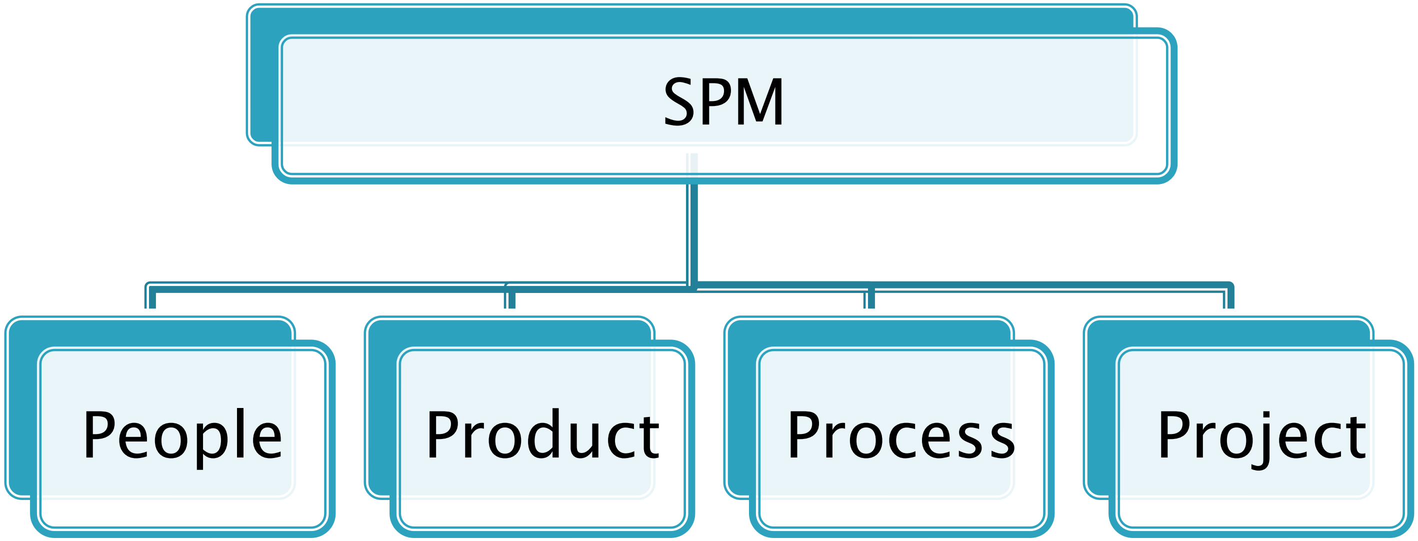
LECTURE-6

SOFTWARE PROJECT MANAGEMENT

Dronacharya College of Engineering

MANAGEMENT SPECTRUM

- Software project management focuses on the four P’s: People, Product, Process, and project



THE PRODUCT

- Before a project should be planned, product objectives and scope should be established, alternative solutions should be considered, and technical and management constraints should be identified.

Software Scope

Problem Decomposition

- Once the product objectives and scope are understood, alternative solutions are considered.

The Product

- The **scope** of product must be established and bounded.
  - **Bounded scope means**
    - establishing quantitative data like no. of simultaneous users, max. allowable response time. etc.
    - Constraints and limitations
    - and justifying factors described
- The **problem** that the product is addressing must be decomposed

Software Scope

Scope is defined by

✓ Context

- Functional location of the software product into a large system, product or business context
- Constraints involved

✓ Information Objectives

- What data objects are required as i/p or o/p

✓ Function and Performance

- What function does the software system perform on i/p to produce o/p
- What level of performance is required

Problem Decomposition

- Also called partitioning OR problem elaboration
- This activity is at core of requirements analysis
- Divide and conquer policy for complex problems
- A complex problem is partitioned into smaller problems that are more manageable.
- Decomposition make planning easier.
- Decomposition in 2 major areas
  - Functionality that must be delivered
  - Process that will be used to deliver product

