# To Get to the Essence of a Project

- Why is the system being developed?

- What will be done?

- When will it be accomplished?

- Who is responsible?

- Where are they organizationally located?

- How will the job be done technically and managerially?

- How much of each resource (e.g., people, software, tools, database) will be needed?

NOT the Model you want!

Inputs →

Code & Test

Outputs →

Do Until
Done
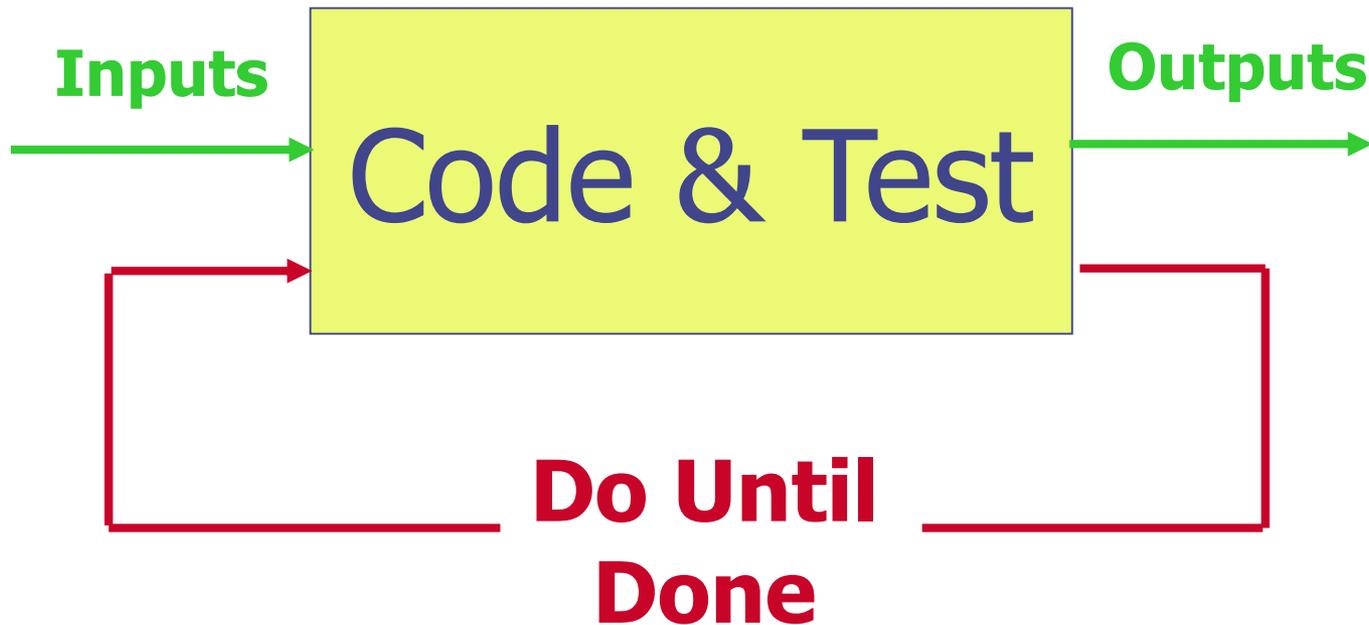
Product Development
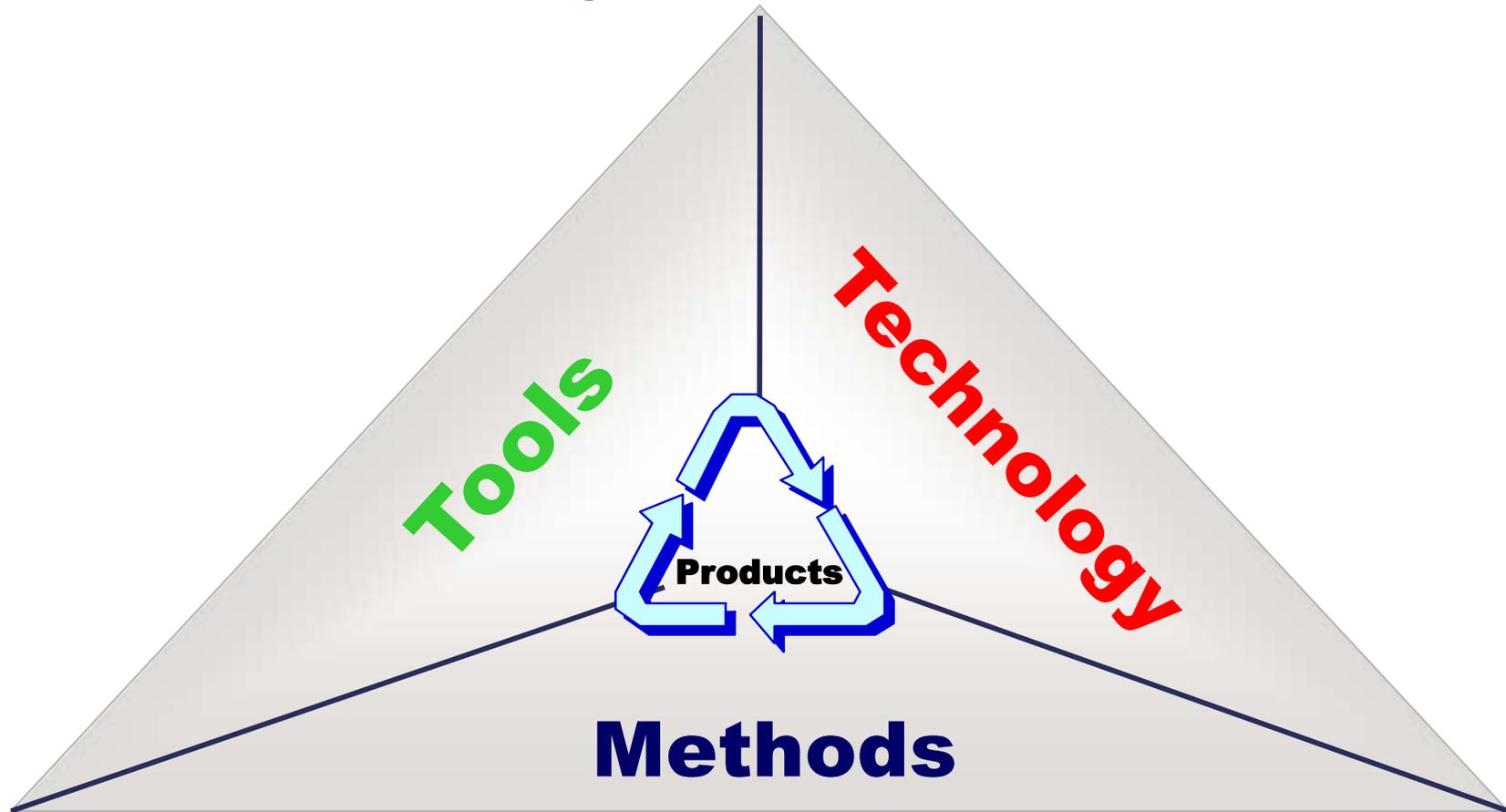
A Quick Level Set

