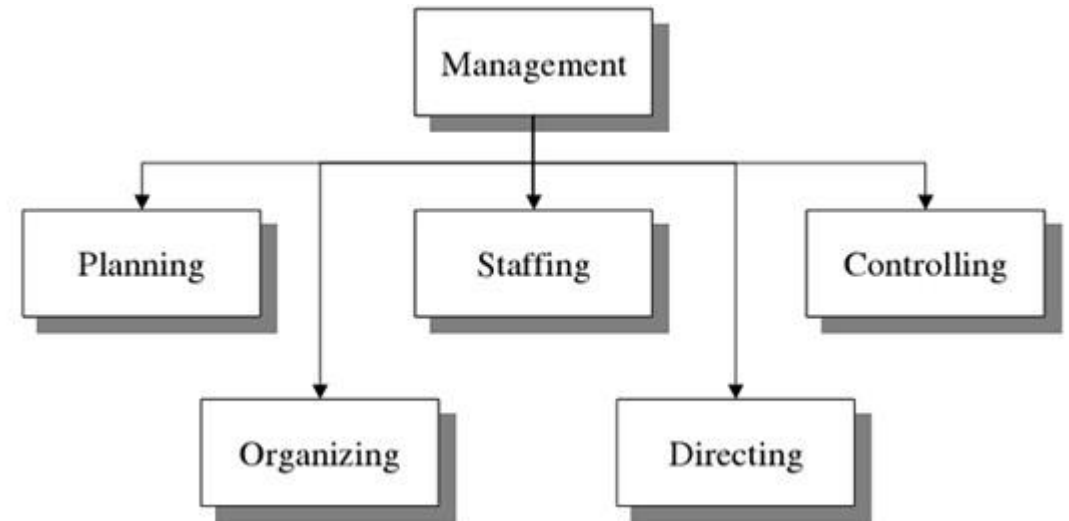# CSE 6324

Advanced Topic in Software Engineering

Farnaz Farahanipad

Management Definition

Management functions can be categorizing as:

- Planning
- Organizing
- Staffing
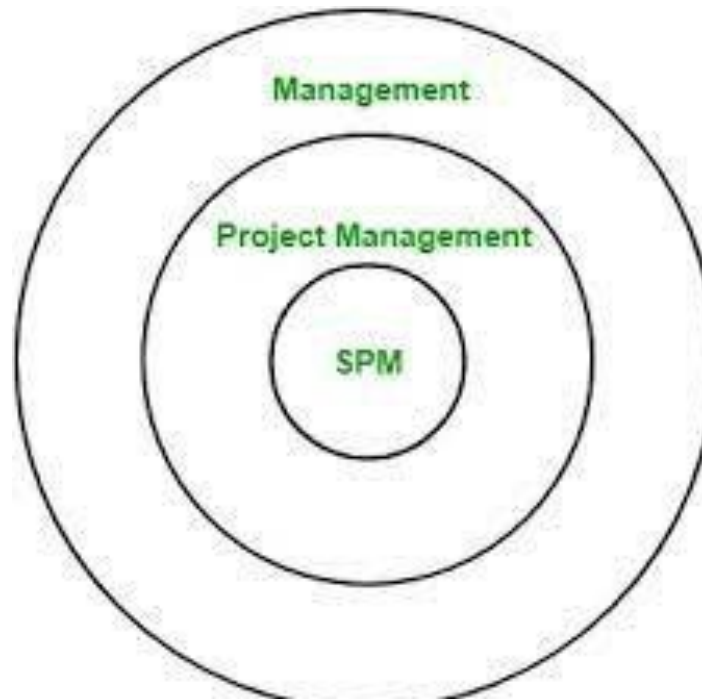- Direction
- Controlling

Project Management Definition

Project management can be described as the application of knowledge while using specific processes and tools to manage resources in order to achieve an outcome.

Software Project Management

- **(SPM)** is the proper way of planning and leading software projects.
- It is a part of project management in which software projects are **planned**, **implemented**, **monitored**, and **controlled**.

Goal of Software Project Management

- It is an essential part of software organization to deliver :
  - Quality product,
  - Keeping the cost low
  - And deliver the project according to the schedule.

Characteristics of Projects

- None-routine
- Planned
- Aiming specific topic
- Carried out for customer
- Involving several specialism
- Constraint by time
- Large and/or complex

Software Projects vs. Other Projects?

software projects are different from other type of project:

