

UoG / UESTC Joint School of Engineering

UESTC 3031

Engineering Project Management

Dr Duncan Bremner / Dr Imran Shafique Ansari

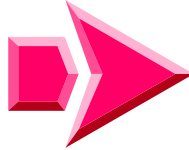
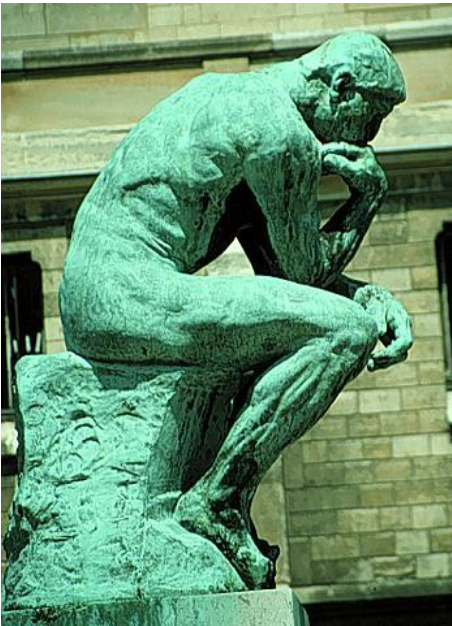




What is Project Management?

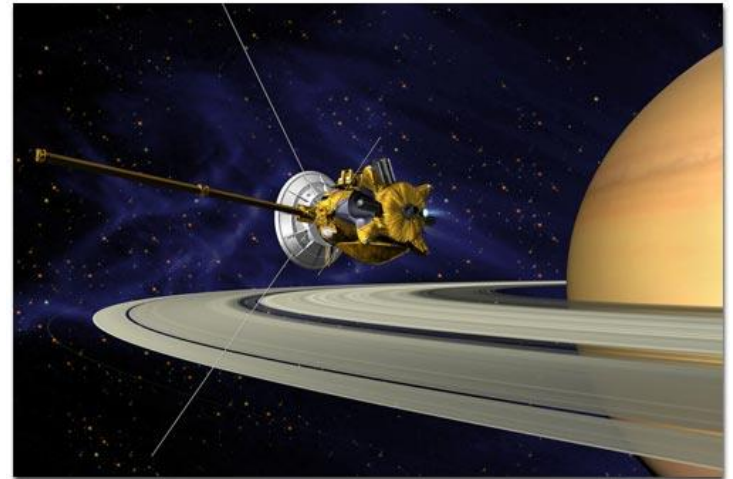
Two End Points in a Project

Inspiration



A miracle occurs

Operation

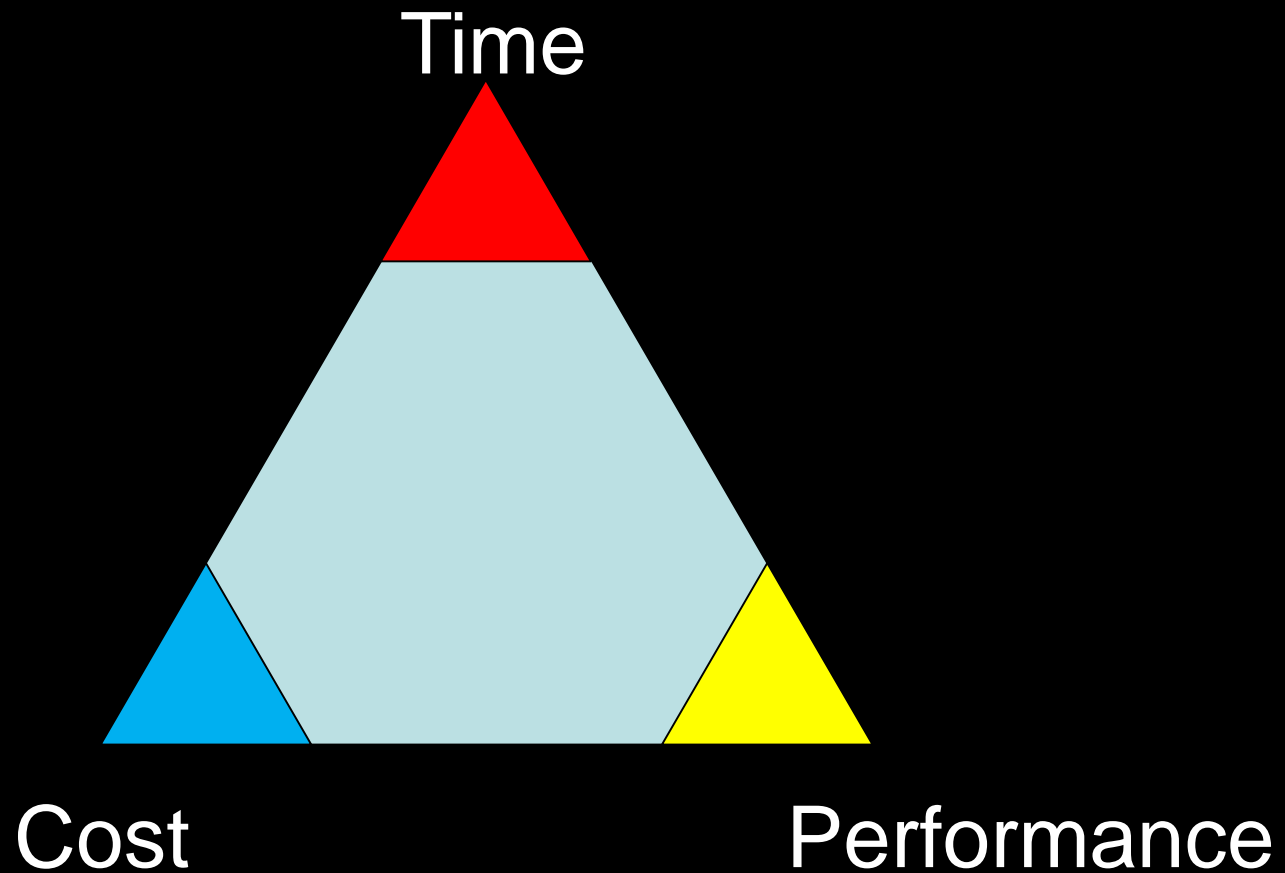


How do we get from Inspiration to Operation?

Answer: Perspiration !!