◆ Technology

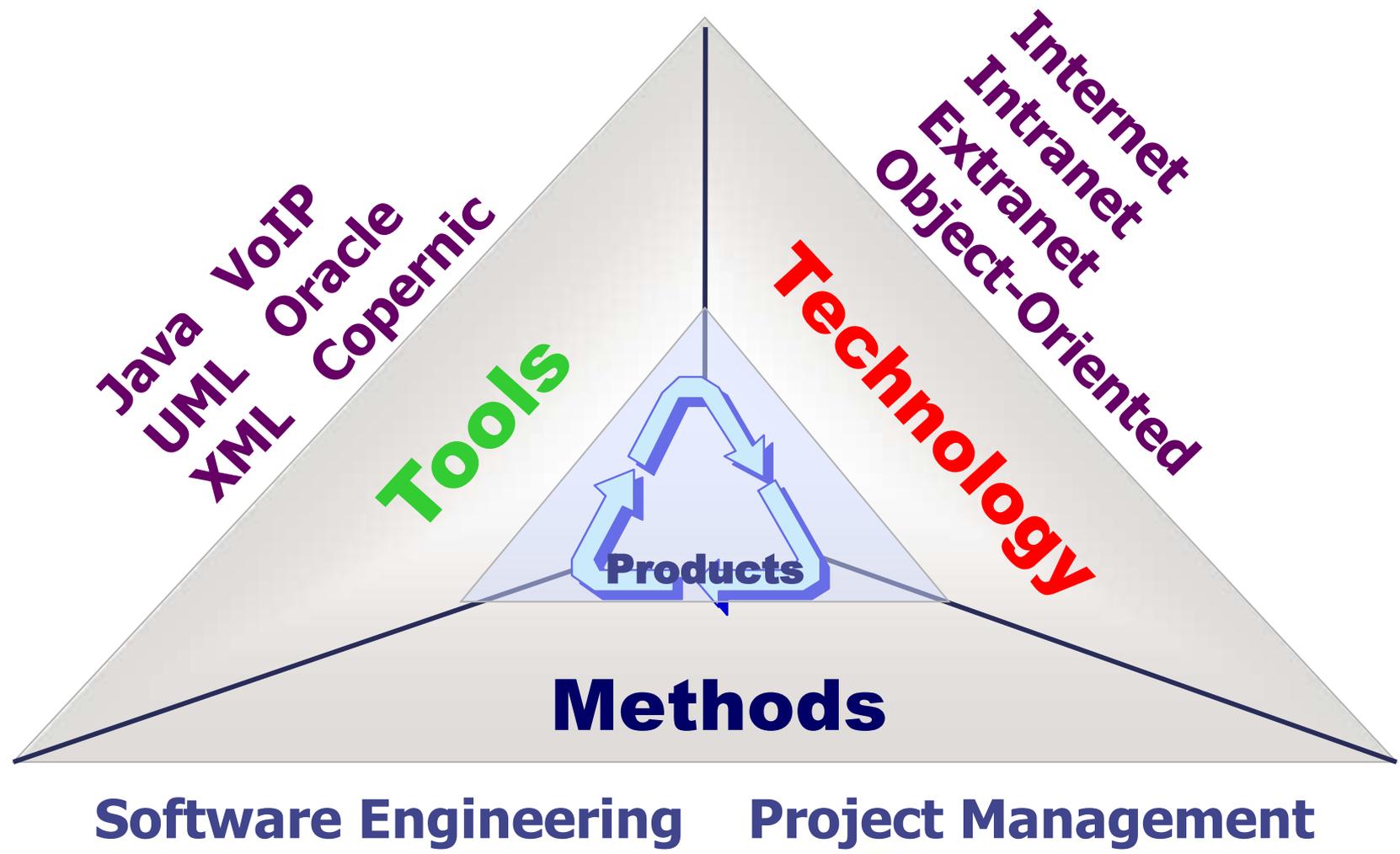- Application of scientific knowledge in industry or business

◆ Tool

- An implement or machine used to do work or perform a task.

◆ Method

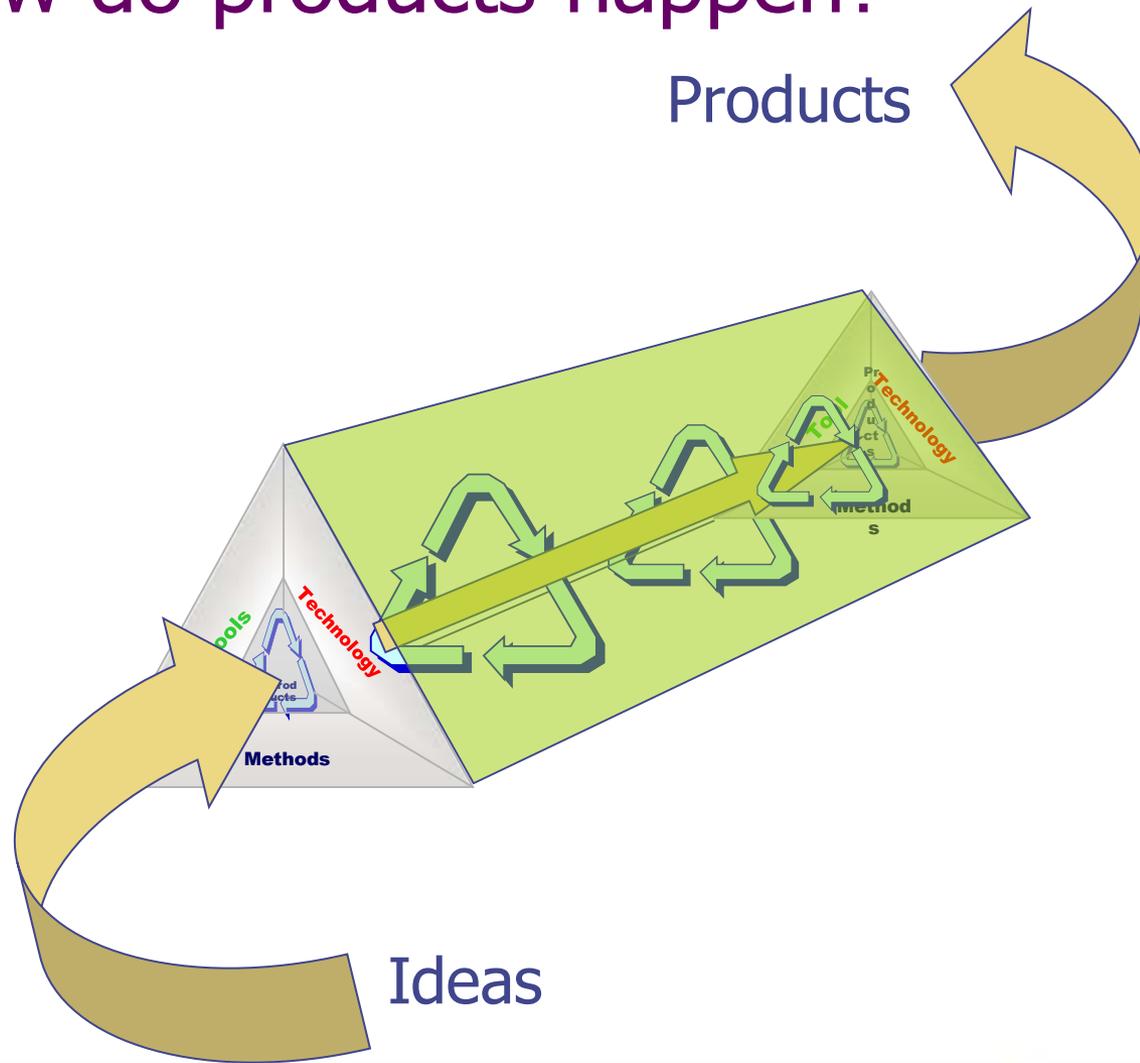- A manner, means or process for accomplishing something.

What's in each segment?

Java VoIP Oracle Copernic
UML XML

Internet
Intranet
Extranet
Object-Oriented

Tools

Technology

Products

Methods

Software Engineering   Project Management

How do products happen?

