Nadar Saraswathi College of Engineering & Technology

NSCET E-LEARNING PRESENTATION

LISTEN … LEARN… LEAD…

COMPUTER SCIENCE AND ENGINEERING

IV YEAR / VIII SEMESTER

MG6088 – SOFTWARE PROJECT MANAGEM ENT

Dr. A. SOLAIRAJ / A.DURAIMURUGAN , M.E, (Ph.d)

ASSISTANT PROFESSOR

Nadar Saraswathi College of Engineering & Technology,

Vadapudupatti, Annanji (po), Theni – 625531.

UNIT I

WHAT IS THE SOFTWARE PROJECT

Introduction

- ✓ A finite endeavor having specific start and completion dates undertaken to create a qu antifiable deliverable."
- ✓ "Unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requireme nts, including constraints of time, cost and resources"
- ✓ The Key points above are :
- ✓ planned activities.
- ✓ start and finishdates.
- ✓ Objectives.

Architecture Diagram

Jobs versus projects

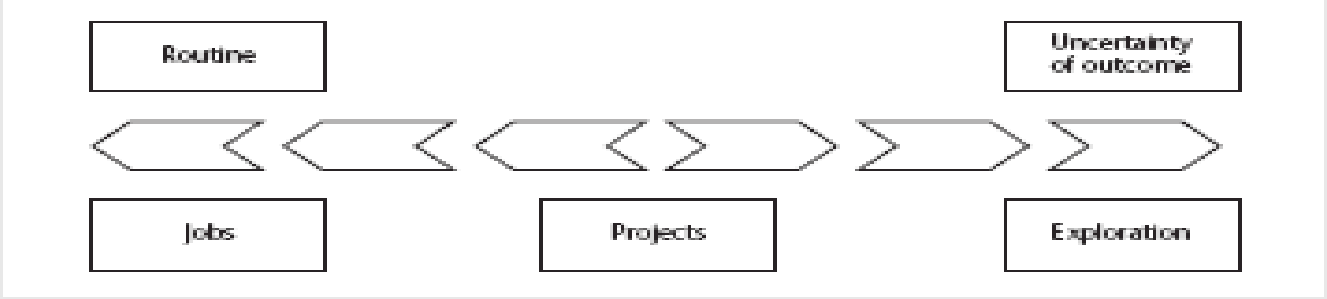


Figure 1.1 Activities most likely to benefit from project management

Characteristics of Jobs

- ✓ 'Jobs'– repetition of very well-defined and well understood tasks with very lit tle uncertainty - 'Exploration' – e.g. finding a cure for cancer: the outcome is v ery uncertain 'Projects' – in the middle!
- ✓ The characteristics of projects are
- ➢ Non-routine.
- ➢ Aiming at a specific target.
- ➢ Work carried out for a customer.
- ➢ Made up of several different phases.
- ➢ Constrained by time and resources.

Are Software Projects Really Different From Other Projects

- ✓ ‘Similar, but with the following characteristics:

- ➢ Invisibility
- ➢ Complexity.
- ➢ Flexibility.

Therefore, software projects are more difficult to build.

Activities Covered By Software Project Management

PHASES	DEFINITION
Initiating/Defining	- State the problem(s) / goal(s) -Identify the objectives -Secure resources -Explore costs/benefits in feasibility study
Planning	- Identify and sequence activities - Identify the “critical path” - Estimate time and resources needed for comp - Write a detailed project plan
Executing	- Start with the actual project work - Commit resources to specific tasks
Controlling	- Establish reporting obligations - Create repair tools - Compare actual progress with baseline - Initiate control interventions if necessary
Closing	- Finalize all obligations/commitments - Meet with stakeholders - Release project resources - Issue final report

Categorizing Projects

- Distinguishing different types of project is important as different types of task need different project approaches
- E.g. Information systems versus embedded systems.
- Objective-based versus product-based

Types Of Information Systems

- Software development.
- Package implementation.
- System enhancement.
- Systems migration.
- Infrastructure implementation.
- Consultancy and business analysis.

