Project Management

OR_515_Lecture_1

What is a project ?

A project is an interrelated set of activities that has a definite starting and ending point and that results in a unique product (service).

What Is a Project?

- A **project** is “a temporary endeavor undertaken to create a unique product, service, or result.”
- A project ends when its objectives have been reached, or the project has been terminated.
- Projects can be large or small and take a short or long time too

Examples of project

- Creating irrigation facility.
- Developing new breed of an animal
- Construction of farm building
- Research and development of a new product.
- Movie production.
- Building a ship.
- NASA space exploration projects.

➢ It may be noted that each of these projects differ in composition, type, scope, size and time.

Project Attributes

- **A project:**
  - Has a unique purpose.
  - Have definite objectives (goals) to achieve.
  - Requires set of resources.
  - Have a specific time frame for completion with a definite start and finish.
  - Involves risk and uncertainty.
  - Requires cross functional teams and interdisciplinary approach.
  - Should have a primary customer or sponsor.
    - The **project sponsor** usually provides the direction and funding for the project.

Project and Program Managers

- **Project managers** work with project sponsors, project teams, and other people involved in projects to meet project goals.
- **Program**: "A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually."

Role of the Project Manager

- project manager is involved with the planning, controlling and monitoring, as well as managing and directing the resources associated with a project.
- The project manager is also responsible to the project stakeholders for delivering a project's objectives within scope, schedule, cost, and quality.

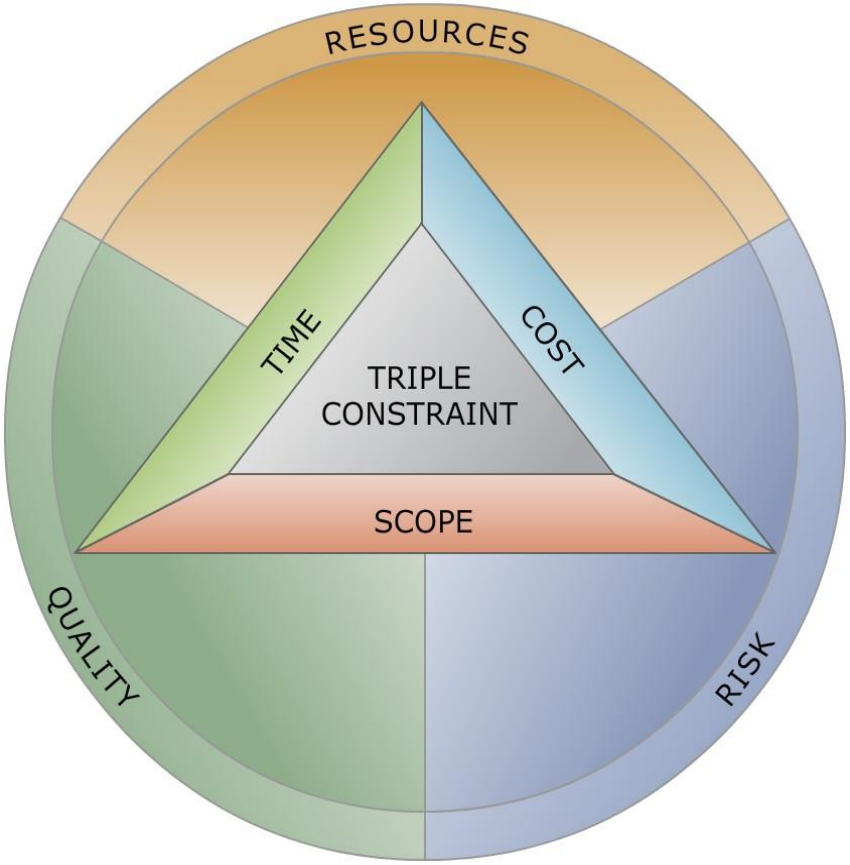
Role of the Project Manager

- Developing the project plan and all related component plans.
- Keeping the project on track in terms of budget and schedule.
- Identifying, monitoring, and responding to risk, or Providing accurate and timely reporting of project metrics.

Good Project Manager

- Takes ownership of the whole project
- Is proactive not reactive
- Adequately plans the project
- Is Decisive
- Is a Good Communicator
- Manages by data
- Leads by example
- Has sound Judgement
- Is a Motivator
- Is Diplomatic