Products

Technology

Tool

Methods

Technology

Tools

Prod ucts
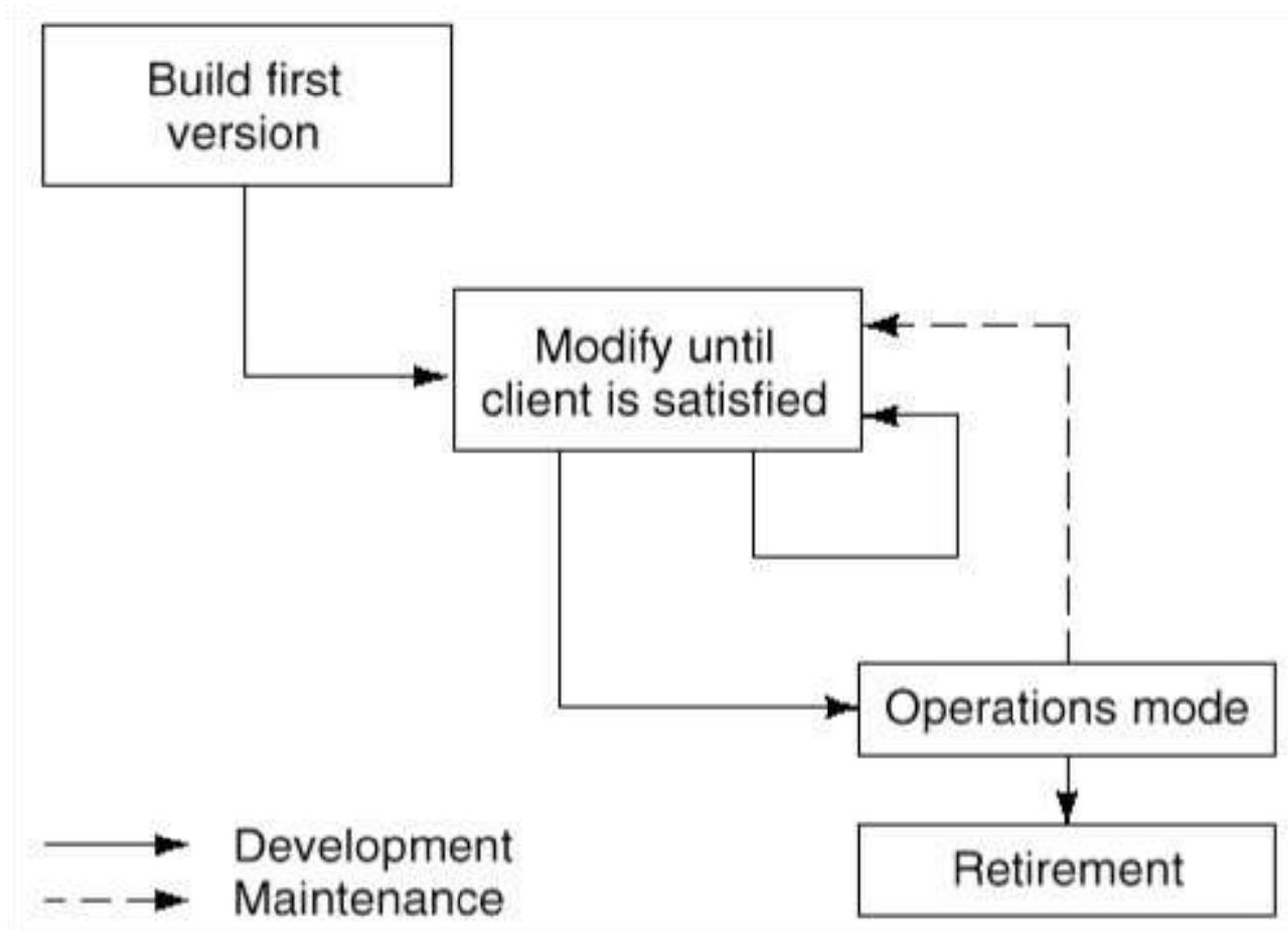
Methods

Ideas

Project Management Mitigates the Front End Risks
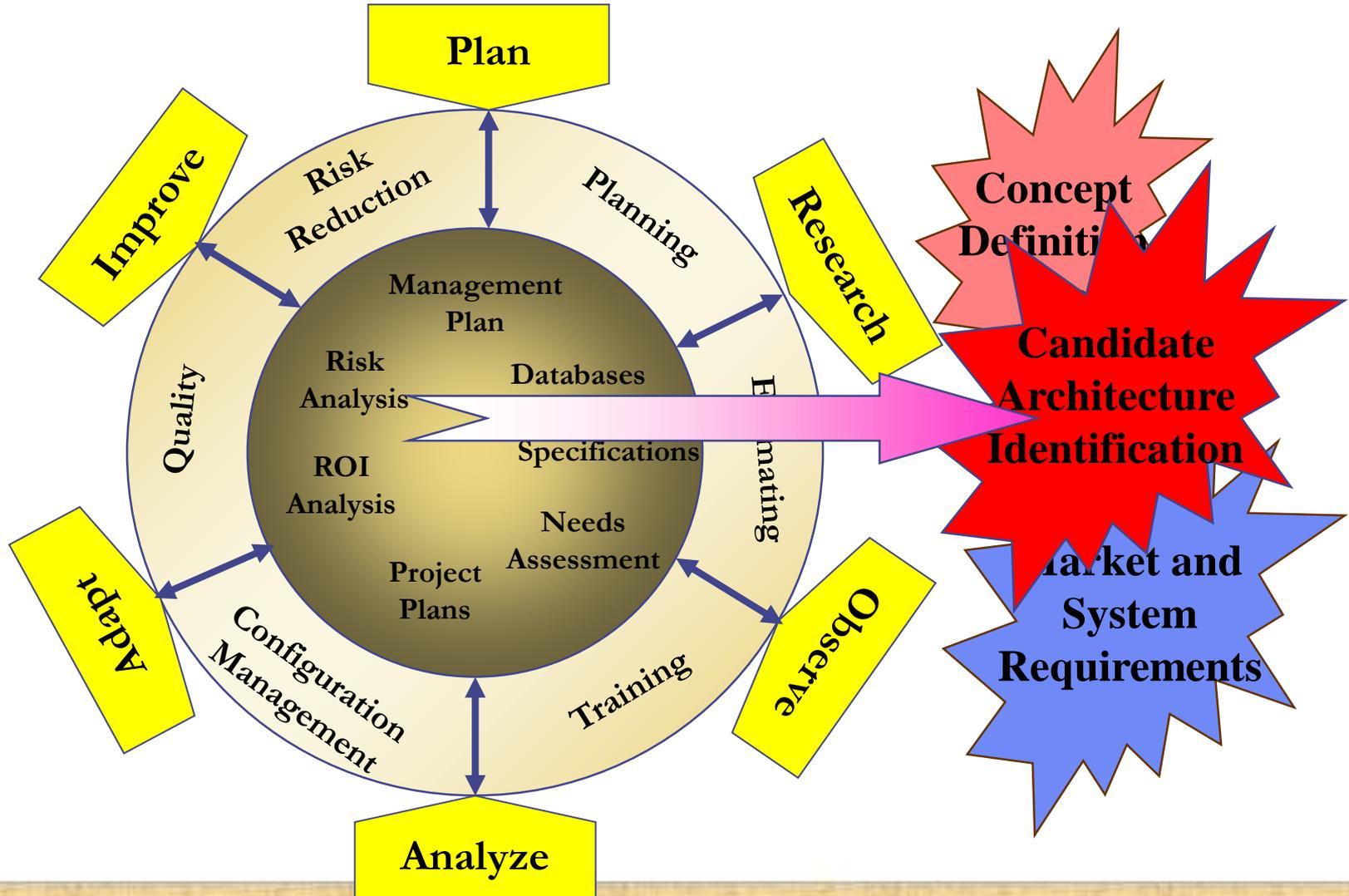
Defining Your Life Cycle Model

1) Become familiar with the various models
2) Review, analyze the type of work: development, enhancement, maintenance, etc.
3) Review project criteria
4) Identify a minimum set of phases
5) Identify phase activities
6) Establish a minimum set of deliverables
7) Define templates and content guides for deliverables
8) Evaluate progress and effectiveness of the life cycle framework
9) Implement improvements