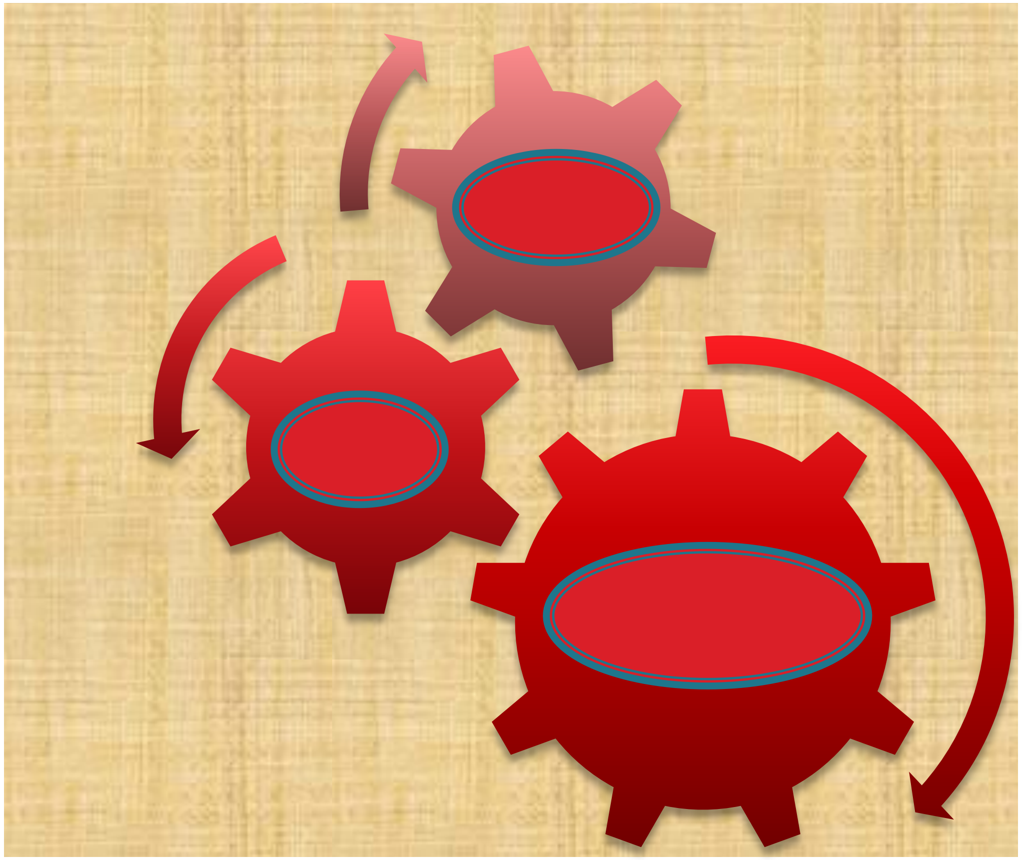
The Process

❑ Process

❑ Framework Activities

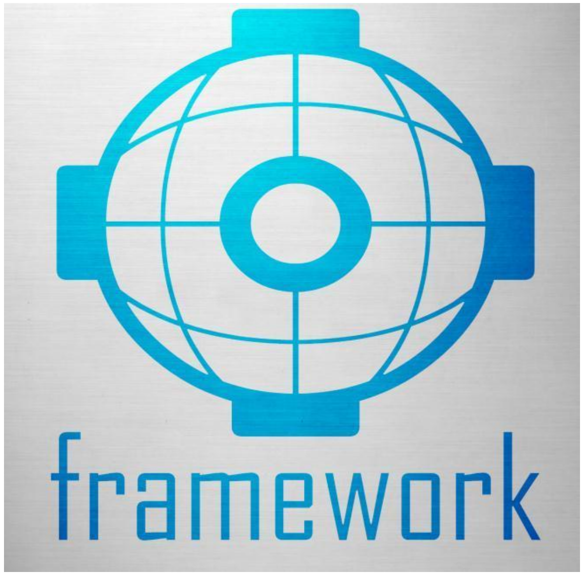
❑ Process Models

❑ Process Decomposition



Common Process Framework Activities

- These characterize a software process and are applicable to all software projects
  - Communication
  - Planning
  - Modeling
  - Construction
  - Deployment



- These are applied to software engineering work tasks (e.g., different product functions)

The Process Models

- ❑ Different process models:
  - ✓ Linear sequential, Prototyping, RAD, Spiral, Formal …

