project
  3. Directing a Project
  4. Controlling a Project
  5. Managing Product Delivery
  6. Managing a Stage Boundary
  7. Closing a Project

Agile Project Management Overview

- Origin: **Agile Software Development**
- **Waterfall approach** → less structured, flexible
- Agile Manifesto → **4 Core Values**
- Values focus on:
  - People & communication
  - Documentation
  - Collaboration with clients
  - Responding to change

- Welcome changes
- Simplicity and sustainable development
- Continuous reflection & adjustment
- Early & continuous delivery

Kanban Project Management

- A **visual project management method**
  - Work items are represented by **cards** (tasks).
  - A typical **Kanban board** has columns
    - To Do → In Progress → Review/Testing → Done

- **Advantages of Kanban**
  - **Transparency** → Everyone can see what's being worked on.
  - **Flexibility** → Easy to reprioritize tasks.
  - **Efficiency**
  - **Continuous delivery** → Work is released as soon as it's ready, not in big batches.

Example of Kanban Board (Software Team)

To Do	In Progress	Review	Done
Task 1: Fix login bug	Task 4: Develop checkout API	Task 5: Test payment gateway	Task 2: Update homepage
Task 3: Add user profile page	Task 6: Write documentation		Task 7: Deploy v1.2

Scrum Method

- An Agile framework that delivers value in **short, time-boxed iterations (Sprints)** of 2–4 weeks.
- **Key Roles:**
  - **Product Owner** – Represents the customer/business. Manages backlog & priorities
  - **Scrum Master** – A facilitator/coach for the team. Ensures Scrum principles are followed.
  - **Development Team** – Cross-functional members (developers, testers, designers, etc.). Self-organizing, delivers work

Scrum Events (Ceremonies)

- Scrum has a fixed cycle of events:
- **Sprint Planning** – Decide what to work on in the upcoming sprint.
- **Daily Scrum (Stand-up Meeting)** – 15-minute daily check-in to track progress.
  - Each member answers:
    - What did I do yesterday?
    - What will I do today?
    - Any blockers?
- **Sprint Review** – Present completed work to stakeholders for feedback.
- **Sprint Retrospective** – Team reflects on what went well, what to improve, and adjusts for the next sprint.

Role of an IT Project Manager

- Responsibilities:
  - Plan, execute & deliver IT projects
  - Balance scope, time, cost
  - Lead cross-functional teams
  - Mitigate IT-specific risks
  - Ensure compliance & quality

Common Challenges in IT Projects

- Scope creep (changing requirements)
- Rapid tech changes
- Budget & timeline overruns
- Stakeholder conflicts
- Integration with legacy systems

Laws of Project Management !!!

- Projects progress quickly until they are 90% complete. Then they remain at 90% complete forever.
- When things are going well, something will go wrong. When things just can’t get worse, they will. When things appear to be going better, you have overlooked something.
- If project content is allowed to change freely, the rate of change will exceed the rate of progress.

Assignment – Class 1: Introduction to Project Management

- **Instructions:**
  Choose **one real-life project** (personal, academic, or professional). Examples:
  - Developing a mobile app
  - Organizing a cultural program
  - Building a website
  - Planning a family trip
- **Tasks:**
- **Identify the Goal**
  - Clearly state the main objective of the project.
- **Identify Stakeholders**
  - List at least 3–5 stakeholders (individuals/groups involved or affected).
  - Mention their role or interest in the project.
- **Identify Constraints (Iron Triangle)**
  - **Scope**: What will be delivered?
  - **Time**: Estimated duration/deadlines.
  - **Cost**: Budget/resources required.
  - (Also mention **Quality** as the “fourth constraint”).
- **Reflection**
  - Write briefly (5–6 lines) about why managing these elements is important for project success.