Build and Fix

Life Cycle Model

Basic System Life Cycle Model

A Good Manager Measures

process

measurement

process metrics

project metrics

product metrics

product

What do we use as a basis?
- size?
- function?
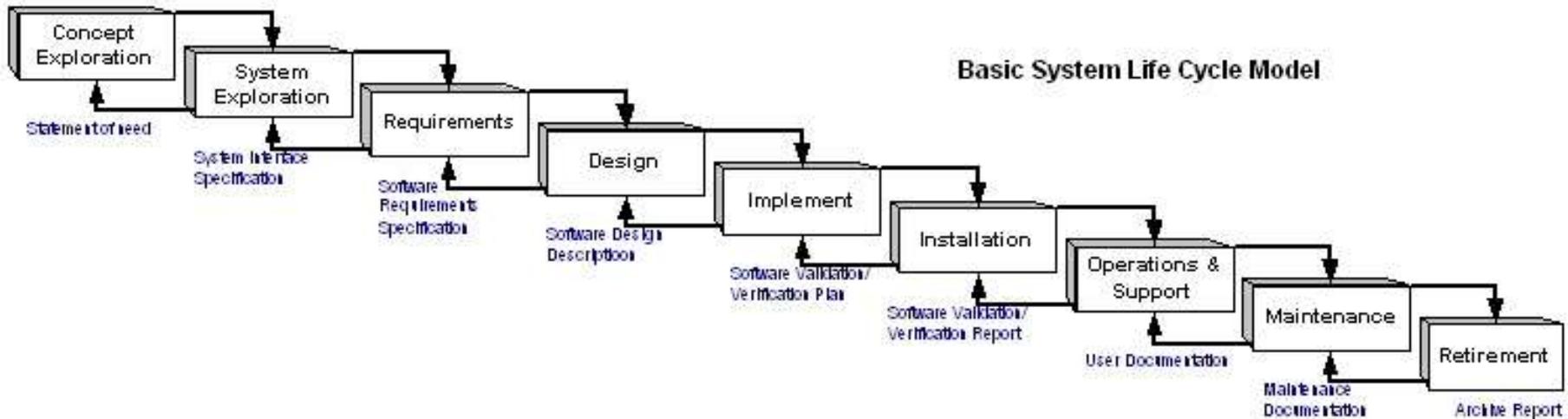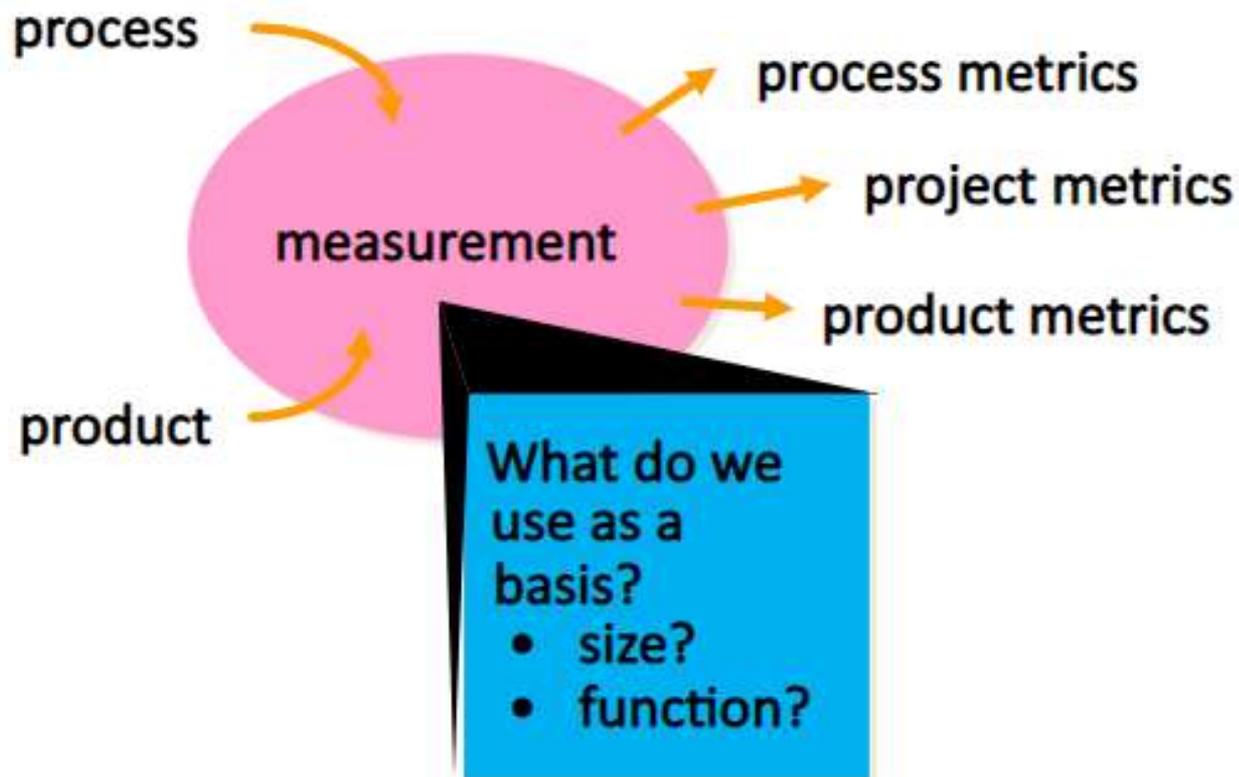
Why Do We Measure?

- assess the status of an ongoing project

- track potential risks

- uncover problem areas before they go "critical,"

- adjust work flow or tasks,

- evaluate the project team's ability to control quality of software work products.

Process Metrics

- **Quality-related**
  - focus on quality of work products and deliverables
- **Productivity-related**
  - Production of work-products related to effort expended
- **Statistical SQA data**

  - error categorization & analysis
- **Defect removal efficiency**

  - propagation of errors from process activity to activity
- **Reuse data**

  - The number of components produced and their degree of reusability

Typical Project Metrics

- **Effort/time** per software engineering task

- **Errors** uncovered per review hour

- Scheduled vs. actual milestone dates

- **Changes** (number) and their characteristics

- Distribution of effort on software engineering tasks

Real Web Project Metrics

Series 1
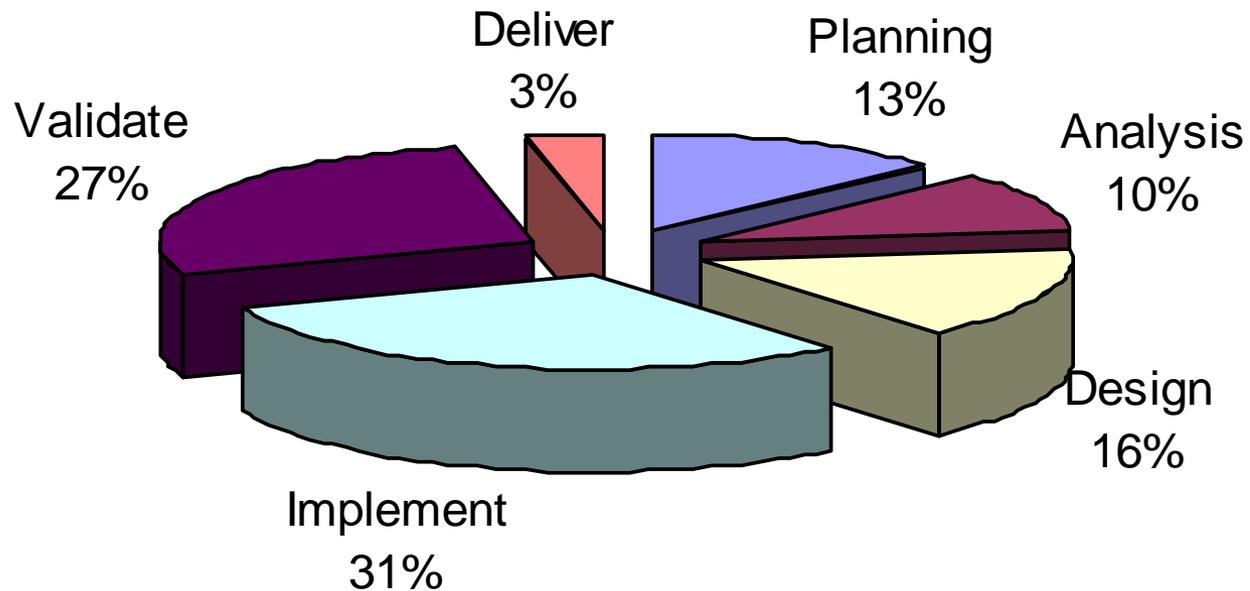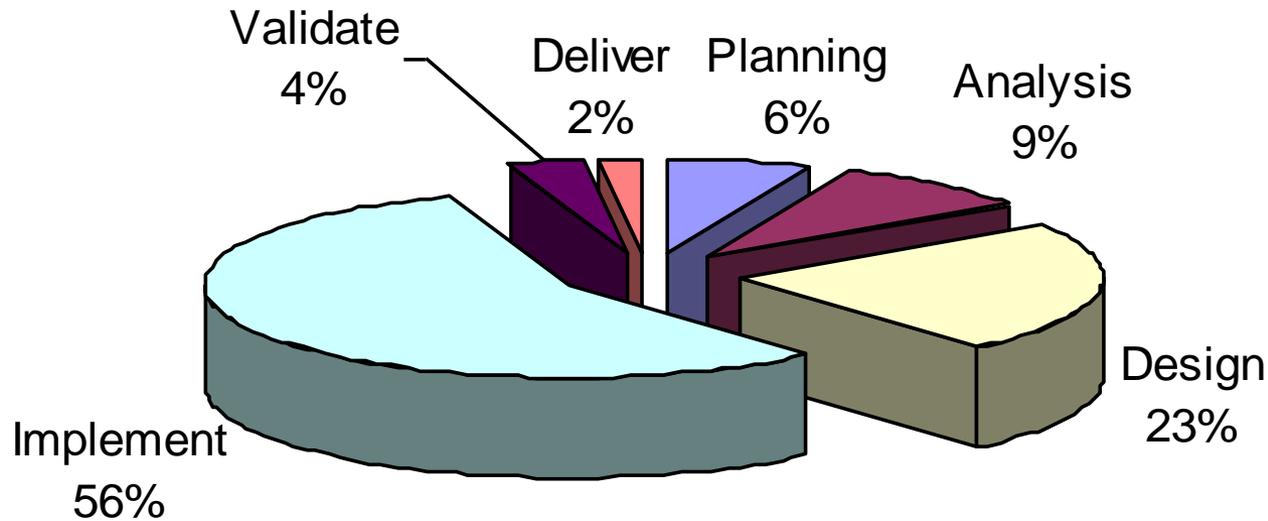
- Deliver 3%
- Planning 13%
- Analysis 10%
- Validate 27%
- Design 16%
- Implement 31%

