Software Project Management

Chapter 2

Lecture 3 and 4

Project Life Cycle and Organization

- **Project Constraints:**

Projects and project management operate in an environment broader than that of the project itself.

- The project management team must understand this broader context

This chapter describes key aspects of the project management context. The topics included here are:

1. **Project Phases and the Project Life Cycle**
2. **Project life cycle structure**

Project Life Cycle

- Project Management is about acquiring or achieving the project goal

- Most projects need to be broken down into a logical sequence of ‘phases’/ activities, each combined makes *project life cycle*.

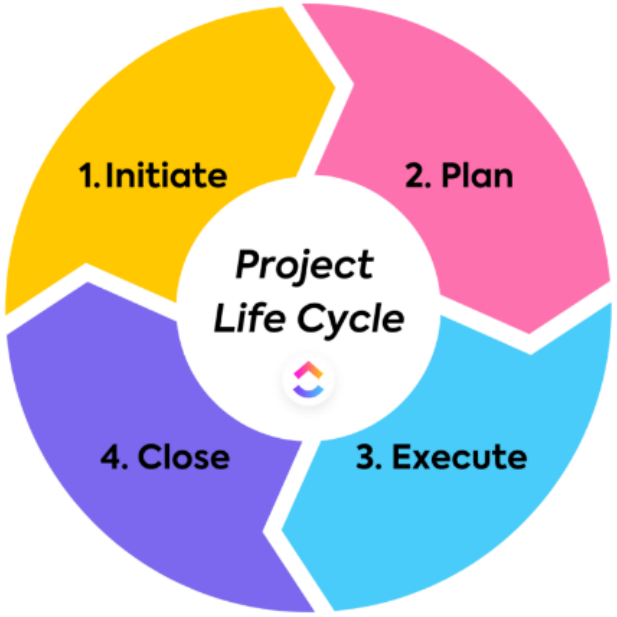
Project Life Cycle

Project Life Cycle is broken into four Phases which are as following

- Initiation
- Planning
- Execution
- Clouser

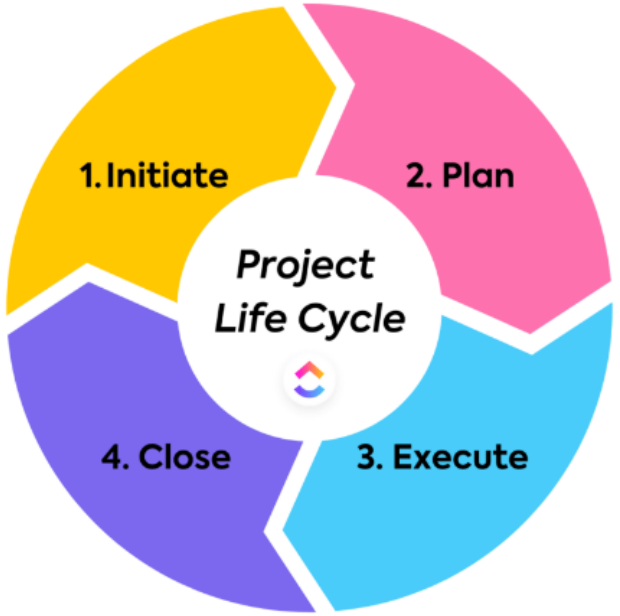
Project Life Cycle:

It’s series of phases that a project passes through from its initiation to closure or from **Start till end**