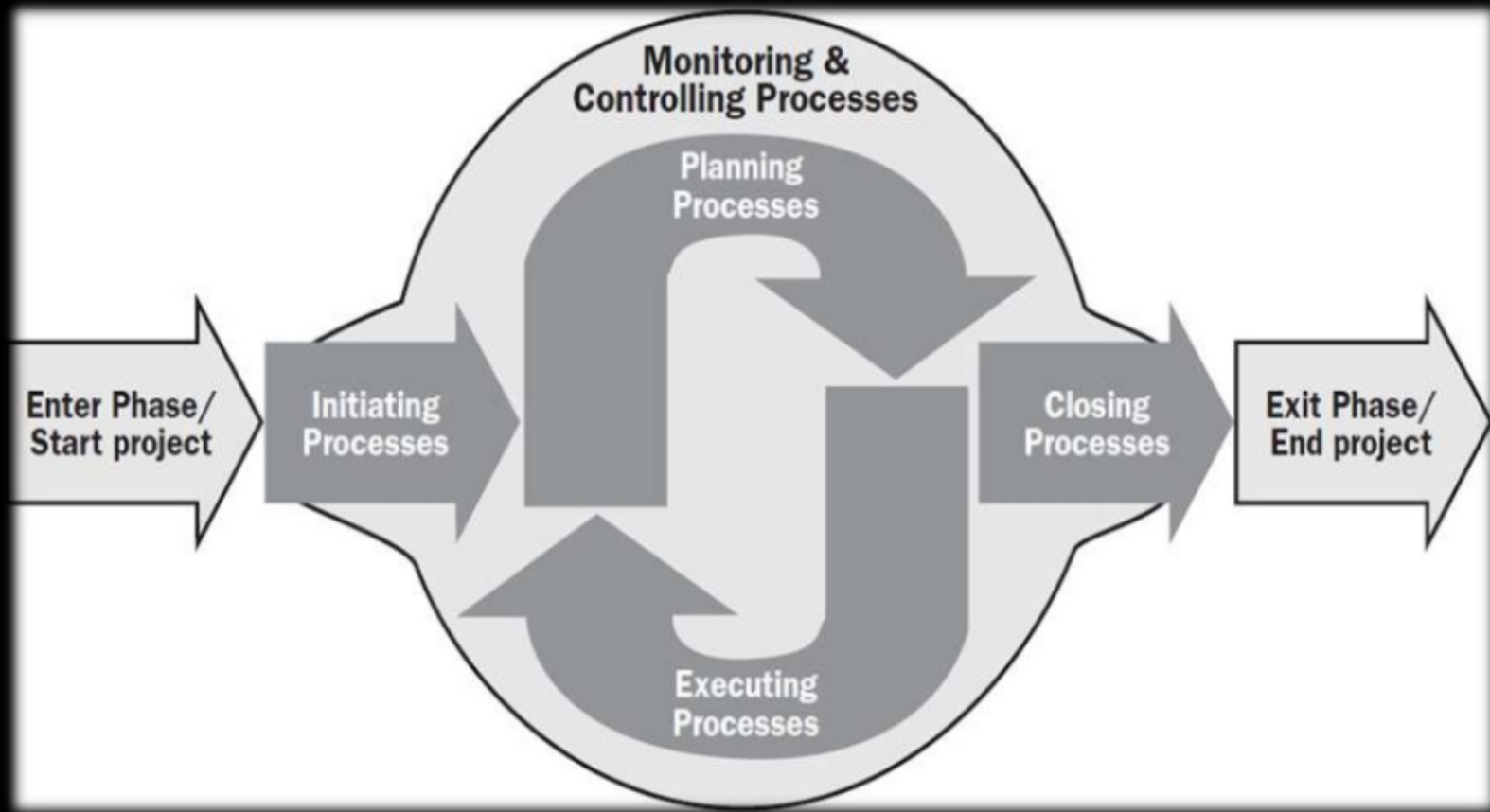
It is a balancing act!!



You can ONLY fix two of these variables; the third MUST be a dependent variable (Cost & Time), (Cost & Performance), (Time & Performance)



Project Management Process





Project Management: Stage 1

PLANNING

Most important phase of the project management.

SCHEDULING

CONTROLLING

CLOSING

Planning is an art and science of converting a set of objectives to realization through a series of steps executed in an organized and predicted way so that there will be less requirement of changes in the plan later on.
The old saying "Plan the work, Work the plan"





Project Management: Stage 2



PLANNING

SCHEDULING

CONTROLLING

CLOSING

Scheduling Phase is the process of formalizing the planned activities, assigning the durations, resources and sequence of occurrence in consultation with the team members.

Planning and Scheduling phases are undertaken before the actual project starts.



Project Management: Stage 3

PLANNING

SCHEDULING

CONTROLLING

CLOSING

Controlling phase is undertaken during the actual project implementation.

Project controlling is a mechanism established to determine deviations from the project base schedule, to re-plan & reschedule during implementation to compensate the deviations on the basis of commissioning minima, flow of resources like finance, manpower, equipment & application techniques.





Project Management: Stage 4

PLANNING

SCHEDULING

CONTROLLING

CLOSING

Closing phase is the last phase of the project which brings close out of the complete project. Whatever the project requirements are pre-defined, during this phase the total delivery is made and it is accepted by the customer.

Maximum conflicts can arise in the project during this phase between those who have worked to deliver the outcome (contractor) and those who are accepting the results of the work (customer).