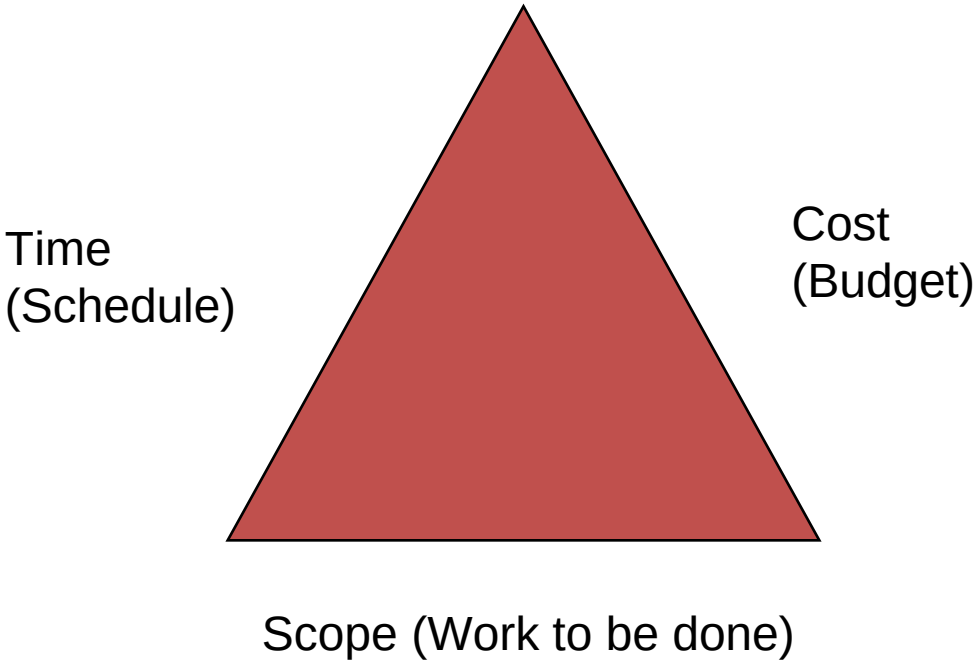
Project Constraints



- Time
- Cost
- Scope
- Resources (People)
- Quality
- Risk (Real world)
- (Facilities and equipment, Computer Infrastructure, Physical Location etc.)

The Triple Constraint of Project Management

Successful project management means meeting all three goals (scope, time, and cost) – and satisfying the project's sponsor!



The Triple Constraint

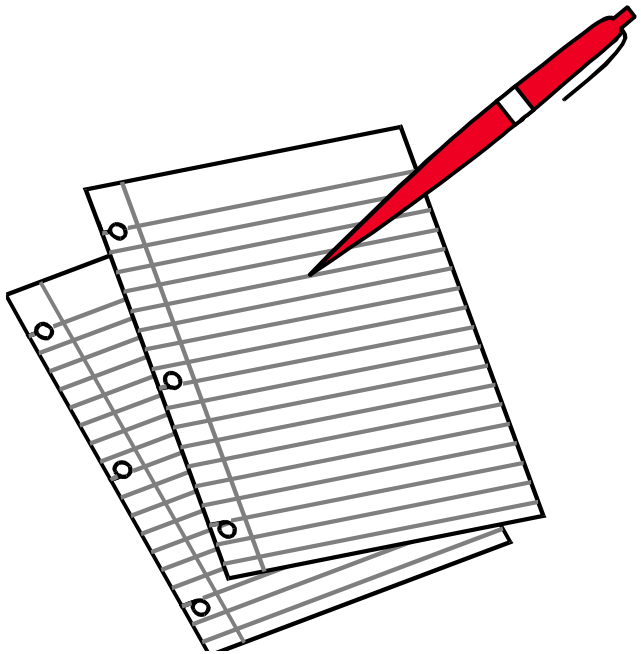
- project is constrained in different ways by its:
  - **Scope** goals: What is the project trying to accomplish?
  - **Time** goals: How long should it take to complete?
  - **Cost** goals: What should it cost?
- It is the project manager's duty to balance these three often-competing goals.

WHY DO PROJECTS FAIL?

- Poor project and program management discipline
- Lack of executive-level support
- No linkage to the business strategy
- Wrong team members
- No measures for evaluating the success of the project
- No risk management
- Inability to manage change

Project Control

- ✓ All activities identified and included.
- ✓ Completed in proper sequence.
- ✓ Resource needs identified.
- ✓ Schedule adjusted.
- ✓ Maintain schedule and budget.
- ✓ Complete on time.



What is Project Management?

Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements.

The function of the project management:

- Planning: planning the project and establishing its lifecycle.
- Organizing (resources): personnel, equipment, materials, and facilities.
- Leading: the right people to the right job.
- Controlling: evaluating progress of project (feedback).

Project phases

Each project has a lifecycle which consists of a set of phases

1) Definition phase:

- Determine goals, scope, constraints
- Identify wok team and their responsibilities and roles.
- Define channels, methods, contents.

2) Planning phase:

- Estimating time, cost, resources
- Making a plan to the overall work
- Assign the activities, the critical path, timeline, risk

Project phases

3) Execution phase:

- Execution the activities
- Monitoring the progress
- Solving problems
- Making changes on the plane based on feedback process.
- This phase terminates when achieving the goals.

4) Closeout phase:

- Begins with the delivery of product or completion of the project goals.
- A summary of the overall project.