- ❑ Project manager must decide about which model to use depending on
  - ✓ Customers who have requested the product
  - ✓ People who would work on project
  - ✓ Product characteristics
  - ✓ Project environment

- ❑ Project planning begins once model is selected

Process Decomposition

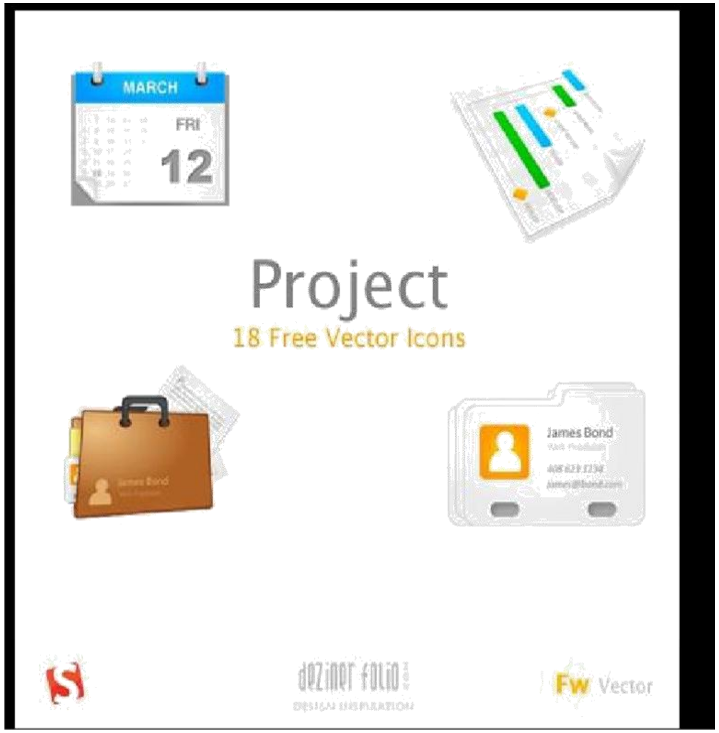
- ❑ The way a process is decomposed depends on project complexity
- ❑ Decomposition involves outlining of work tasks involved in each process framework activity
- ❑ Example of decomposition for "communication" activity for a simple project:
  - ✓ Develop a list of clarification issues
  - ✓ Meet with customer to discuss clarification issues
  - ✓ Jointly develop statement of scope
  - ✓ Review the statement of scope with all concerned
  - ✓ Modify the statement of scope id required

The Project

- □Project

- □Signs of Projects Risk

- □How to Avoid Project Risks



The Projects

- The software projects must be planned and controlled effectively to avoid complexities.
- The project managers and engineers must understand the critical success factors and develop a common sense approach for planning, monitoring and controlling the project.

Signs of Projects Risk

John Reel describes ten signs that indicate that project is in trouble:

- ✓ Software people don’t understand customer needs
- ✓ Product scope is poorly defined
- ✓ Changes are managed poorly
- ✓ The chosen technology changes
- ✓ Business needs change
- ✓ Deadlines are unrealistic
- ✓ Users are resistant
- ✓ Sponsorship is lost
- ✓ Team lacks skills
- ✓ Managers avoid best practices

I THINK IT'S TIME TO BRAINSTORM SOME CREATIVE PROJECT IDEAS!
LETS HAVE OUR PROJECT TEAM MEETING!

How to avoid problems?

Start on the right foot

- ✓ Involves detailed understanding of project
- ✓ setting realistic objectives & expectations
- ✓ Selecting the right team
- ✓ Facilitating the team

Maintain Momentum

- ✓ Provide incentives
- ✓ Reduce bureaucracy and give autonomy to team members but with supervision

Track Progress

- ✓ Assess progress as work products are produced

How to avoid problems?

SMART Decisions = SMART Results

Make smart decisions

- ✓ When possible, use existing software components / COTS software
- ✓ Choose standard approaches and keep it simple
- ✓ Avoid risks and allocate more time than needed for complex/risky tasks

Conduct a postmortem analysis

- ✓ Compare planned and actual schedule
- ✓ Collect and analyze project metrics (standards)
- ✓ Get feedback from team and customers
- ✓ Establish record of lessons learnt for each project