The Key Project Management Activities

- ☐ Develop Project Charter
- ☐ Develop Project Management Plan
- ☐ Direct and Manage Project execution
- ☐ Monitor and Control Project Work
- ☐ Perform Integrate Change Control
- ☐ Close Project or Close

What is a project?

- A project is a complex, non-routine, one-time effort limited by time, budget & resources, and performance specification designed to meet specific needs.
 - Examples include construction of a chemistry department building, holding a teacher development workshop, creating a new French dining experience
- Projects generally have a particular set of characteristics in common
 - A clearly stated objective
 - A specific life span with beginning and end
 - Multiple departments or people working together
 - Usually something that has never been done before
 - Must be done within specific time, cost and performance requirements

What is a project?

A unique undertaking composed of **interrelated activities** which has a well defined beginning and end, often involving staff from cross-functional groups, that operates under specific constraints of resources, schedules, and requirements

What is a project?

A unique undertaking composed of interrelated activities **which has a well defined beginning and end**, often involving staff from cross-functional groups, that operates under specific constraints of resources, schedules, and requirements

What is a project?

A unique undertaking composed of interrelated activities which has a well defined beginning and end, **often involving staff from cross-functional groups**, that operates under specific constraints of resources, schedules, and requirements

What is a project?

A unique undertaking composed of interrelated activities which has a well defined beginning and end, often involving staff from cross-functional groups, **that operates under specific constraints of resources, schedules, and requirements**

5 Key Project Characteristics

- **A clearly stated objective**
 - The scope / goals should be well constrained and definitive, providing a singular purpose for the project
- **A specific life span with beginning and end**
 - The project life-cycle phases include design, development, fabrication, testing and operation
- **Multiple departments or people working together**
 - Includes people with different expertise working as a team, coordinating their effort to address the project needs
- **Usually something that has never been done before**
 - The effort associated with a project is non-routine and, to a greater or lesser extent, has unique features
- **Specific time, cost and performance requirements**
 - Constraints drive accountability and can force trade-offs



University
of Glasgow

**Is this the most famous
project Charter?**

*I believe that this Nation should commit itself
to achieving the goal, before this decade is out,
of landing a man on the moon and
returning him safely to earth.*





Why do Companies use Project Management?

- To handle projects effectively in an organization.
- To define the project and agree with the customer
- To plan and assess resource needs for the project
- To estimate project cost and make proposals
- To plan & schedule activities in a project.
- To allocate the right resource at the right time.
- To assess risk and failure points and make backup plans.
- To lead a project team effectively and communicate well





Why should engineers learn PM ?

- To understand the techniques and tools used to manage projects
- To help them contribute more effectively in project teams
- To help them manage their own projects
- To gain an appreciation of the complexity of project management beyond the technical aspects



Why manage a project?

- Accomplish objectives of project within constraints
- Balancing trade-offs between time, cost and performance
 - These three constraints can be mutually exclusive
 - An effective balance is necessary for project success
- Anticipating, identifying and handling the unexpected
 - Unexpected events will happen throughout a project (Murphy's Law)
 - Risk planning is an essential component to project management
- Taking into account unique project features
 - As project complexity increases, coordination and risk also increase
 - New technology development is usually associated with increased risk and complexity



The Stages of Project Management



What is Project Management?

A set of skills and methods of planning, organizing, and managing a project from inception to its successful completion



What is a Project Manager?

The role responsible for leading and coordinating the project effort from inception to its successful completion;



What is a Project Manager?