Topic

Software Development Projects

Software Development projects

- Similar to other ‘construction’ projects.
- Main difficulty – intangibility of product.

- Project managers need :

  - Flexibility and adaptability
  - Well-developed interpersonal and stakeholder management skills.

Package Implementation projects

- Quicker and cheaper than building a system
- Main challenges for the project manager:
  - Managing series of sub-projects
  - Ensuring suppliers live up to expectations keeping users realist ic about what they will get trade-offs between business needs an d package
- Main difficulties:
  - Selecting the right package.
  - Tailoring to meet specific needs.
  - Integrating with other systems.

System Enhancement Project

- Often handled as ‘business as usual’ but can involve a lot of work.
- Main issues for the project manager:
  - Keeping existing systems operational while enhancements are made
  - Sharing technical staff time between enhancements and day-to-day support
  - Regression testing of enhancements.

Consultancy And Business Analysis

- Main issues:
  - Intangibility of the ‘product’.
  - Difficult to estimate realistically.
  - Shifting the scope of the project.

Systems Migration projects

- Moving existing system to new platform.
  - Users judge success by lack of interruptions.
  - May involve some retraining of users.
  - May also involve some software development for interfaces.

Infrastructure Projects

- Installation of hardware.
- Communications networks.
- Fitting out of computer suites.
- General project management principles apply.
- Specific issues to consider:
  - Need to maintain ‘business as usual’.
  - Supplier management vital.

What Is Management?

This involves the following activities:

- Planning – deciding what is to be done.
- Organizing – making arrangements.
- Staffing – selecting the right people for the job.
- Directing – giving instructions.
- Monitoring – checking on progress.
- Controlling – taking action to remedy hold-ups.
- Innovating – coming up with solutions when problems arise.
- Representing – liaising with clients, users, developers and other stakeholders

Setting Objectives

- Answering the question 'What do we have to do to have a success?'
- Need for a project authority
  - Sets the project scope.
  - Allocates/approves costs.

  Could be one person - or a group
    - Project Board.
    - Project Management Board.
    - Steering committee.

Objectives

Informally, the objective of a project can be defined by completing the state ment:

The project will be regarded as a success if……..

Focus on *what* will be put in place, rather than how activities will be carried out

Objectives Should Be Smart

Specific , that is, concrete and well-defined

Measurable, that is, satisfaction of the objective can be objectively judged

Achievable, that is, it is within the power of the individual or group concerned to meet the target

Relevant , the objective must relevant to the true purpose of the project

Time constrained : It is defined point in time by which the project has to taken

Goals / Sub-objectives

These are steps along the way to achieving the objective. Informally, th ese can be defined by completing the sentence…

Objective X will be achieved if the following goals are all achieved A… ……B…… C …… etc.

Goals / Sub-objectives continued

Often a goal can be allocated to an individual.

Individual may have the capability of achieving goal, but not the object ive on their own e.g.

Objective – user satisfaction with software product.

Analyst goal – accurate requirements.

Developer goal – software that is reliable.

Measures Of Effectiveness

How do we know that the goal or objective has been achieved?

By a practical test, that can be objectively assessed.

E.g. for user satisfaction with software product:

- Repeat business – they buy further products from us.
- Number of complaints – if low etc.