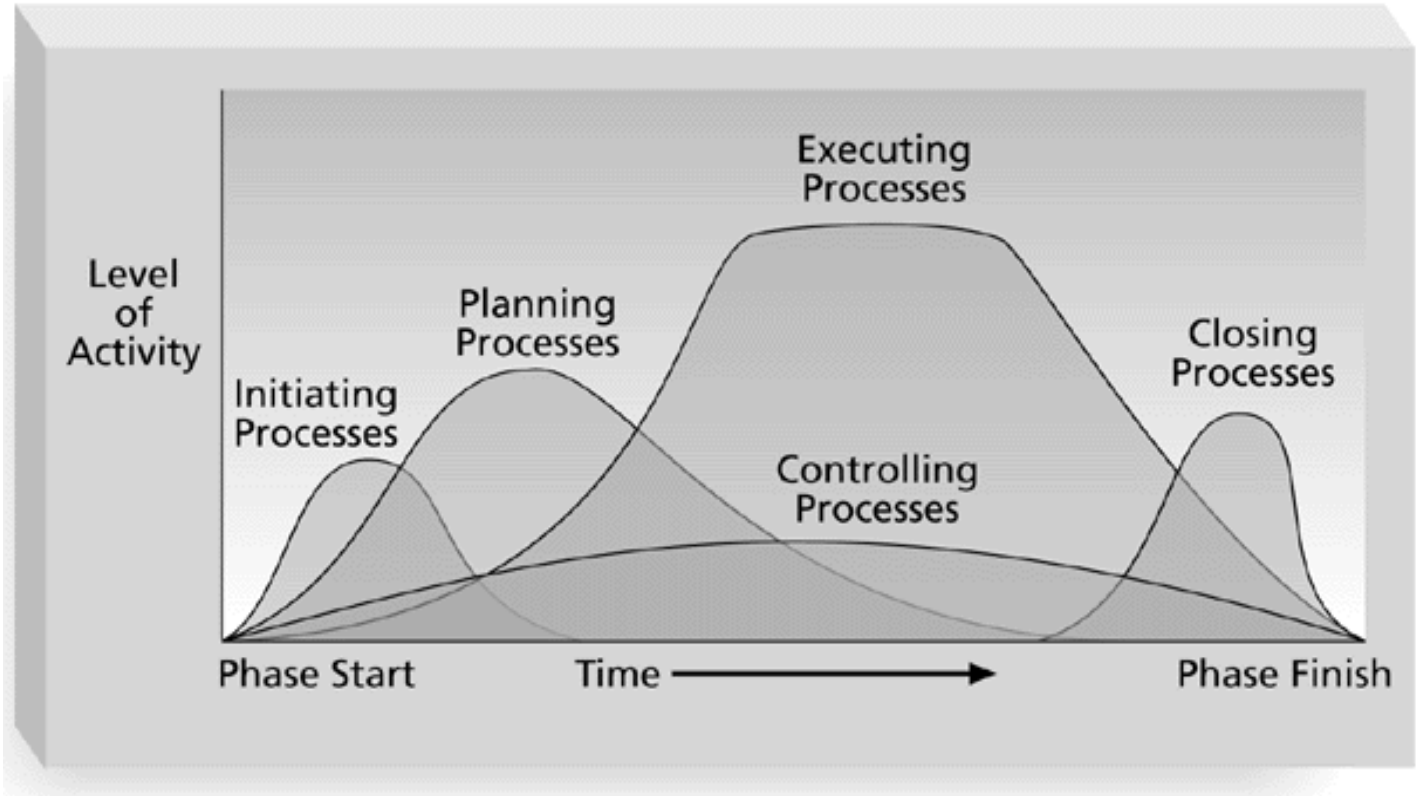


What *Project life cycle defines?*

- What technical work to do in each phase?
- What deliverables are to be generated in each phase?
- how they are reviewed, verified and validated?
- Who is involved in each phase?
- How to control and approve each phase?



The Project Life Cycle Structure



Common characteristics for life cycles

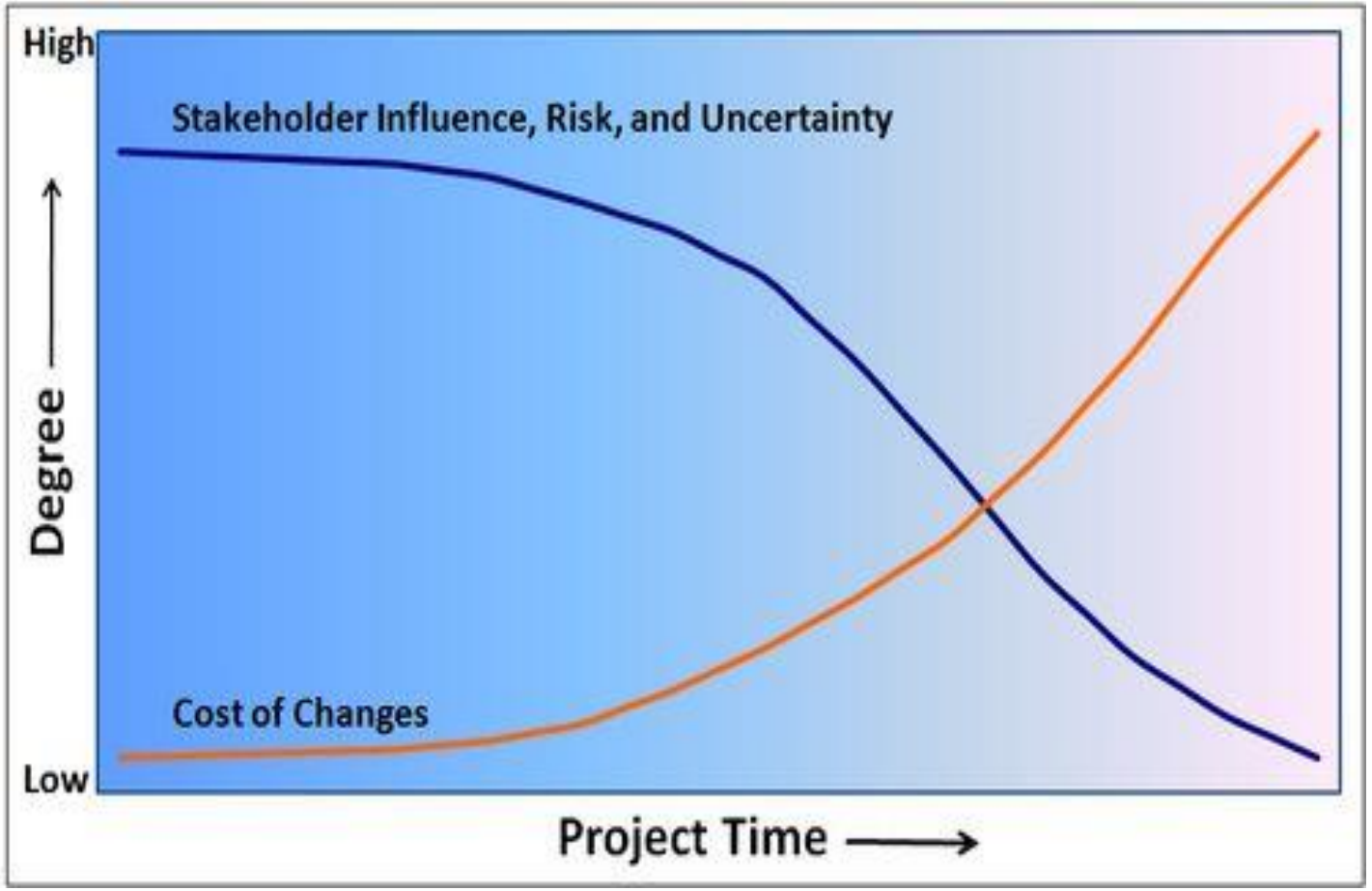
Phases are generally sequential

1. **Cost and staffing levels** are low at the start, peak during intermediate phase and drop rapidly on closing phase.

