CHAPTER ONE: PROJECT MANAGEMENT PRICIPLES

- Introduction To Project Management
  - Terms and definitions
  - Project Management Basics
- A Systems View and Systems Methodology Software projects.
- Attributes of successful project management
- Causes of project failure
- The Project Management Framework

INTRODUCTION TO PROJECT MANAGEMENT?

- **TERMS AND DEFINATIONS**
  - ***What is Management?***
    - *Management is the process of coordinating people and other resources to achieve the goals of the organization.*
      - *The concept of the achievement of an objective by the co-ordination of resource, usually with a concentration on the human resource.*
    - *Is the process of planning, organizing, staffing, directing, monitoring and controlling an activity.*

Terms and definitions Cont….:

- Management involves the following activities:
  - **Planning**-deciding what is to be done.
  - **Organizing**- making arrangement.
  - **Staffing**-selecting the right people for the job.
  - **Directing**-giving instruction.
  - **Monitoring**-checking on progress.
  - **Controlling**-taking action to remedy hold-ups.
  - **Innovating**-coming up with new solutions.
  - **Representing**-liaising with users etc.
- It is the practice of executing and controlling the projects.

- What's a project?
  - PMI definition

    –A project is a temporary endeavor undertaken to create a unique product or service
    - Progressively elaborated
    - With repetitive elements

Terms and definitions Cont….:

- A project
  - Is a *{temporary}*sequence of unique, complex and connected activities having one goal or purpose and that must have a start and finish dates, undertaken to achieve an objective conforming to specific requirements including the constraint of time, cost and resources
  - is well-defined task, which is a collection of several operations done in order to achieve a goal (for example, software development and delivery).
  - ***A project is a set of related tasks that are coordinated to achieve a specific objective in a given time limit.***
  - A project is a means of moving from a problem to a solution via a series of planned activities.

Terms and definitions Cont….:

- Generally projects are made up of:
  - a defined beginning,
  - multiple activities which are performed to a plan,
  - a defined end.
- A Project can be characterized as:
  - Every project may has a unique and distinct goal.
  - Project is not routine activity or day-to-day operations.
  - Project comes with a start time and end time.
  - Project ends when its goal is achieved hence it is a temporary phase in the lifetime of an organization.

•Project needs adequate resources in terms of time, manpower, finance, material and knowledge-bank.

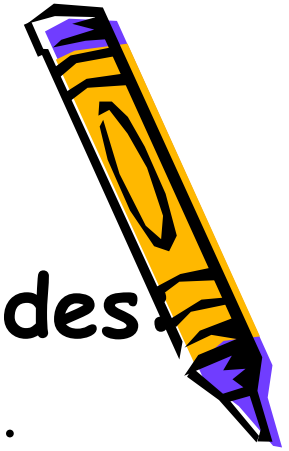
Terms and definitions Cont….:

- Any series of activities and tasks that:-
  - Have a specific objective to be completed with certain specifications
  - Have defined start and end dates(limited time)
  - Have limited funds(financial resources)
  - Consume resources' (financial, human etc)
- Therefore a project may be defined as a means of moving from a problem to a solution via a series of planned activities.
  - The project constraints is an equilateral triangle with **time**, ***cost*** and **quality** as its cardinal points .

Terms and definitions Cont….:

- If one point moves , the others will also have to move , because it is a fact of life that each point of the triangle defines the position of the others.
  - If the customer wants more functionality – or higher quality – the project will either take longer or cost more.
  - If the budget is reduced, either time or quality must be scarified.
- Engineers have long had a saying - 'You can have it cheap, you can have it quick, or you can have it right. But you can only have two out of the three.'

Project Attributes



- **The Attributes of a project includes:**
  1. **Scope/ A project has a unique purpose.**
     - Scope is the soul of any project.
     - Every project should have a well-defined objective. For example, many people hire firms to design and build a new house, but each house, like each person, is unique.
  2. **Resource**
     - To accomplish any given task, the manager needs resources. Resources include people, machine(s) and material hardware, software, or other assets.

project attributes cont…..

3. Schedule/ A project is temporary.

- A project has a definite beginning and a definite end.