Stakeholders

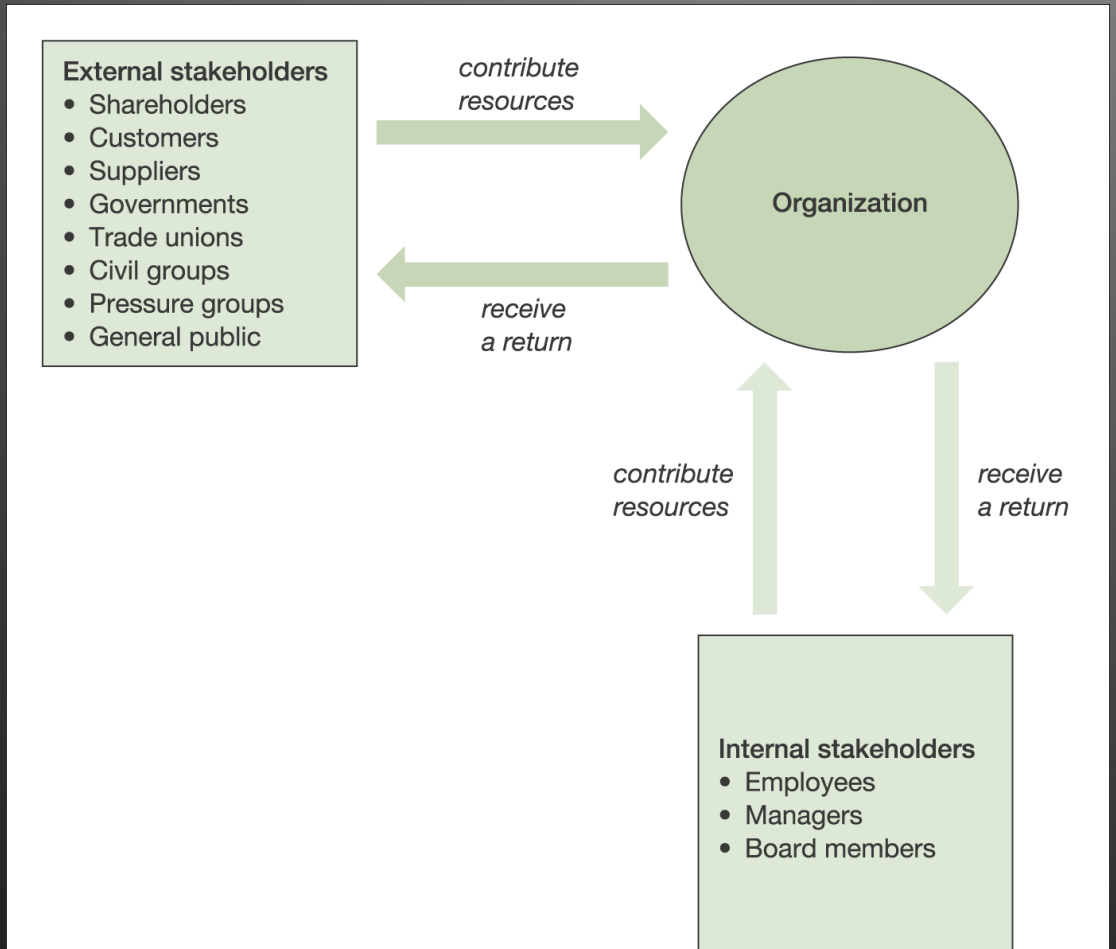
These are people who have a stake or interest in the project