2. Highest level of uncertainty, greatest risk of failing to achieve the objectives at the start of project

3. Highest **influence of stakeholders** on project's product and final cost at the start of project because the cost of change increase as project progressing.

Characteristics of Project Life Cycle



Phases of a Project Explained:

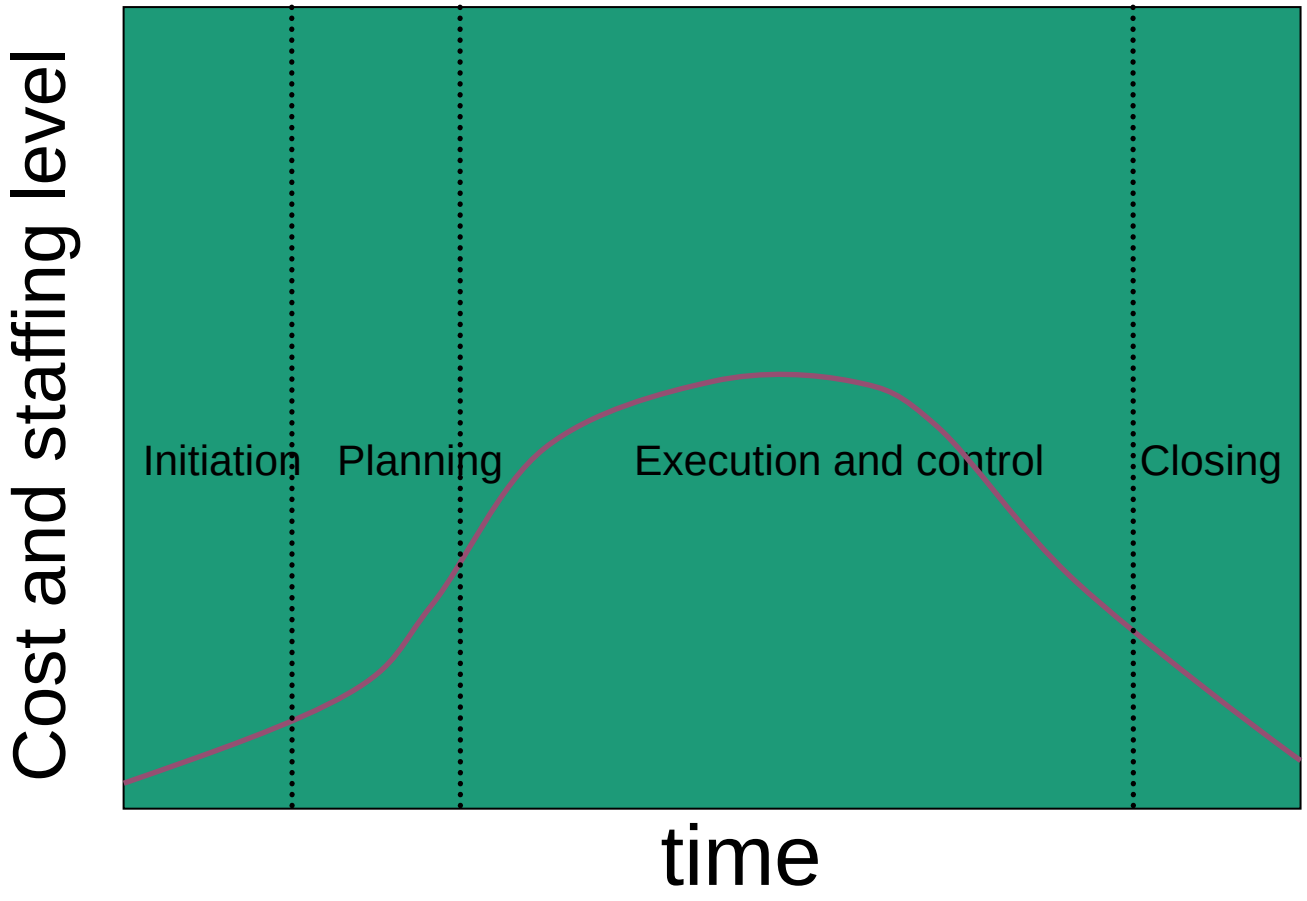
- Organizations normally break a project down into several project phases for better management control (each phase has a management & handled with care)
- Collectively (Initiation, Planning, Execution & closure),make up the project phases are known as the **project life cycle**
- Each project phase when completed gives one or more **deliverables.**