4. A project is developed using progressive elaboration or in an iterative fashion.

- Projects are often defined broadly when they begin, and as time passes, the specific details of the project become more clear.

- 5. A project should have a primary customer or sponsor.

- Most projects have many interested parties or stakeholders, but someone must take the primary role of sponsorship.
  - The project sponsor usually provides the direction and funding for the project.

Project Attributes

6. **A project involves uncertainty and Risk.**
   - Projects possess significant elements of uncertainty and risk.
7. **A planned activity and organized activity**
   - A project follows a planned, organized method to meet its objectives with specific goals of quality and performance.

Examples of information technology projects

- Develop a computer System/Application
- Introduce a new product hardware
- Prepare an annual ICT departmental plan report
- Set up a new ICT infrastructure office
- A help desk or technical worker replaces laptops for a small department
- A small software development team adds a new feature to an internal software application
- A college campus upgrades its technology infrastructure to provide wireless Internet access
- A cross-functional task force in a company decides what software to purchase and how it will be implemented
- A company develops a new system to increase sales force productivity
- A television network develops a system to allow viewers to vote for contestants and provide other feedback on programs
- The automobile industry develops a Web site to streamline procurement
- Project to develops standards for a new communications technology

Terms and definitions Cont….:

- **What is Software Project**

  - Is the complete procedure of software development from requirement gathering to testing and maintenance, carried out according to the execution methodologies, in a specified period of time to achieve intended software product.

- **What is An *activity* or *task***
  - is the smallest unit of work effort within the project and consumes both time and resources which are under the control of the project manager.
    - A project is a sequence of activities that has a definite start and finish, an identifiable goal and an integrated system of complex but interdependent relationships.

Terms and definitions Cont….:

- What is *A **schedule***
  - allocates resources to accomplish the activities within a timeframe. The schedule sets priorities, start times and finish times.
  - A logical sequence of activities with their start time and finish time.
- **A Project vs a Program**
  - A project differs from a program in that "a program is a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually

Terms and definitions Cont….

Project vs an Operation

- The operations of an organization are continuing and repetitive activities that are executed to achieve its mission and sustain the business, but without a definable end to their performance and without a unique output—that is, it is not produced or provided only once.

Project vs. Program Management

- What's a 'program'?
  - Mostly differences of scale
    - Often a number of related projects
    - Longer than projects
- Definitions vary

- **Project vs Process**
  - ***The project is referred to as a process***
    - **A temporary process**, which has a clearly defined start

Projects	Process work
One-off task	Varies little day -to-day
Specific deliverables	Measured by quantity produced
Time restrictions	On- going work
Many tasks	Tasks fit within functional boundaries
Multi-function teams	Interfaces between functional departments well defined

Terms and definitions Cont….:

- **Project Management**

- Project management is a method, a discipline, and a process.

Def1

- *"Project management is the process of the application of knowledge, skills, tools, and techniques to project activities to meet project requirements."*

Def2

- *Project management is the discipline of planning, organizing, securing, and managing resources to achieve specific goals.*

Project Management Vs Process Management

- Project Management
  - Project management is the process of scoping, planning, staffing, organizing, directing, and controlling the delivery of an acceptable product e. g. system at a minimum cost within a specified time frame

- Process Management
  - Is an ongoing activity that documents, manages the use of, and improves an organizations chosen methodology (the "process") for system development
  - Process management is concerned with the activities, deliverables, and quality standards to be applied to all project

Terms and definitions Cont….:

System

As set of interrelated entities or elements designed or structured to achieve an implicit or explicit objective.

Development Process

The procedures which order and govern the task necessary to produce a system within a set of imposed constraints.

A process

- *is a system of operations perfumed in order to produce something*
- ***a series of actions changes or functions that achieve an end result.***

A process Cont…

- When applied to information systems, the development process will be the means of delivery of the required system.

- It can thus be defined as:
  - ***The set of activities method, practices and transformations used to determine what is needed from the system***

–the **problem situation** – and **to design**,

– **acquire**, **test** and **implement a solution** to this situation, **including all its necessary documentation**.