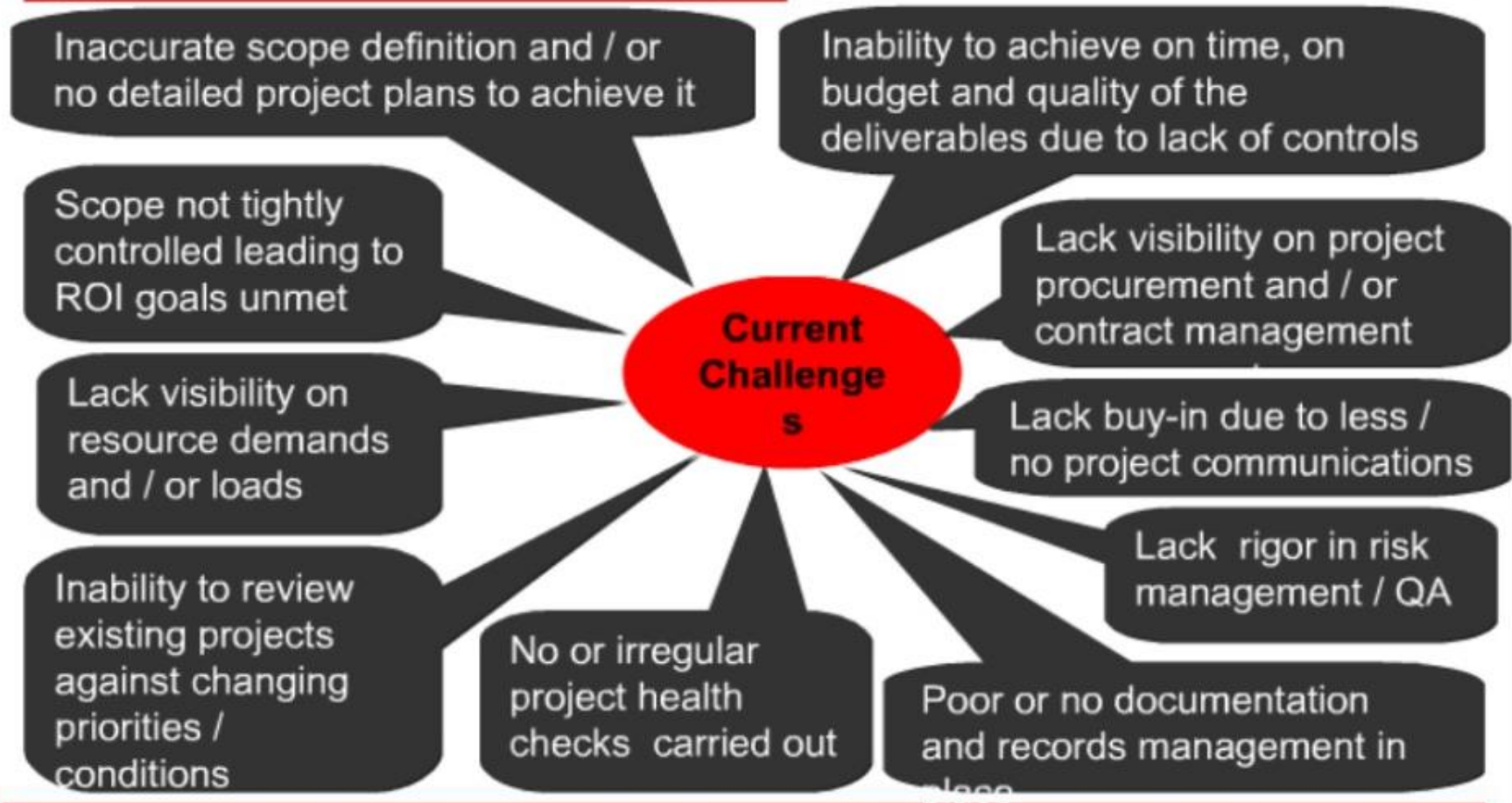
The role responsible for leading and coordinating the project effort from inception to its successful completion; the person **responsible for making things happen**



PM Knowledge Areas



Project - Current Challenges



- Project Management is important for the proper control of projects
- Project managers have a broad range of skills
- Managing projects is a skill essential to all engineers
- You should start thinking about project management on your own TPD&S projects

- There are many project management articles. I will provide more later.
- Read the following:
 - ★ – Why Projects Fail; PM Today; Algar, J; Carver, S; Johnson, W. (2014)
 - ★ – Download and Install Gannt Project.
 - ★ – Test the software is working; try out