Real Web Project Metrics

Series 2

Validate 4%
Deliver 2%
Planning 6%
Analysis 9%
Design 23%
Implement 56%

Real Web Project Metrics

Series 3

Pie chart with segments: Deliver 1%, Planning 1%, Validate 1%, Analysis 10%, Design 23%, Implement 64%

Real Web Project Metrics

Series 4

Validate 0%
Deliver 1%
Planning 2%
Analysis 1%
Design 18%
Implement 78%
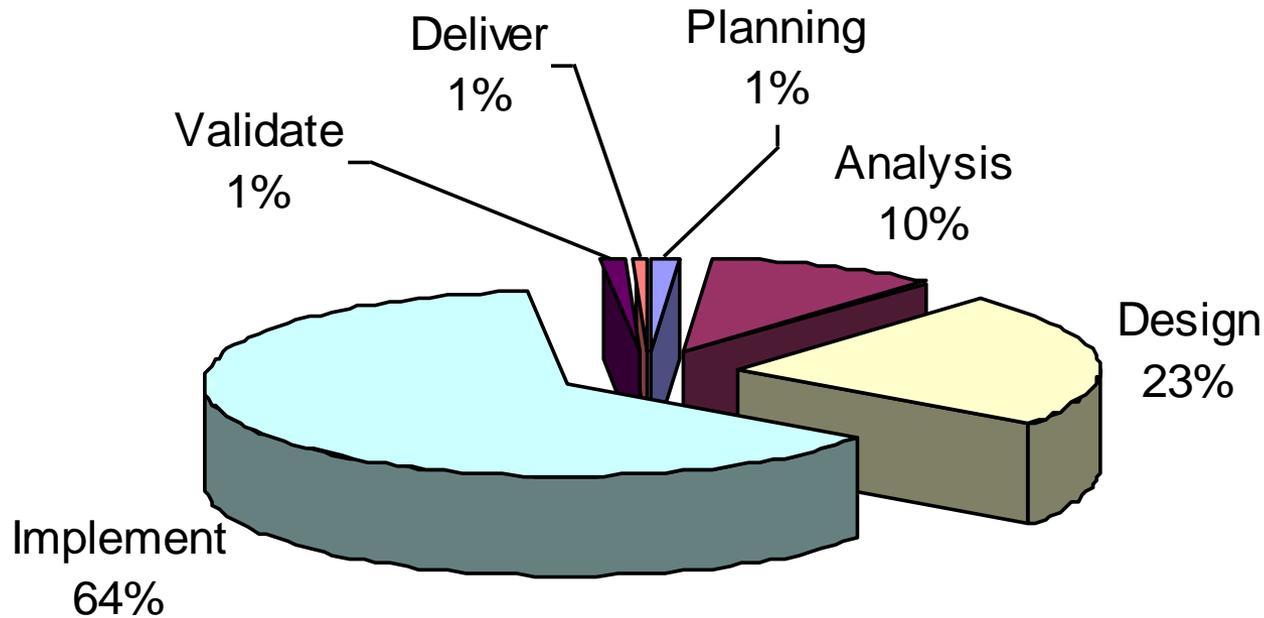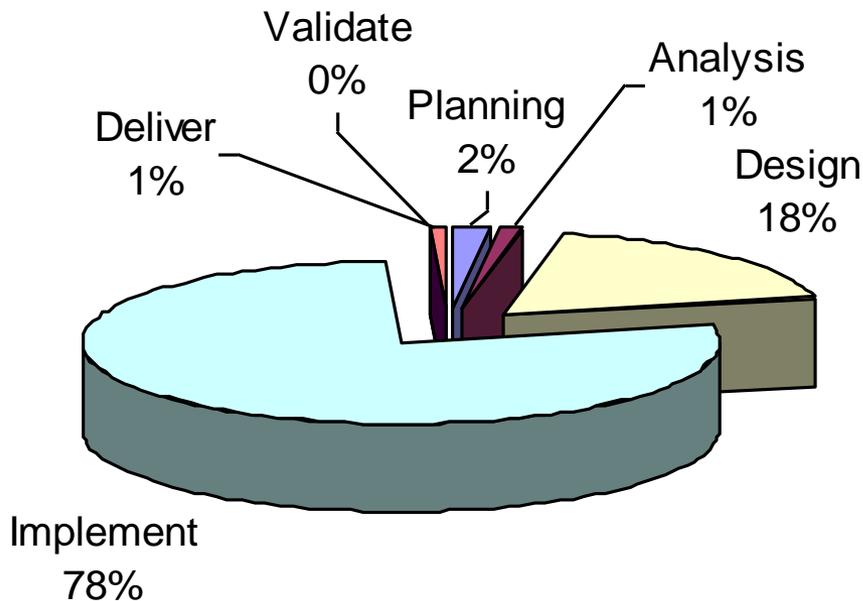
Best Practices that Work

1. Define your life cycle
2. Set up a metrics system
3. Formalize project management
4. Develop a prototyping process
5. Institute reviews and inspections
6. Implement non-invasive configuration management
7. JAD with your customers