4 Phases of a Project

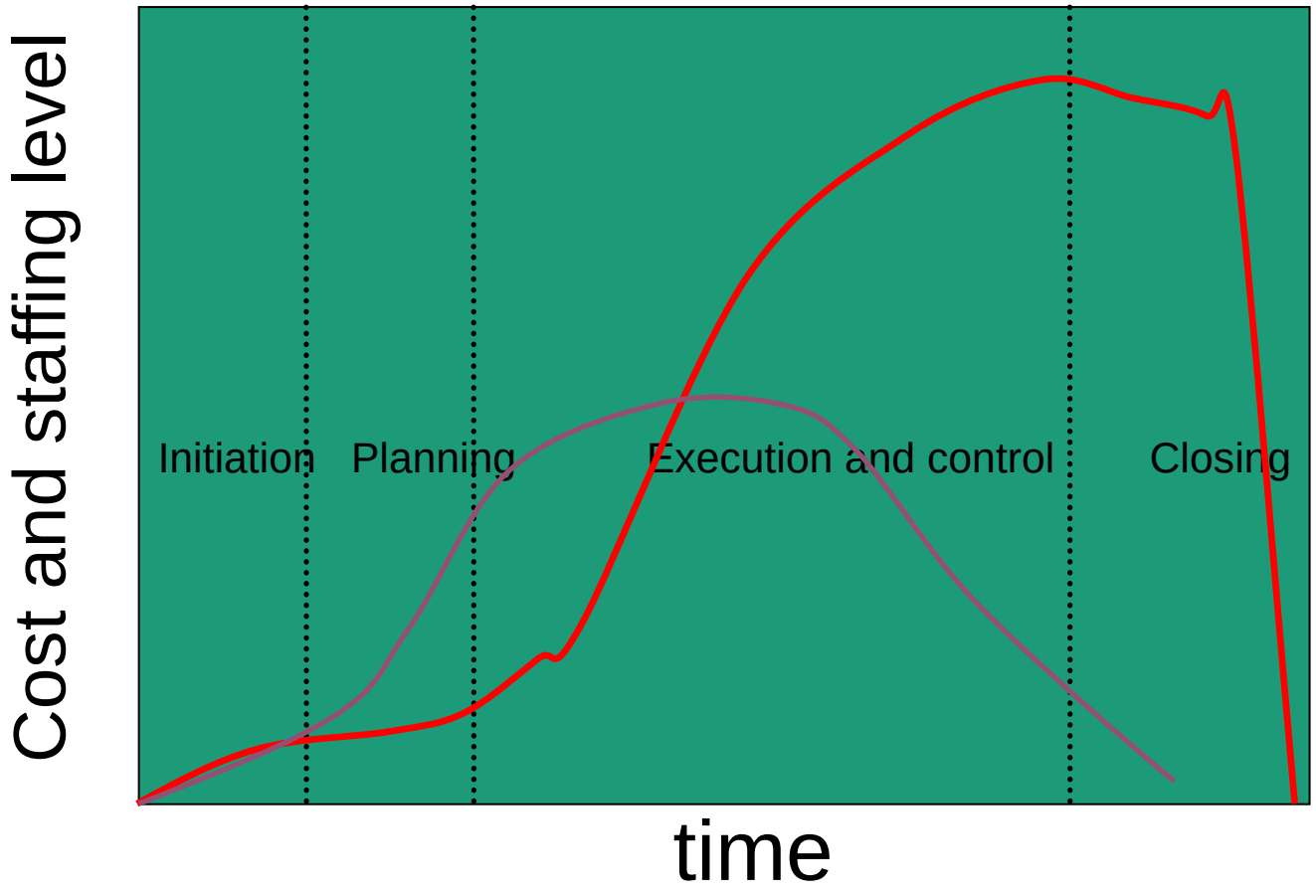
Project Initiation	Project Planning	Project execution and control	Project closing
Scope identification Team set up Project definition	WBS OBS Scheduling	Network diagrams Reporting	Hand over Commission

Project life cycle

Project Life Cycle

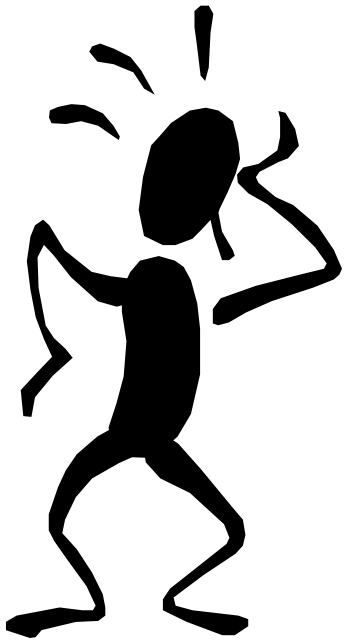


Project Life Cycle - Ideal v Typical



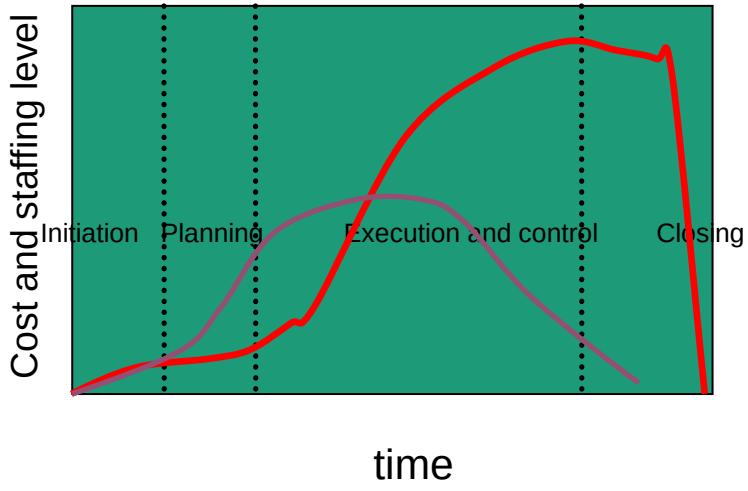
Exercise

What does the chart tell you about typical v ideal project life cycle?



Answer

- Many projects don’t get adequate resources in the early stages
- Low resourcing in the planning stage results in delays in completing the project on time, to the right quality and within the budget



Sydney Opera House

- Good or bad project?

Sydney Opera House

- ***Planned - 1959 to 1963 (4 years)***
  - ***$7 million***
- ***Actual - 1959 to 1973 (14 years)***
  - ***$100 million***

Project Life Cycle (PLC) as a Tool

- PLC is a management tool to make it easier to manage the project sequence
- The choice of phases vary from industry to industry and the PLC will vary to suit the needs of the participants
- Different project managers choose different PLC's, depending on the nature of the task i.e. Engineering, software development etc.

Project Life Cycle (PLC) Uses

- To **maintain an overview** of the project
- To help identify tasks
- Break the **project into manageable parts**
- To help with on time decisions (based on this decide go/no go)

What is management?