In general, they could be users/clients or developers/implementers

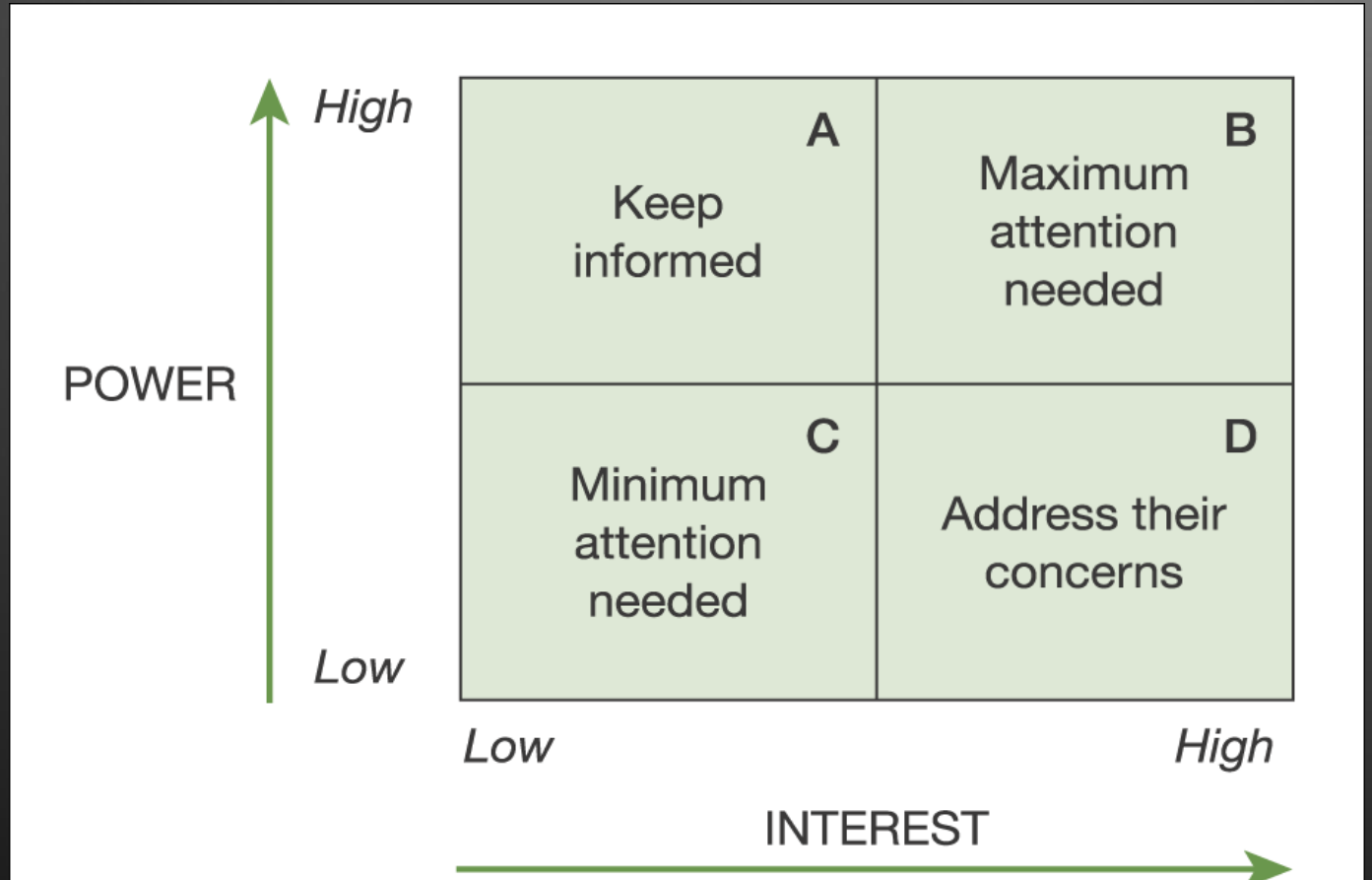
They could be:

- Within the project team.
- Outside the project team, but within the same organization.
- Outside both the project team and the organization.

relationship



Mapping stakeholders' power and interests



The Business Case

Benefits of delivered project must outweigh costs

Costs include:

-Development.

-Operation.

Benefits

-Quantifiable.

-Non-quantifiable.

Problems with Software Projects

- Poor estimates.
- Lack of quality standards & measures.
- Lack of guidance about making organizational decisions.
- Lack of techniques to make progress visible.
- Poor role definition – who does what?
- Incorrect success criteria.
- Inadequate specification work.
- Management ignorant of IT.
- Lack of knowledge of application area.
- Lack of standards.
- Lack of up-to-date information.

Problems with Software Projects

- Preceding activities not completed on time – including late delivery of equipment.
- Lack of communication between users and technicians.
- Lack of communication between users leading to duplication of work.
- Changing statutory requirements.
- Changing software requirement.
- Deadline pressure.
- Lack of quality control.
- Remote management.