: Terms and definitions Cont….:

- ***Software Engineering***
  - *The establishment and use of sound engineering principles in order to acquire software which is fit for its intended purpose.*
    - **Software Engineering.** This can be defined in any ways, but all of them imply the essential elements of any engineering discipline:
      - ***Method*** :- a way of doing things;
      - ***Tools*** :- to support the chosen method;
      - **Procedures** :- defining the sequence of activities.
        - » All of these are combined in order achieve a given and agreed objective- namely the
- ***Stakeholder***
  - *An individual, group, organization or institution that can affect – or be affected by – a system.*

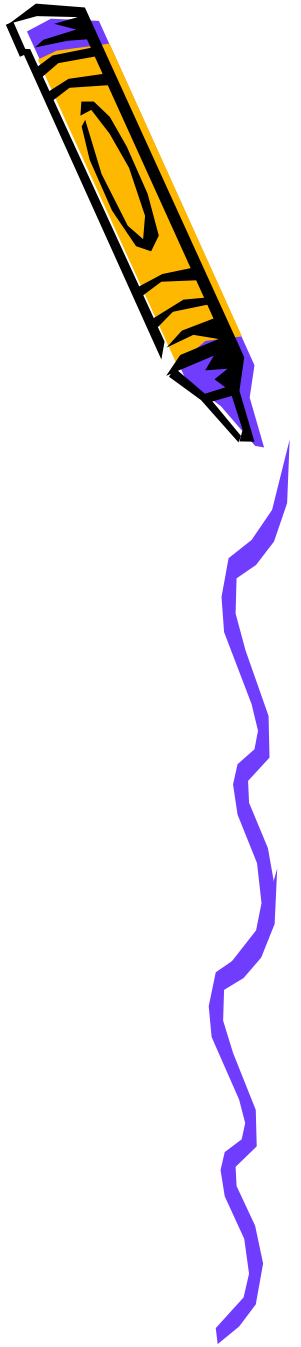
Terms and definitions Cont….:

- **What is Software?**
  - *Software is the set of instructions which make a computer do things.*
  - Software is the program and all associated documentation and configuration data which is needed to make these programs operate correctly.
- ***A software system comprise of***
  - A number of separate programs
  - Configuration files that are used to set up these programs
  - Systems documentation that describes the structure of the system and,
  - User documentation that explains how to use the system and,

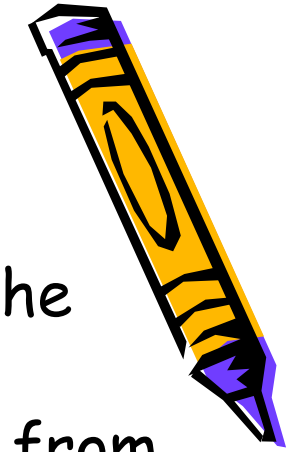
Software cont…..

- ***What Is Software Project Management?***
  - *Software project management encompasses the knowledge, techniques, and tools necessary to manage the development of software products.*
- **Software Project Vs Other Projects**
  - *Is software Project same as other project?*
  - *Software projects have several properties that make them very different to other kinds of engineering project.*
- **Why is it different?**
  - Novel/unexplored
  - Permanently changing-Technology changes very fast
  - The software is intangible
  - Artificial (mystique).

Software cont…..



- **How is it built?**
  - The development lifecycle –SDLC
  - Strategy /feasibility
  - Requirement capture
  - Design
  - Build
  - Test
  - Implement
  - Maintain



- **The System Development lifes cycle**
  - A lifecycle model is a means of describing the tasks and their related products (or deliverables) which go to makeup a project, from the point of the initial concept to delivery and subsequent maintenance of the completed system.
    - The activities which comprise the building software – based information system are normally described in terms of the development lifecycle, as part of the software process. There are many different lifecycle models which can be used, and these discussed later in the Unit.
    - All of them, however, address the entire process of delivery of a system which meets a business need, from the establishment of that need by the strategic planning process through to the implementation and subsequent maintenance of the full system.

Software Project mngmt cont..

- **Need of software project management**
  - Software is said to be an intangible product. Software development is a kind of all new stream in world business and there's very little experience in building software products.