It has been suggested that management involves the following activities:

- planning – deciding what is to be done;
- organizing – making arrangements;
- staffing – selecting the right people for the job etc.;
- directing – giving instructions;
- monitoring – checking on progress;
- controlling – taking action to remedy hold-ups;
- innovating – coming up with new solutions;
- representing – liaising with clients, users, developer, suppliers and other stake-holders.

- **Exercise-Project Management**

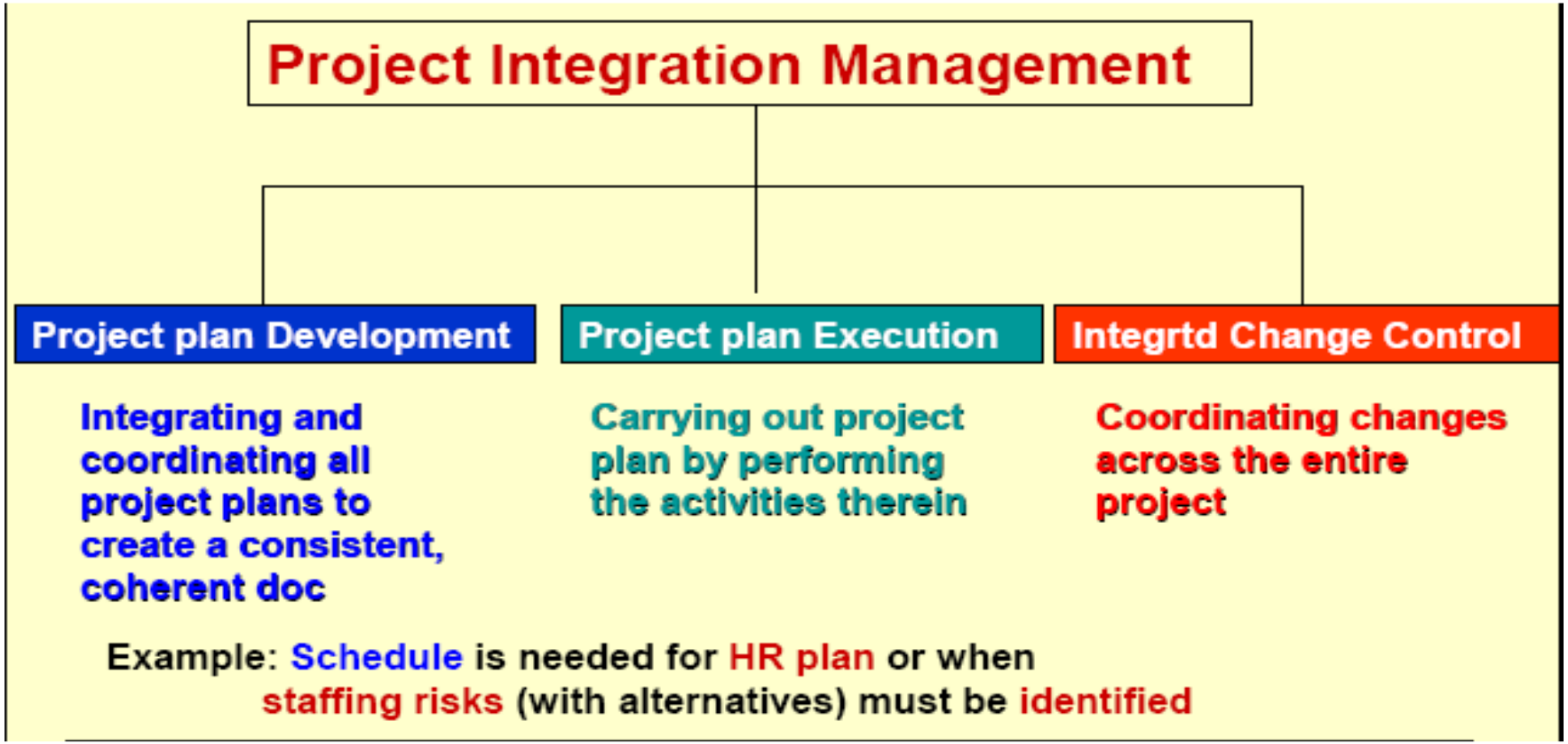
Paul Duggan is the manager of a software development section. On Tuesday at 10.00 a.m. he and his fellow section heads have a meeting with their group manager about the staffing requirements for the coming year. Paul has already drafted a document 'bidding' for staff. This is based on the work planned for his section for the next year. The document is discussed at the meeting. At 2.00 p.m. Paul has a meeting with his senior staff about an important project his section is undertaking. One of the programming staff has just had a road accident and will be in hospital for some time. It is decided that the project can be kept on schedule by transferring another team member from less urgent work to this project. A temporary replacement is to be brought in to do the less urgent work but this may take a week or so to arrange. Paul has to phone both the human resources manager about getting a replacement and the user for whom the less urgent work is being done, explaining why it is likely to be delayed.

Identify which of the eight management responsibilities listed above Paul was responding to at different points during his day.