Best Practices that Work

8.   Evolve to an object-oriented model

9.   Embrace modeling with UML

10. Build early and often

11. Build anywhere

12. Communicate, communicate, communicate

Development Project Types

➡ Agriculture & Rural Development   ➡ Fisheries

➡ Forestry   ➡ Irrigation

➡ Environmental Protection

➡ Housing & Urban Development

➡ Health & Family Planning

                                            ➡ Roads/Bridges/Ports

➡ Marketing   ➡ Public Administration

➡ Banking & Capital Market Development

➡ Education & Training

➡ Power Generation

Types of Projects
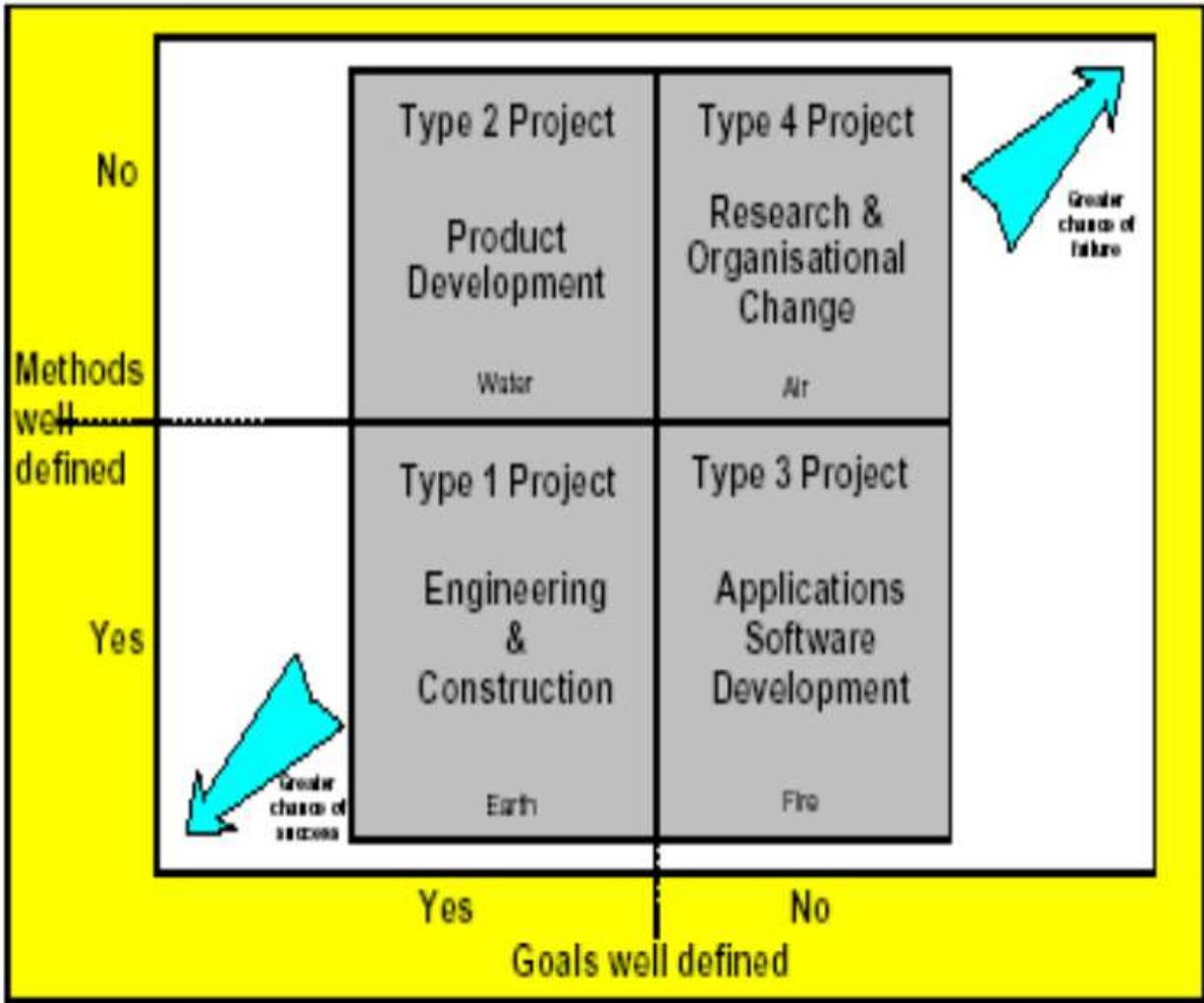
Example of AGRICULTURAL Projects

- <u>PROJECT</u>: Immediate Deliverables

  Irrigation Systems *Built*

  Irrigation Service Associations *Formed*

  Technical Extension Services *Provided*

   Farmers *Trained*

  Seed, Fertilizer, Credit *Provided*

- <u>PROGRAM</u>: Sustainable Results Intended

  Increased Productivity & Production

  Increased Farm Family Incomes

  Increased Food Availability

Example of HEALTH Projects

- **PROJECT**: *Immediate Deliverables*

  Health Clinics/Facilities *Built*

  Doctors & Nurses *Trained & Deployed*

  Village-Level Health Workers *Trained*

  Information/Education Campaigns *Conducted*

  Drugs/Medical Supplies/Transportation *Provided*

- **PROGRAM**: *Sustainable Results Intended*

  Increased Usage of Health Facilities

  Improved Community Health Status

  Improved Capacity for Productive Work

Definition of a Project

To talk about project management, we first need to be sure we know what we mean by a project. Although the term is widely used, and we all think we know what it means, producing an adequate short definition is very difficult. This is because the border line between something which is a project and something which is not is rather poorly defined.

We can therefore use a very general definition such as the Oxford English Dictionary which defines a project as: *Plan, scheme* This is so vague as to be unhelpful in trying to look at project management.   Alternatively we can try to make things as specific as possible. Some examples of definitions from literature on project management are:

An activity (or, usually, a number of related activities) carried out according to a plan in order to achieve a definite objective within a certain time and which will cease when the objective is achieved.

A collection of linked activities, carried out in an organized manner, with a clearly defined start point and end point to achieve some specific results desired to satisfy some clearly defined objectives.

A group of activities that have to be performed in a logical sequence to meet pre-set objectives outlined by the client.

It may make it easier to define if we instead list the characteristics of a project, which would include:

- a start and a finish date
- a budget
- activities which are essentially unique and not repetitive
- roles and relationships which are subject to change and need to be developed, defined and established
- a life cycle (which we will examine later)

Project ....explanations

- Performed by people.

  - Constrained by limited resources.

    - Planned, executed, and controlled.

    example:
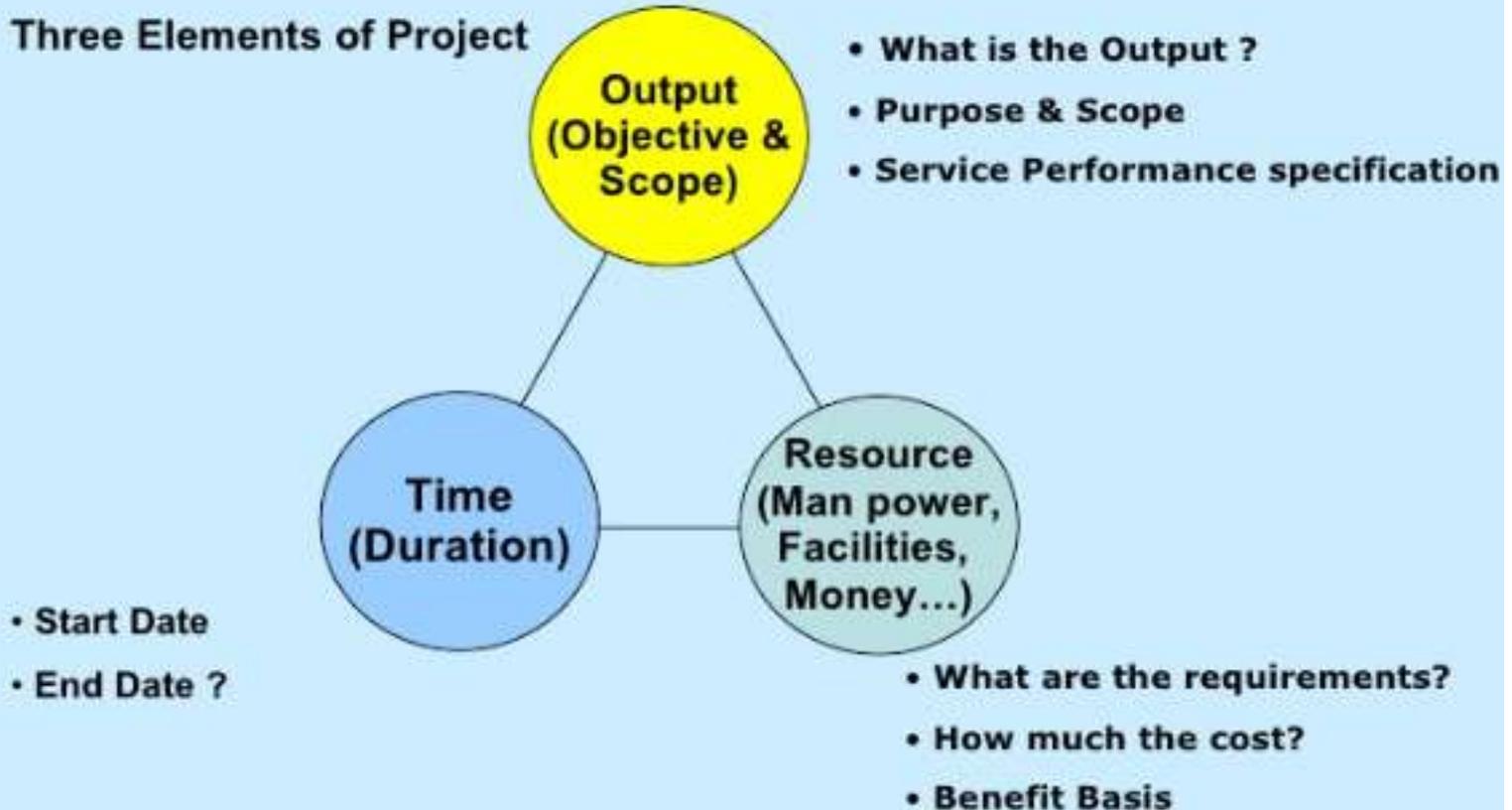
. Developing a new or service.