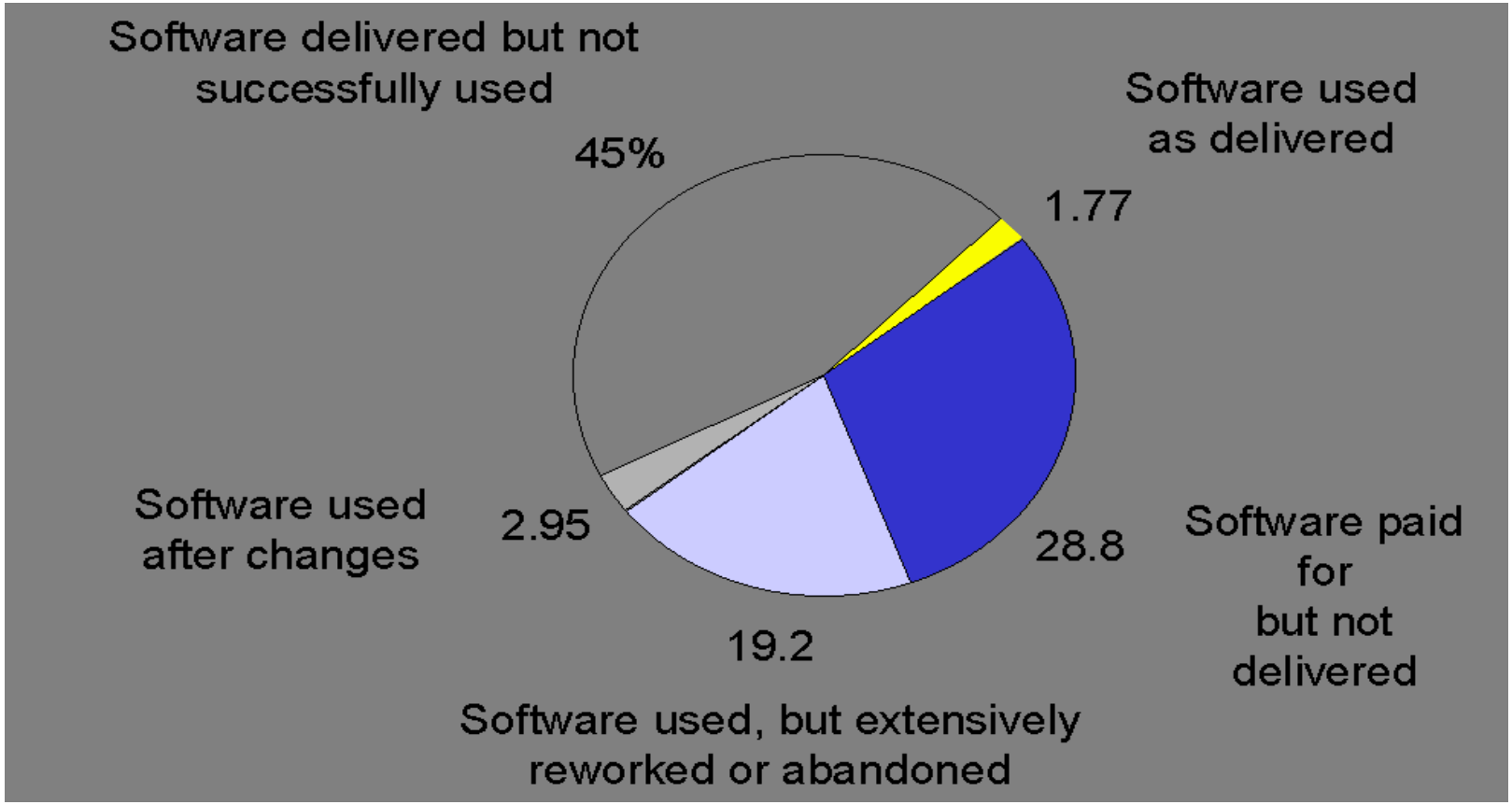
Being fired for Software Project Failures