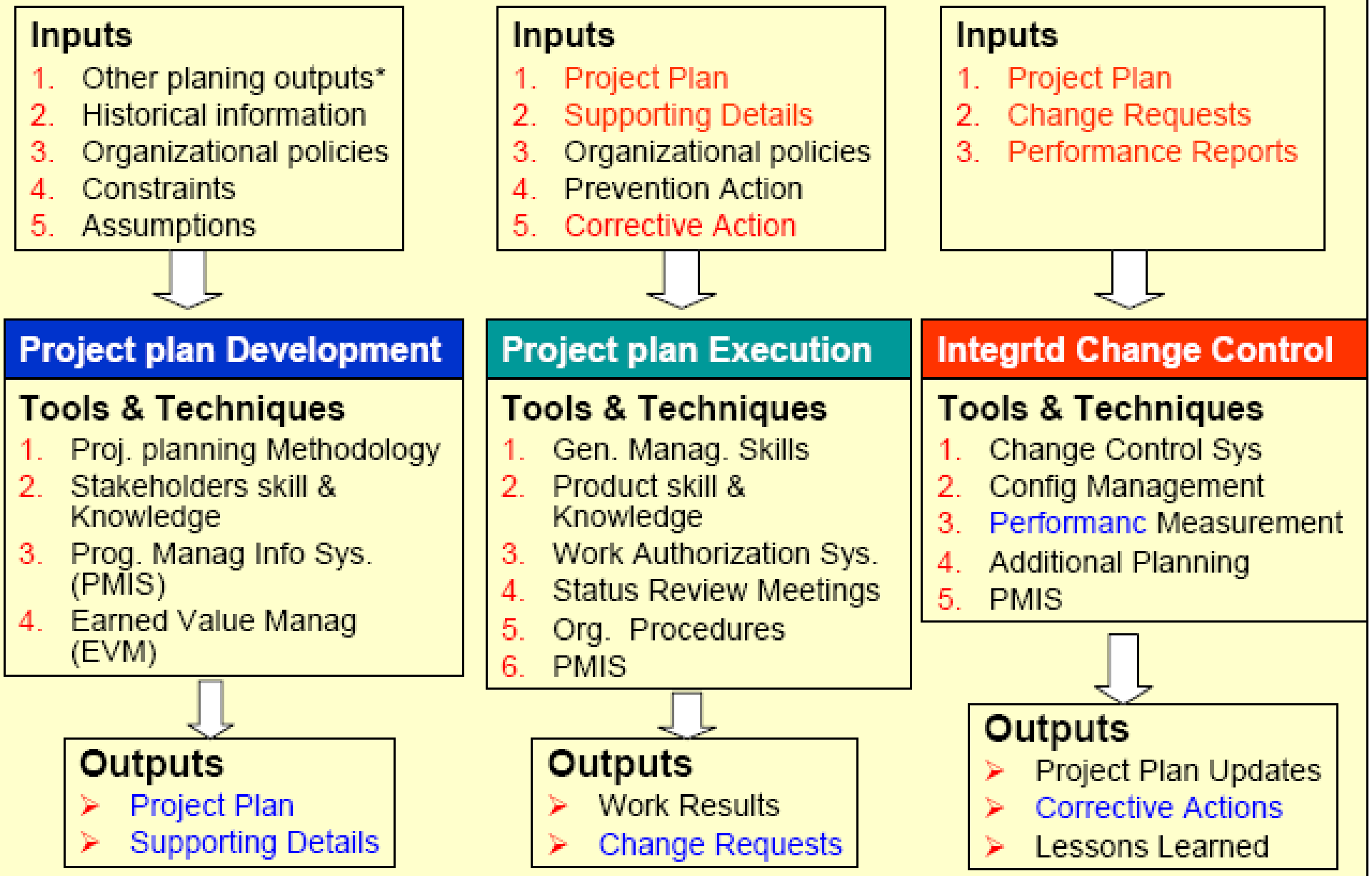
Project Management

1. **Project Integration Management**
2. **Project Scope Management**
3. **Project Time Management**
4. **Project Cost Management**
5. **Project Quality Management**
6. **Project Human Resource Management**
7. **Project Communications Management**
8. **Project Risk Management**
9. **Project Procurement Management**
10. **Project Stakeholder Management**

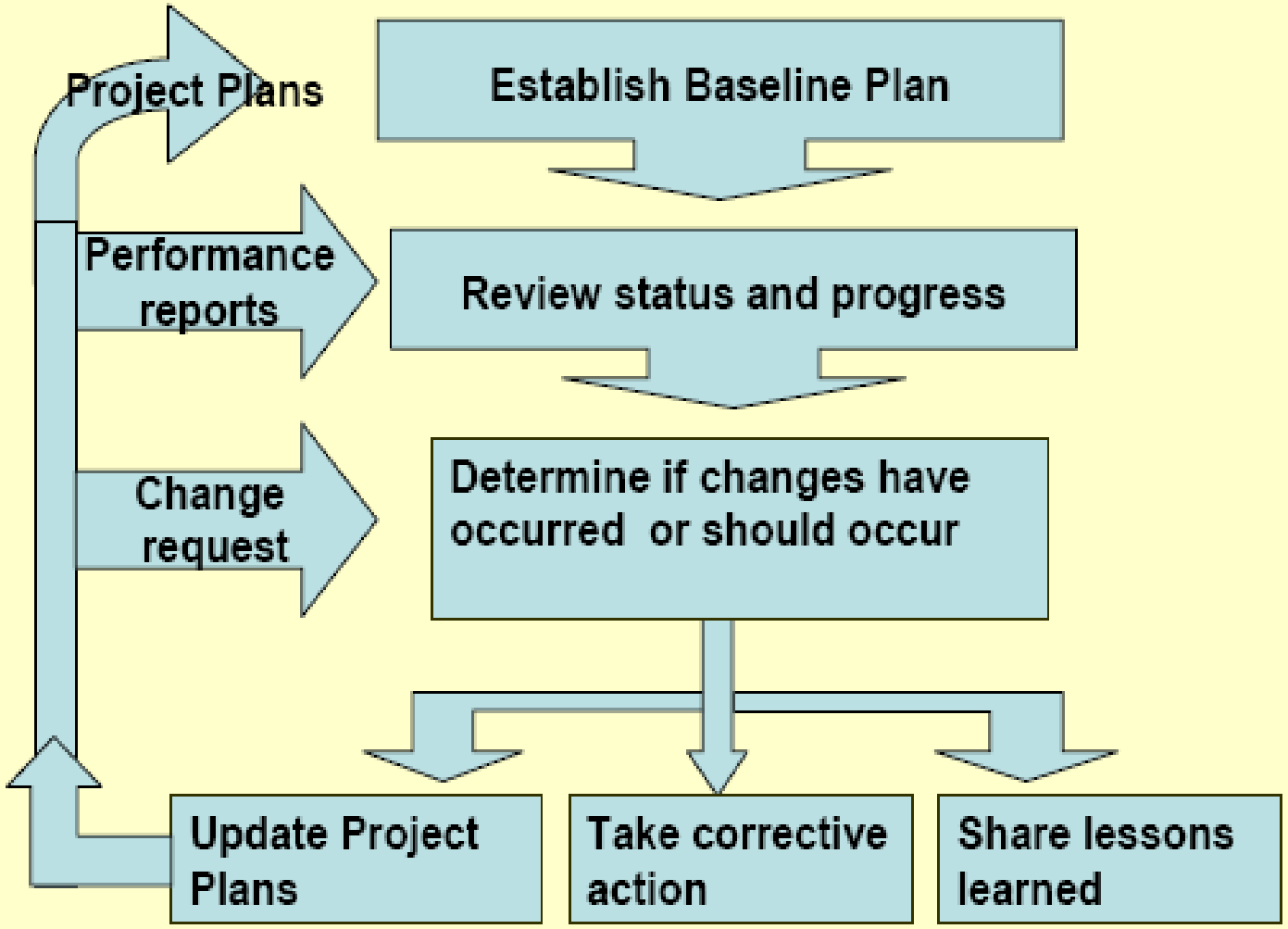
PIM includes the processes required to ensure that various elements of the project are properly coordinated