  - Most software products are tailor made to fit client's requirements. The most important is that the underlying technology changes and advances so frequently and rapidly that experience of one product may not be applied to the other one. All such business and environmental constraints bring risk in software development hence it is essential to manage software projects efficiently.

Software Project mngmt cont..

- It is an essential part of software organization to deliver quality product, keeping the cost within client's budget constrain and deliver the project as per scheduled.
- There are several factors, both internal and external, which may impact this triple constrain triangle. Any of three factor can severely impact the other two.
- Therefore, software project management is essential to incorporate user requirements along with budget and time constraints.

Software Project mngmt cont..

- **Software Management Activities**
  - Software project management comprises of a number of activities,;
    - planning of project,
    - deciding scope of software product,
    - estimation of cost in various terms,
    - scheduling of tasks and events, and
    - resource management.

    Project management activities may include:

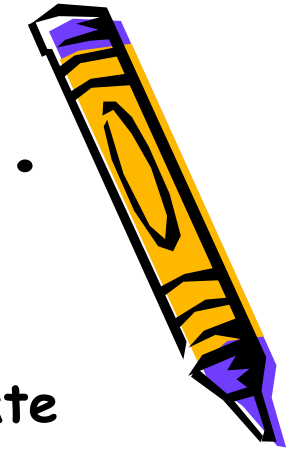
    a. **Project Planning**
    b. **Scope Management**
    c. **Project Estimation**

Software Project mngmt cont..

Why do projects go wrong?

- There can be many reasons why projects go wrong. The most common reasons are as follows:
  - Project goals are not clearly defined
  - There can be constraints on the completion of projects arising from the different objectives of:
    - » Short time scale
    - » Resource availability
    - » Quality factors
    - » Human factors

Why do projects go wrong?Cont..



- **Problems with Project Goals**

  1. The **project sponsor or client has an inadequate idea of what the project** is about at the start.

  2. There may be a ***failure of communication between the client and the project manager***. The may be due to a lack of technical knowledge on the part of the client or an overuse of jargon by the project manager.

  3. Specifications may be subject to constant change. This may be due to problems with individual clients, decision making processes at the client end, or environmental changes. For example the government may change the basic "rules of the game" before the completion of the project.

Why do projects go wrong?Cont..

4. The project goals may be unrealistic and unachievable, and it may be that this is only realised once the project is under way.

5. The client may become carried away with the idea of the project and may be unable to see clearly what can be achieved.

6. Projects may be highly complex and may have a number of objectives that actually contradict each other.

- two stages which can help in ensuring that goals are properly defined and achievable:

  1. Ensuring that the client specification is clear and understandable. To do this you must first of all establish the objectives of the project. It would help to ask the following questions:

  2. Preparation of a Project overviews (Project brief).

Causes of Project Failure/Barrier

1. Failure to establish upper-management commitment to the project i.e. ensures the senior management is committed to project.
2. Lack of organization's commitment to the system development methodology
   - need for development method and software functions
   - establish standards, concerned with quality or standards
3. Taking shortcuts through or around the system development methodology e. g. walkthrough- take short cuts around it
4. Poor expectations from management e.g. – not clear on deliverablesplanning not well done
5. Premature commitment to a fixed budget and schedule
6. Poor estimation techniques
7. Over-optism e.g.
   - Wrong assumption
   - High estimation

Causes of Project Failure/Barrier Cont..

8. Inadequate people management skills
9. Failure to adapt to business change- Requirement change.
10. Insufficient resources
11. Failure to manage resources and the plan - failure of control
12. Poor requirements capture
13. Operational environment unconsidered
    - Uncontrolled change
14. Lack of project plan and / or failure to adhere to project plan
15. Unknown risks
16. Poor estimation
    - External constraints
17. In appropriate testing
18. Inappropriate process
19. Lack of project plan and / or failure to adhere to project plan
20. Poor communication;
21. Disagreement;
22. Misunderstandings;
23. Union strikes;
24. Personality conflicts;
25. Poor management; and
26. Poorly defined goals and objectives.