. Effecting a change in structure, staffing, or style of an organization.

. Designing a new transportation route.

. Developing or acquiring a new or modified information system.

. Constructing a building or facility.

. Building a water system for a community.

. Running a campaign for political office.

. Implementing a new service procedure or process.

What is a Project?

Three Elements of Project

Output (Objective & Scope)

Time (Duration)

Resource (Man power, Facilities, Money...)

- What is the Output ?
- Purpose & Scope
- Service Performance specification

- Start Date
- End Date ?

- What are the requirements?
- How much the cost?
- Benefit Basis

Project Plan

- A **project plan** is "A formal, approved document used to guide both project execution and project control. The primary uses of the project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. A project plan may be summary or detailed."

- "a statement of how and when a project's objectives are to be achieved, by showing the major products, milestones, activities and resources required on the project".

Project Plan. What it is and is not ?

Initiate	Plan	Execute	Control	Close

Project Plan means devising and maintaining a workable scheme to accomplish the business/ service/ development need that the project was undertaken to address.
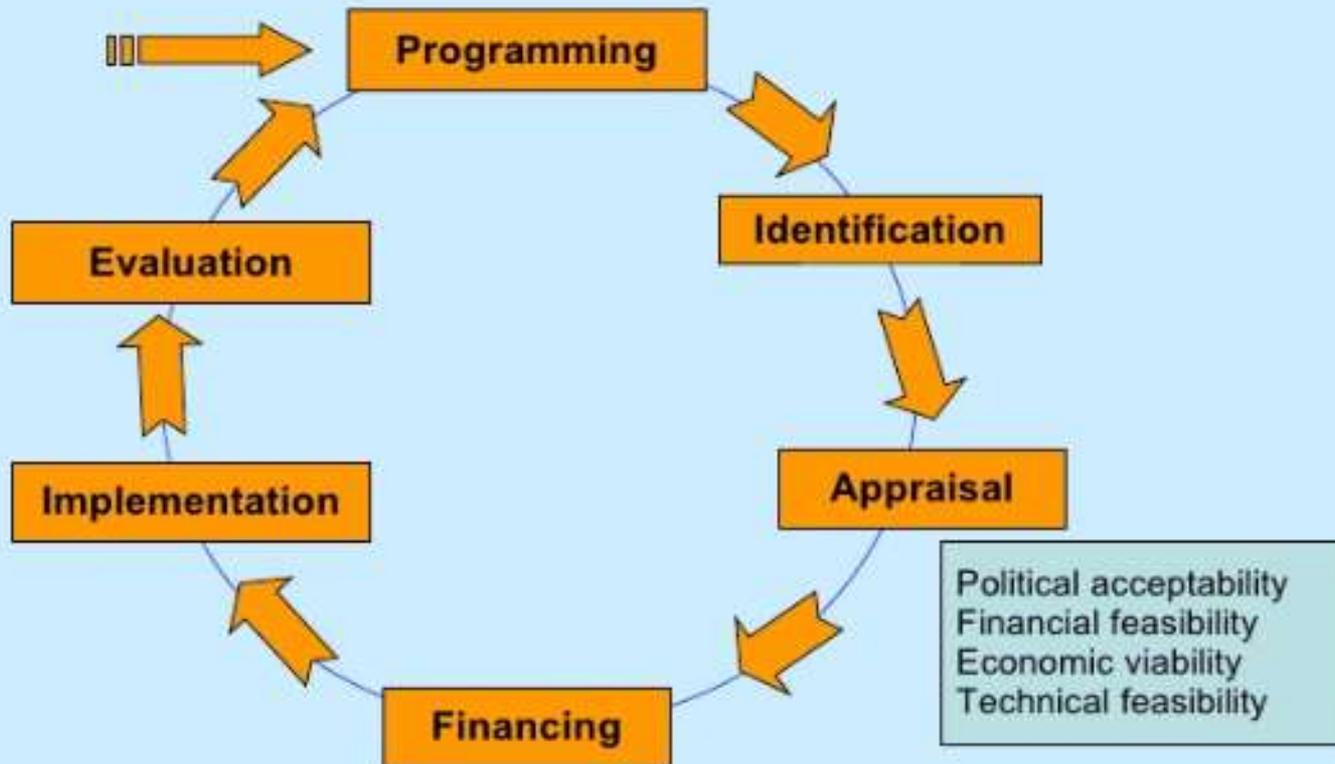
- Project Plan is the work plan, not the work.

- Project Plan is a definition of needed work and resources

Project Objectives

- Project objectives define target status at the end of the project, reaching of which is considered necessary for the achievement of planned benefits. They can be formulated as S.M.A.R.T.

- Specific,

- Measurable (or at least evaluable) achievement,

- Achievable (recently Acceptable is used regularly as well),

- Realistic and

- Time terminated (bounded).

The evaluation (measurement) occurs at the project closure. However a continuous guard on the project progress should be kept by monitoring and evaluating.

The Project Cycle

Programming

Identification

Evaluation

Appraisal

Implementation

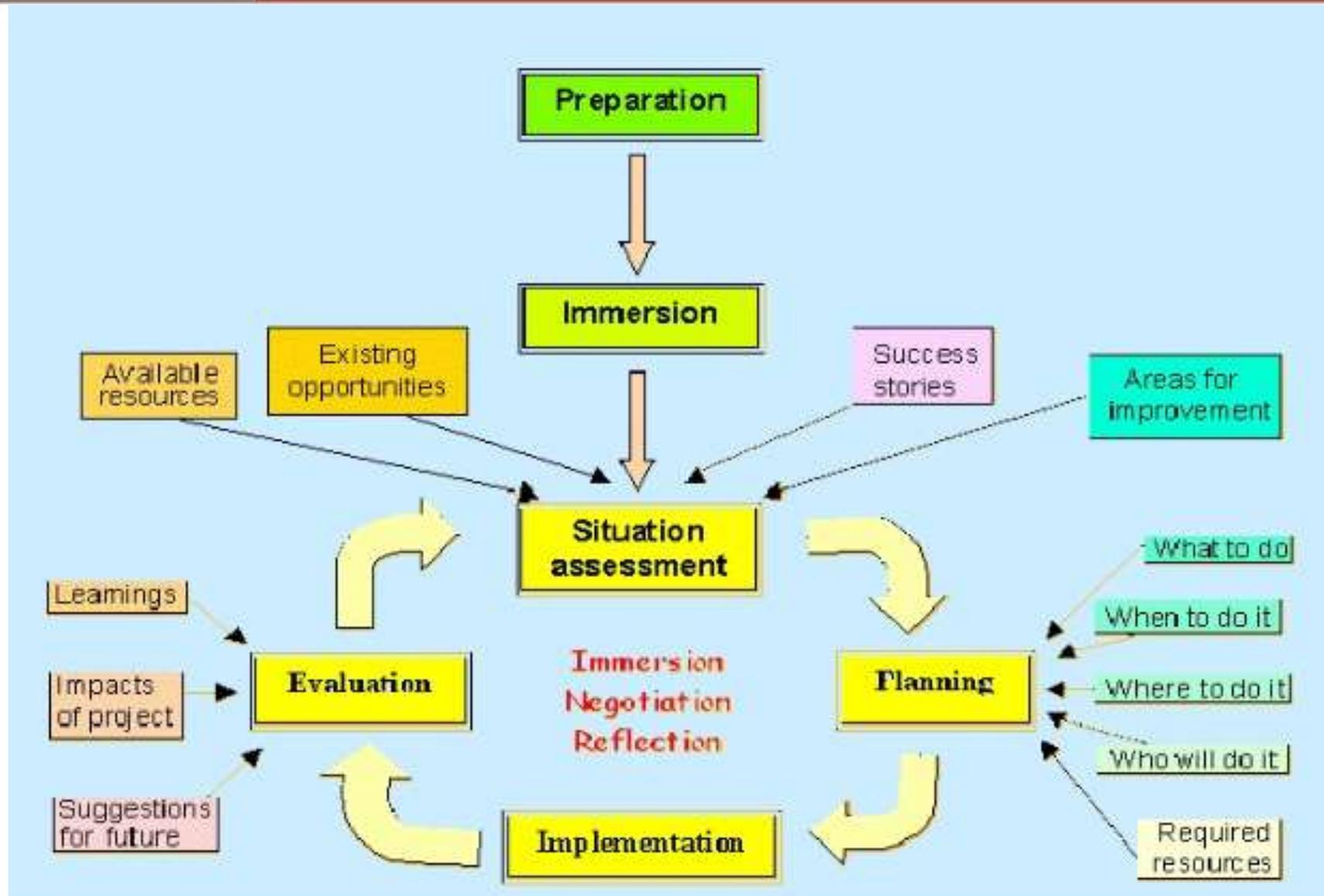Political acceptability
Financial feasibility
Economic viability
Technical feasibility