Project Integration Management



Integrated Change Control process



Scope Management

A subset of project management that includes the **processes** required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

1. **Initiation**

   Authorizing the project (or phase) (or gives permission for) work to begin on a project

2. Scope planning

   developing a written scope statement as the basis for future

   project decisions.

3. Scope definition

   subdividing the major project deliverables into smaller, more

   manageable components.

Scope Management--cont

4. Scope verification

formalizing acceptance of the project scope.

5. Scope change control

controlling changes to project scope.

Time Management

A subset of project management that includes the

processes required to ensure timely completion of the

project.

1. **Activity definition**

   –identifying the specific activities that must be performed to produce the various project deliverables

2. Activity sequencing

   –identifying and documenting interactivity dependencies

3. Activity duration estimating

   –estimating the number of work periods which will be needed to complete individual activities

Time Management--cont

4. Schedule development

–analyzing activity sequences, activity durations, and resource requirements to create the project schedule

5. Schedule control

–controlling changes to the project schedule

Cost Management

A subset of project management that includes the **processes** required to ensure that the project is completed within the approved budget.

1. **Resource planning**

– Determining resources and what quantities of each should be used

2. Cost Estimating

– Developing approximation of the costs of the resources need

3. **Cost budgeting**

– Allocating the overall cost estimate to individual work items

4. Cost Control

- Controlling changes to the project budget

Quality Management

A subset of project management that includes the **processes** required to ensure that the project will **satisfy the needs** for which it was undertaken.

1. Quality Planning

– Identifying which quality standards are relevant to the project and determining how to satisfy them.

2. Quality Assurance

– Evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards

3. Quality Control

– Monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance

Human Resource Management

A subset of project management that includes the
processes required to make the most effective use of the
people involved with the project.

1. Organizational planning

– Identifying, documenting, and assigning project roles, responsibilities, and reporting relationships

2. Staff acquisition

– Getting the human resources

3. Team development

– Developing individual and group skills to enhance project
performance

Communication Management

A subset of project management that includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

1. Communications planning

– Determining the information and communication needs of the stakeholders

2. Information distribution

– Making needed information available to project stakeholders in a timely manner

3. Performance reporting

– Collecting and disseminating performance information

4. Administrative closure

– Generating, gathering, and disseminating information to Formalize phase or project completion