Most CIOs fired for missing budgets or time lines

In a brief survey that Janco Associates Inc. completed, they found that:

- 34 % of CIOs are fired for major application failure or mismanaging ch ange - missing budgets and or initiative time lines
- 29 % are fired for ignoring not being focused on how the operates28 p ercent get fired for ignoring customers
- 27 % get fired for key project never gets finished or goes too far over b udget

Problems with software project



Stepwise Project Planning

'Step Wise' - an overview

Step	Activities within step
0	Select project
1	Identify project scope and objectives
	1.1 Identify objectives and measures of effectiveness in meeting them
	1.2 Establish a project authority
	1.3 Identify stakeholders
	1.4 Modify objectives in the light of stakeholder analysis
	1.5 Establish methods of communication with all parties
2	Identify project infrastructure
	2.1 Establish relationship between project and strategic planning
	2.2 Identify installation standards and procedures
	2.3 Identify project team organization
3	Analyse project characteristics
	3.1 Distinguish the project as either objective- or product-driven
	3.2 Analyse other project characteristics
	3.3 Identify high-level project risks
	3.4 Take into account user requirements concerning implementation
	3.5 Select general life-cycle approach
	3.6 Review overall resource estimates

4 Identify project products and activities
- 4.1 Identify and describe project products (including quality criteria)
- 4.2 Document generic product flows
- 4.3 Recognize product instances
- 4.4 Produce ideal activity network
- 4.5 Modify ideal to take into account need for stages and checkpoints

5 Estimate effort for each activity
- 5.1 Carry out bottom-up estimates
- 5.2 Revise plan to create controllable activities

6 Identify activity risks
- 6.1 Identify and quantify activity-based risks
- 6.2 Plan risk reduction and contingency measures where appropriate
- 6.3 Adjust plans and estimates to take account of risks

7 Allocate resources
- 7.1 Identify and allocate resources
- 7.2 Revise plans and estimates to take account of resource constraints

8 Review/publicize plan

Step 1 Establish Project scope and Objectives

- 1.1 Identify objectives and measures of effectiveness
  - ‘how do we know if we have succeeded?’
- 1.2 Establish a project authority
  - ‘who is the boss?’
- 1.3 Identify all stakeholders in the project and their interests
  - who will be affected/involved in the project?’
- 1.4 Modify objectives in the light of stakeholder analysis
  - ‘do we need to do things to win over stakeholders?’
- 1.5 Establish methods of communication with all parties
  - ‘how do we keep in contact?’

Step 2 Establish Project Infrastructure

- 2.1 Establish link between project and any strategic plan
  - ‘why did they want the project?’
- 2.2 Identify installation standards and procedures
  - ‘what standards do we have to follow?’
- 2.3. Identify project team organization
  - ‘where do I fit in?’

Step 3 Analysis of Project characterictics

- Distinguish the project as either objective or product-based.
  - Is there more than one way of achieving success?
- Analyze other project characteristics (including quality based ones)
  - what is different about this project? for ex. information system
- Identify high level project risks
    - ‘what could go wrong?’
- Take into account user requirements concerning implementation
- Select general life cycle approach
- Review overall resource estimates
    - ‘Does all this increase the cost?’