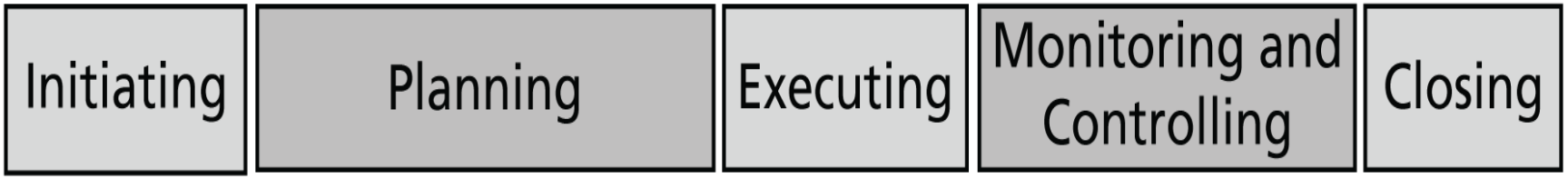
Project Processes

Processes are sequences of activities that accomplish specific functions necessary to complete some portion of the project.

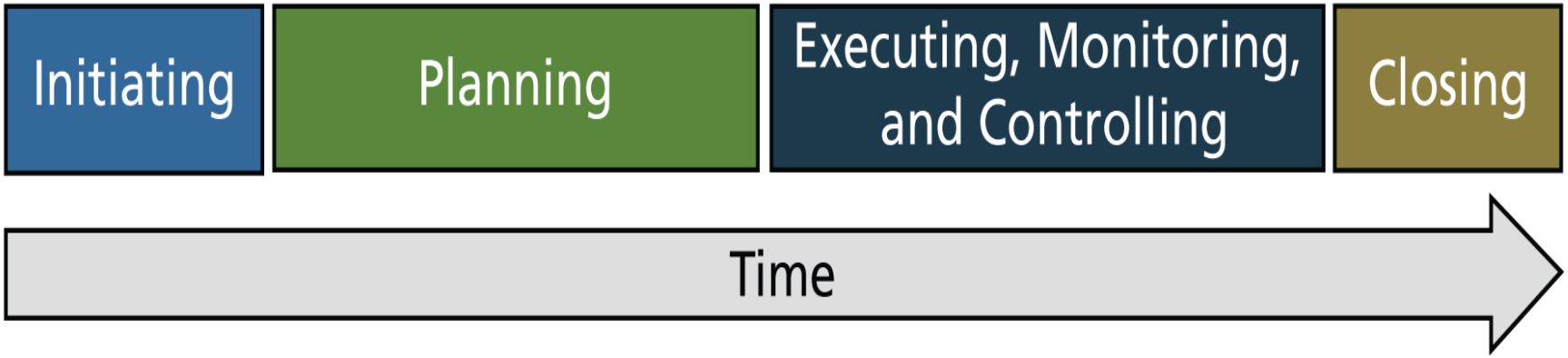
- There are different kinds of processes on the overall lifecycle of the project.
- **Initiation processes.**
- **Planning processes.**
- **Executing processes.**
- **Controlling processes.**
- **Closing processes.**

Project Life Cycle

PMI Process Groups



Project Management Life Cycle



Nine Project Management Knowledge Areas

- Knowledge areas describe the key competencies that project managers must develop.
  - Four core knowledge areas lead to specific project objectives (scope, time, cost, and quality).
  - Four facilitating knowledge areas are the means through which the project objectives are achieved (human resources, communication, risk, and procurement management).
  - One knowledge area (project integration management) affects and is affected by all of the other knowledge

Project Stakeholders

- A person or group of people who have a vested interest in the success of an organization and the environment in which the organization operates.
- Stakeholders include:
  - Project sponsor
  - Project manager
  - Project team
  - Support staff
  - Customers
  - Users
  - Suppliers

Project Management Tools and Techniques

- Project management tools and techniques assist project managers and their teams in various aspects of project management.
- Specific tools and techniques include:
  - Project charters, scope statements.
  - Gantt charts, network diagrams, critical path analyses, critical chain scheduling (time).
  - Cost estimates and earned value management (cost

Advantages of Using Formal Project Management

- Better control of financial, physical, and human resources.
- Improved customer relations.
- Shorter development times.
- Lower costs.
- Higher quality and increased reliability.
- Higher profit margins.
- Improved productivity.
- Better internal coordination.
- Higher worker morale

Project management used to manage

1. *Research and Development of new products and Processes.*
2. *Construction of Plants, buildings, and highways.*
3. *Maintenance of large and complex equipment.*
4. *Design and installation of new system.*

Characteristics of Project

- A one-time focus.
- A specific purpose and a desired result.
- A start and a finish.
- A time frame for completion.
- A limited set of resources.
- A logical sequence of interdependent activities.
- A clear user(customer, client) of the result.

Project Planning Elements

- ✓ Define project objective(s) .
- ✓ Identify activities.
- ✓ Establish precedence relationships.
- ✓ Make time estimates.
- ✓ Determine project completion time.
- ✓ Determine resource requirements to meet objective.

When I start a project I should answer a set of questions:

- What is the expected completion time of the project?
- What is the potential variability in the data?
- What are the scheduled start & completion dates of each specific activity?
- What activities are critical which they must be completed as scheduled in order to meet the overall completion time?

When I start a project I should answer a set of questions:

- How long can non-critical activities are delayed in such a way that the overall completion time is not influenced?

- How might resources be concentrated most effectively in order to speed up project completion?

- What controls can be exercised on the flow & expenditure for the various activities throughout