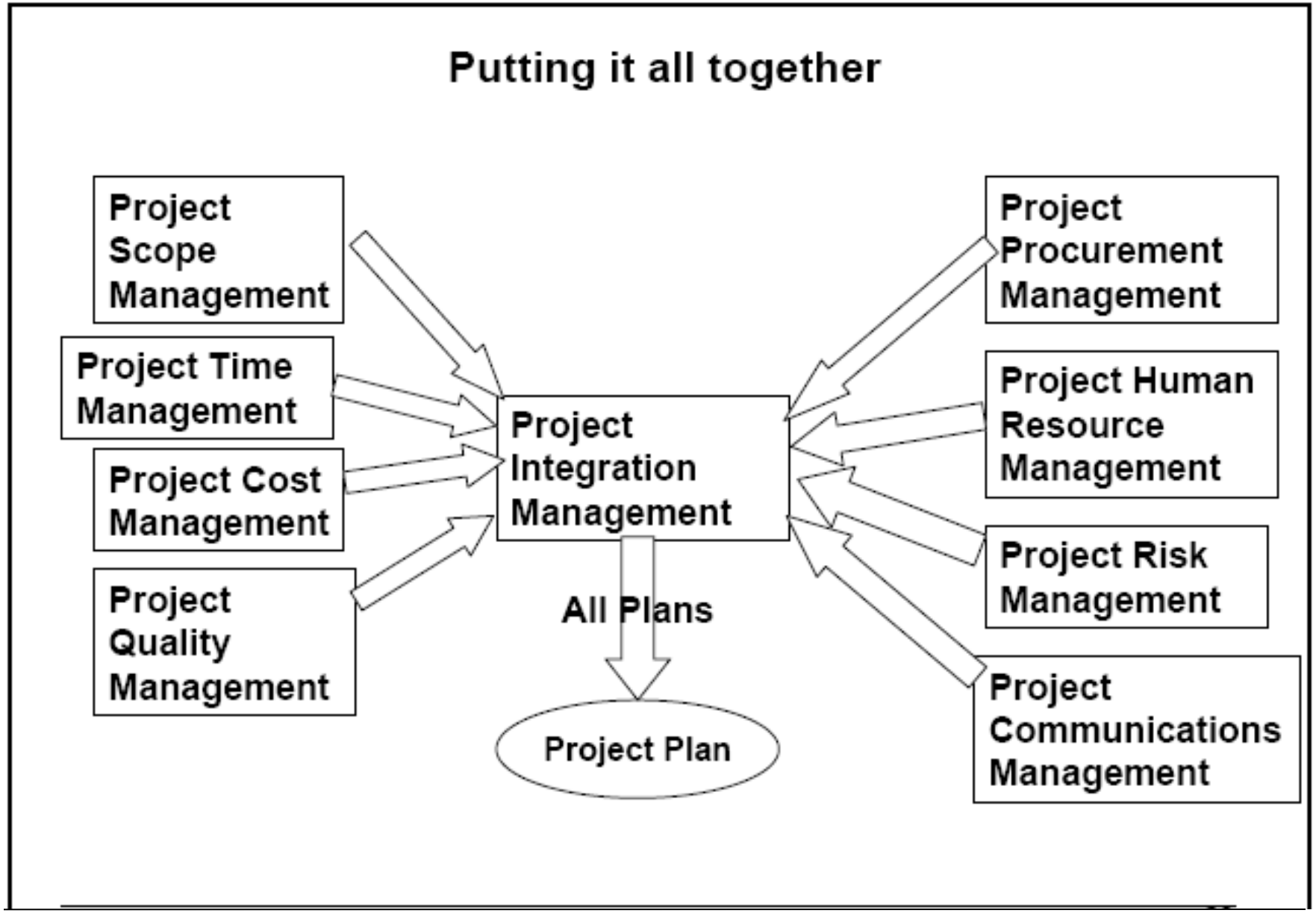
Mapping PM processes to Life Cycle Phases

Phases / PM Knowledge	Initiating	Planning	Executing	Controlling	Closing
Integration Management		Project plan Development	Project plan Execution	Integrated Change Control	
Scope management	Initiation	Scope planning, Scope definition		Scope Verification, Scope Change Control	
Time Management		Activity definition, Act duration Est, Act Sequencing, Schedule Dev.		Schedule control	
Cost Management		Resource planning, Cost Est, Cost Budgeting		Cost control	
Quality Management		Quality planning	Quality assurance	Quality control	
Human Resource Management		Org. planning, Staff Acquisition	Team development		

39 PM processes to the 5 PM LC Phases

Mapping PM processes to Life Cycle Phases…

Phases / PM Knowledge	Initiating	Planning	Executing	Controlling	Closing
Communications Management		Comm. Planning	Infor distribution	Performance reporting	Administrative Closure
Risk Management		Risk Management planning, Risk identification, Risk analysis, Risk response planning		Risk monitoring & control	
Procurement Management					


Putting it all together
Project Scope Management
Project Time Management
Project Cost Management
Project Quality Management
Project Integration Management
All Plans
Project Plan
Project Procurement Management
Project Human Resource Management
Project Risk Management
Project Communications Management

• Project Management Certification

1) PMI (Project Management Institute) provides certification as a Project Management Professional (PMP)
2) The number of people earning PMP certification is increasing quickly, and the certification program department received ISO approval in 1999
3) Other groups, like the Gartner Institute and the Singapore Computer Society, have their own IT PM Certification programs

- **HOMEWORK # 01**

A software house has developed a customized order processing system for a client. You are an employee of the software house that has been asked to organize a training course for the end-users of the system. At present, a user handbook has been produced, but no specific training material. A plan is now needed for the project which will set up the delivery of the training courses. The project can be assumed to have been completed when the first training course starts. Among the things that will need to be considered are the following:

- training materials will need to be designed and created;
- a timetable will need to be drafted and agreed;
- date(s) for the course will need to be arranged;
- the people attending the course will need to be identified and notified;
- rooms and computer facilities for the course will need to be provided for.

A. Identify the main stakeholders for this project.
B. Draw up objectives for this project.
C. For the objectives, identify the measures of effectiveness.
D. For each objective, write down sub-objectives or goals and the stakeholders who will be responsible for their achievement.

- **HOMEWORK # 02**

The idea behind a project is that students should be able to access details of available placements via an intranet. When there is a placement opportunity for which they wish to be considered, they would be able to apply for it electronically. This would cause a copy of their CV, which would also be held online, to be sent to the potential employer.

Details of interviews and placement offers would all be sent by e-mail. While some human intervention would be needed, the process would be automated as far as possible.

You are required to produce a business case report for such an application, which justifies the potential development by showing that the value of its potential benefits outweigh its development and operational costs.

Create lists of the main benefits and costs for the project. You do not have to specify actual figures, just the headings under which they would appear.

Quick Quiz

- According to the PMBOK, the five process groups are
  A. Initiation, planning, execution, resources, and quality
  B. Initiation, scheduling, reporting, closeout, and approval
  C. Analysis, design, building, development, and support
  D. Initiation, planning, execution, control, and closeout