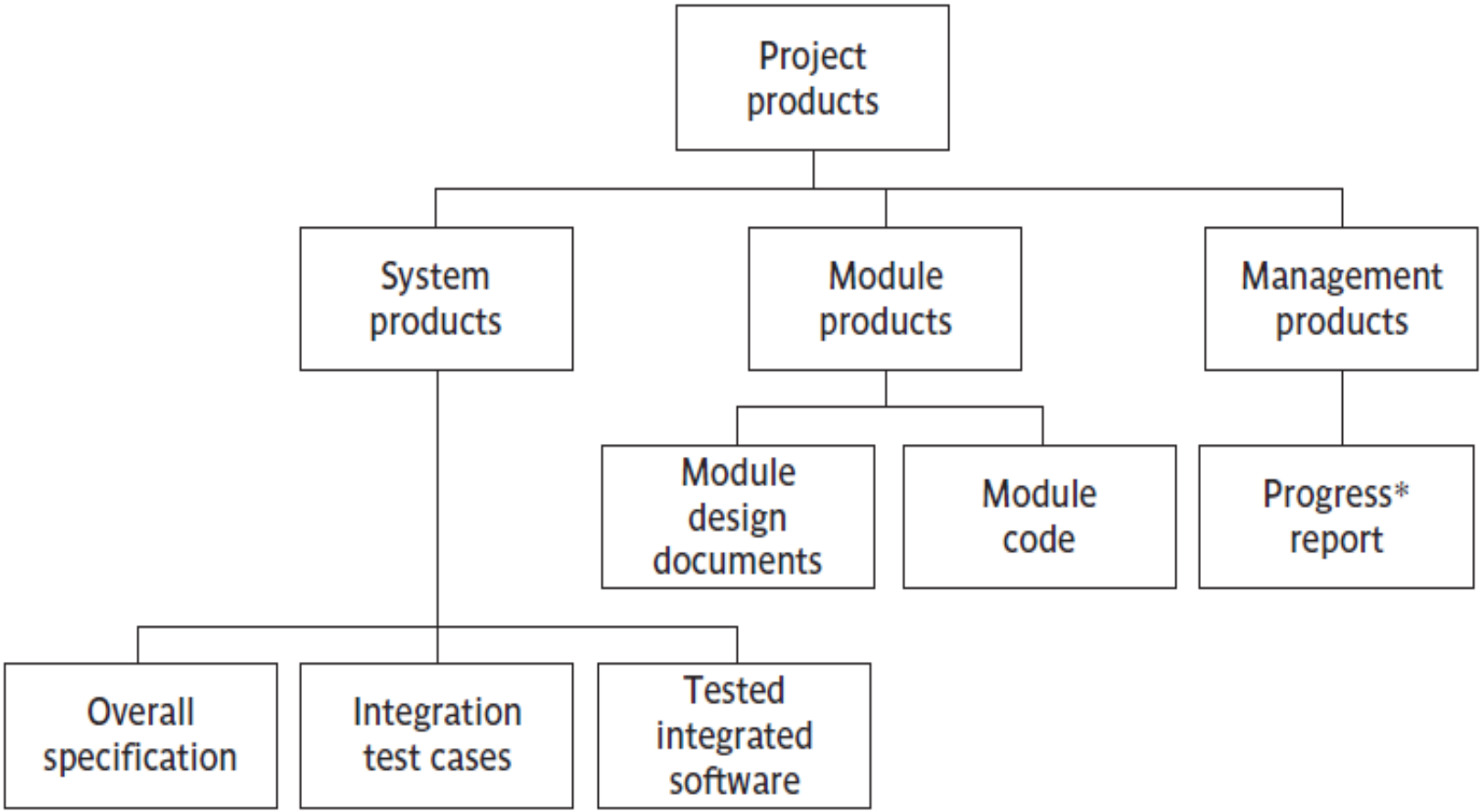
Step 4 Identify Project product and Activities

- Identify and describe project products ‘what do we have to produce?

Project product

- System products.
- Module products.
- Management products.