Characteristics of Successful Projects

1. **Clear objectives-**

-The most successful projects have clearly defined objectives from the outset.

2. **A good project plan**

A carefully thought-out plan serves two purposes. First, it allows everyone involved to understand and perform their part in the project. It shows who is responsible for what and estimates how much money, people, equipment and time will be required to complete the project. Second, it serves as a monitoring tool, allowing you to take early action if things go wrong.

3. **Communication, communication, communication**

- Your project is a collaborative effort between all of the individuals and organizations involved. You all need to work together to maintain effective and continual communication between the parties.

4. **A controlled scope**

- Numerous issues will come up throughout your project, and not all of them will contribute to your overall objectives. It is important to stay focused on your priorities, with little wasted time or attention.

5. **Stakeholder support**

6. Projects typically involve several stakeholders, who invest time and resources in the project. It is important to maintain stakeholder support throughout the project, so the project team can meet its

6. Participation

- People who are part of the project should be involved at every stage, from the initial needs assessment through to monitoring. A participatory and demand - driven approach increases the impact of ICTD activities.

7. Local ownership and capacity development

- For projects to be sustainable, they must be locally owned and accompanied by human and organizational capacity development.

8. Mix of technology

- The choice of technology will depend largely on the context of use. The relationship between the user or audience and the specific media type also needs further exploration. The potential pro -poor impact of any ICT is determined by appropriate choice of technology.

9. Multi-stakeholder partnerships

- Multi-stakeholder partnerships are an appropriate response to the complexity of this task in view of the need for increased resources and the fact that development is the responsibility of all sectors of society with multi -level linkages.

10. Alignment

- The potential benefits for the poor are more likely to be realized when ICTD activities are aligned with the larger demand-driven development efforts of partners, particularly those related to poverty reduction.

11. Institutional ownership and leadership

- A sense of ownership by and leadership of partner institutions are important. Although successful ICT pilot programmes are often driven by individuals, there must also be an institutional base to extend the project's reach and increase the number of people involved.

12. Competitive enabling environment

- An enabling ICT policy environment includes respect for freedom of expression, diversity and the free flow of information, completion of ICT infrastructure provisions, including in the last mile, and investment in service development, including local content and the adoption of open source solutions.

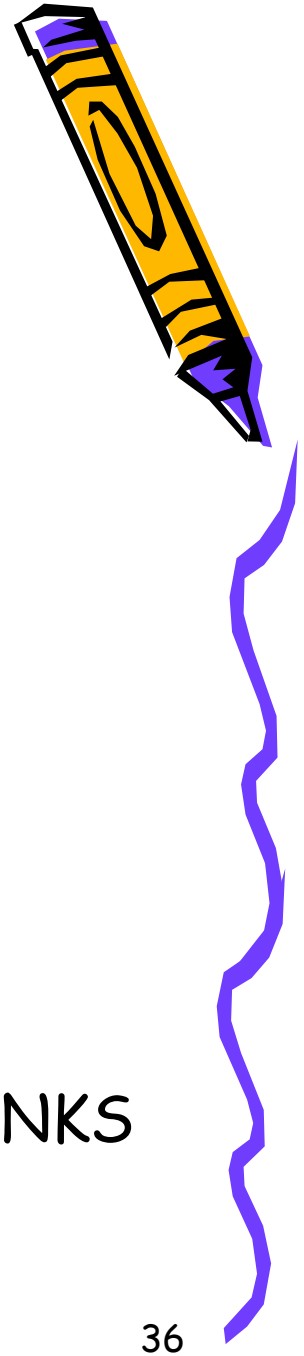
13. Financial and social sustainability

- In order for projects to be financially sustainable, all potential costs and revenue generation should be included in the planning process from the start. The issue of social sustainability is of equal importance and is secured through local ownership and capacity building. It is essential for both social and financial sustainability to be considered.

14. Risk considerations

- Possible and unforeseeable negative impacts need to be taken into account and carefully monitored, including watching out for how the benefits of ICT-supported interventions may be unequally distributed or even have the opposite of their desired effect – i.e. deepening economic, social and cultural divides rather than reducing poverty

The end



Q and A

THANKS