Financing

The Project Life Cycle

1. **DEFINE**	2 **PLAN**	3. **ORGANISE**	4. **EXECUTE**	5. **CLOSE -OUT**	R E V I E W

Implementation Phase
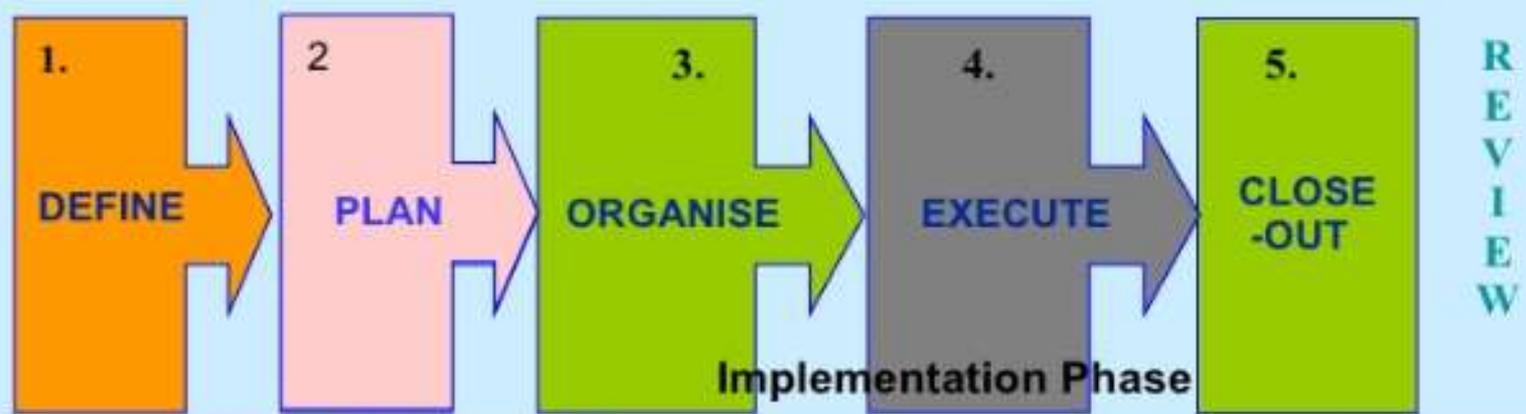
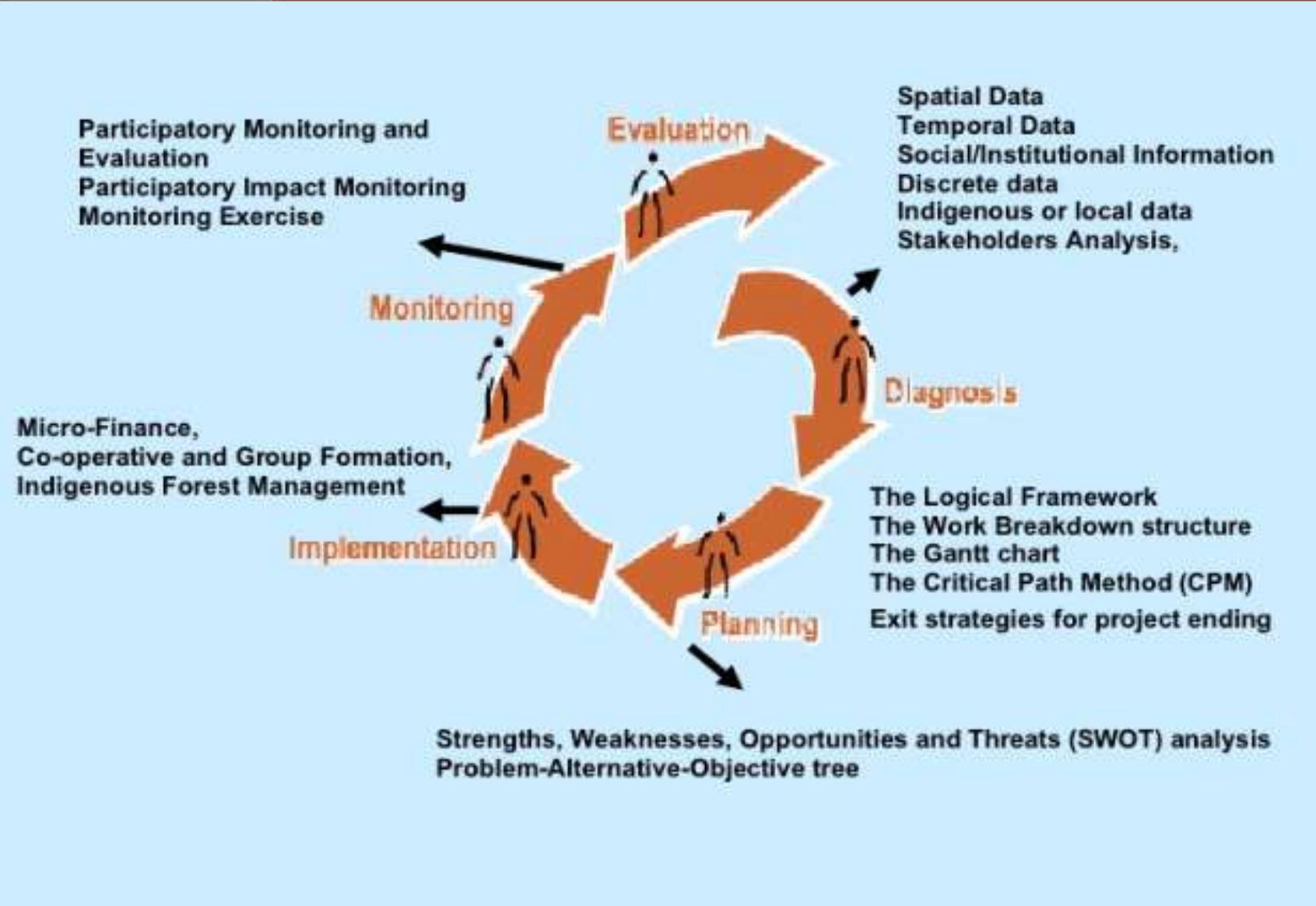| **FEASABILITY PHASE**	**PLANNING PHASE**	**ORGANISING PHASE**	**IMPLEM- ENTATION PHASE**	**COMPLETION PHASE**
•sometimes called scoping •risk is assessed •feasibility tested "GO" or "NO GO" decision made. If "GO" →	•tasks •sequencing •milestones •estimating •budgeting **PROJECT PLAN**	•resources •tools •reviews •reporting •communications	•activities • monitoring: •costs • progress •controlling •quality	• client "hand-over (= acceptance) •complete documentation. •review: sign off •post implementation audit •maintenance •"value assessment"

Participatory Monitoring and Evaluation
Participatory Impact Monitoring
Monitoring Exercise

Evaluation

Spatial Data
Temporal Data
Social/Institutional Information
Discrete data
Indigenous or local data
Stakeholders Analysis,

Monitoring

Diagnosis

Micro-Finance,
Co-operative and Group Formation,
Indigenous Forest Management

Implementation

The Logical Framework
The Work Breakdown structure
The Gantt chart
The Critical Path Method (CPM)
Exit strategies for project ending

Planning

Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis
Problem-Alternative-Objective tree

Project Planning Steps – Needs Analysis