Project Module Description



4.1 Product Description (PD)

Product identity

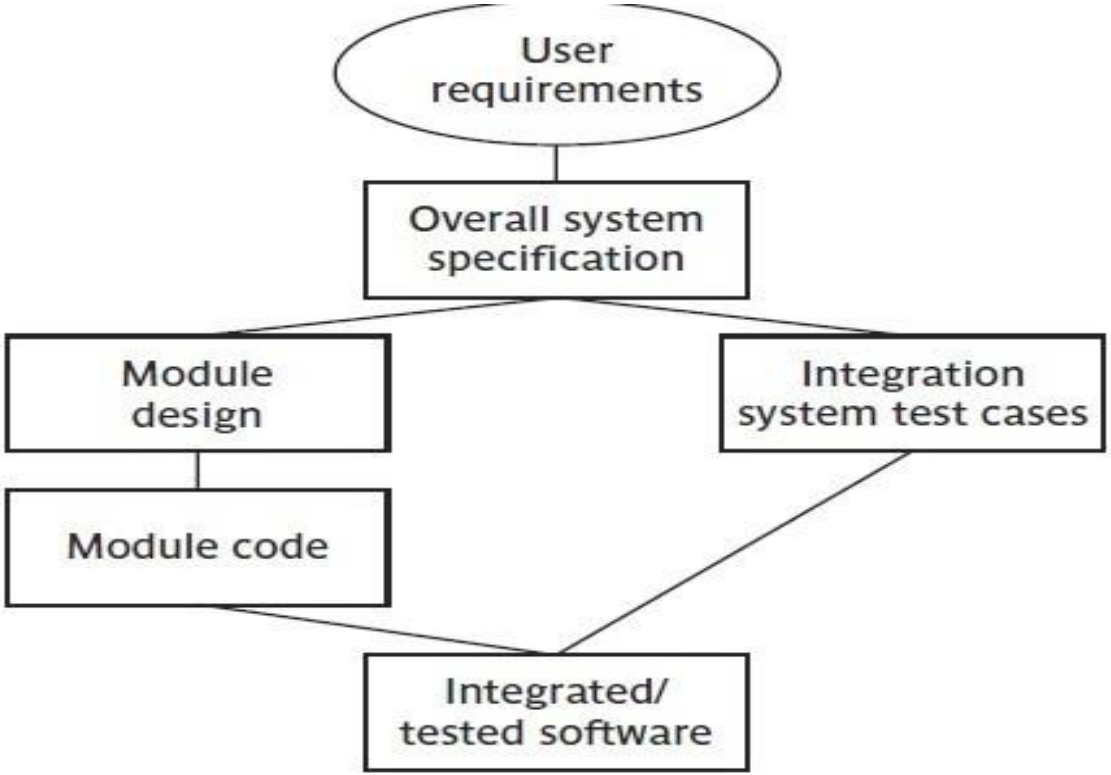
- Description- what is it?
- Derivation - what is it based on?
- Composition - what does it contain?
- Format

Relevant standards

- Quality criteria

Create a PD for ‘test data’

4.2 Document generic product flow



4.3 Produce Ideal Activity Network

- Identify the activities needed to create each product in the PFD
- More than one activity might be needed to create a single product
- Hint: Identify activities by verb + noun but avoid ‘produce…’ (too va gue)
- Draw up activity network

Step 5 Estimate Effort For Each Activity

- 5.1 Carry out bottom-up estimates
  - distinguish carefully between *effort* and *elapsed* Time.
- 5.2. Revise plan to create controllable activities
  - break up very long activities into a series of smaller ones.
  - Long activity make a project difficult to control.
  - If an activity involving testing is to take.

Step 6 Identify Activity Risk

- 6.1.Identify and quantify risks for activities
  - Damage if risk occurs (measure in time lost or money).
- 6.2. Plan risk reduction and contingency measures
  - Risk reduction: activity to stop risk occurring.
  - Contingency: action if risk does occur.
- 6.3 Adjust overall plans and estimates to take account of risks
  - E.g. add new activities which reduce risks associated with other act ivities.

Step 7 Allocate Resources

- 7.1 Identify and allocate resources to activities
- 7.2 Revise plans and estimates to take into account resource constrai nts
  - e.g. staff not being available until a later date
  - non-project activities

Step 8 Review/Publizise plan

- 8.1 Review quality aspects of project plan.
- 8.2 Document plan and obtain agreement.

Step 9 and Step 10

Step 9: Execute plan.

Step 10: Create lower level plans.