- Software is not tangible
- Software processes are relatively new and still under trial
- Generally more complex and require higher expertise.
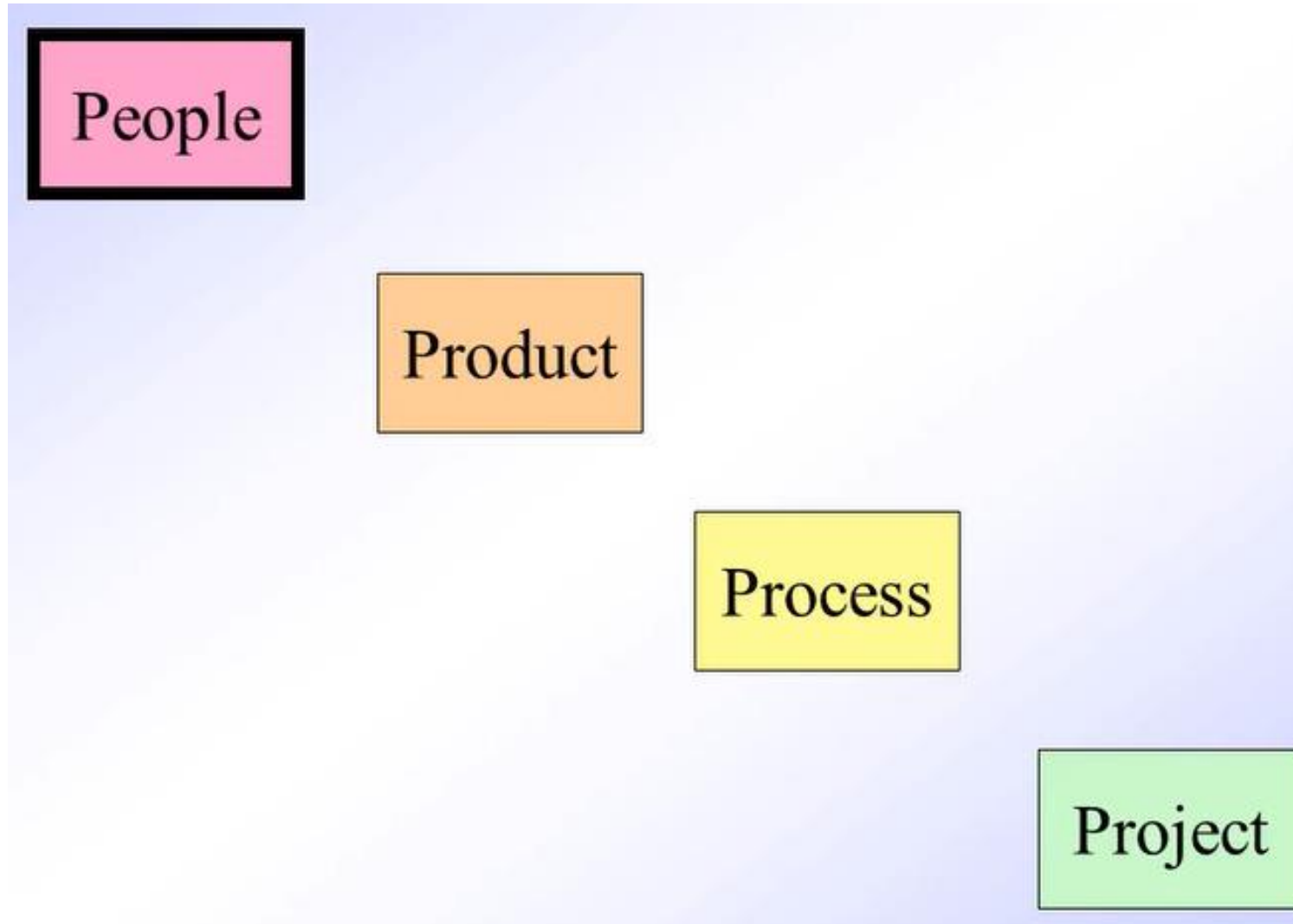- Computer technology evolves very rapidly.

Need of Software Project Management

- Organize your approach
- Generate a credible schedule
- Track the progess and control the project
- Identify where to focus the effort
- Identify problems early
- Save Money and Time

The 4 P's of Software Project Management

People

Product

Process

Project

The 4 P's of Software Project Management

1.The People
- a) The players/stakeholder
- b) The software team
- c) Team leaders

The 4 P's of Software Project Management

1.The People

   a) The players/stakeholder

- Senior Managers; Define the business issues.
- Project Manager; Plan, motivate, organize, and control those who do software work
- Developers; Deliver the technical skills which are necessary to engineer a product
- Customers; Specify the requirements for the product/software
- End-user; Those who interact with software once it is released for production use
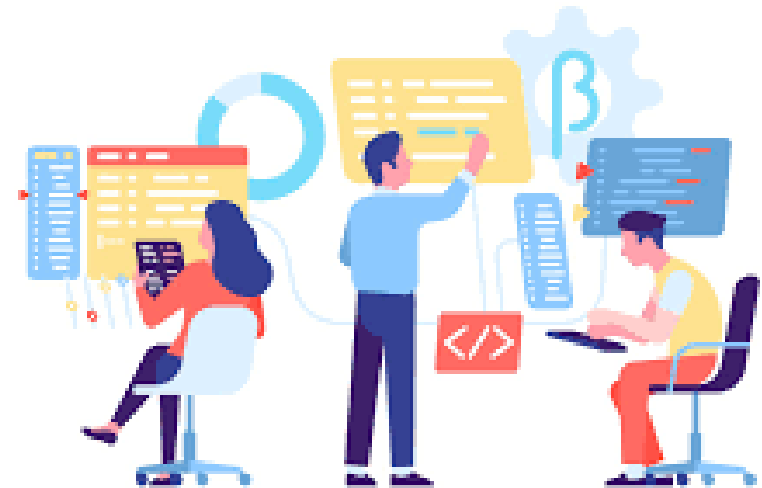
The 4 P's of Software Project Management

1.The People
- a) The players/stakeholder
  - Senior Managers
  - Project Manager
  - Developers
  - Customers
  - End-user

Stakeholders may/may be not the end user.

The 4 P's of Software Project Management

1.The People

a) The players

b) Software Teams:
- Business analyst, requirement analyst
- Designer and architecture
- Programmers
- Testers

The 4 P's of Software Project Management

1.The People

   a)   The players

   b)   **Software Teams:** Factors to be considered

when selecting a software project team structure:

- Difficulty of problem
- The time that the team will stay together
- The rigidity of the delivery date
- The size of the program(LOC)
- Having technical expertise
- Being able to communicate effectively

The 4 P's of Software Project Management

1.The People

a) The players

b) Software Teams

c) Team Leader: the MOI model[Weinberg]

- How to **M**otivate?
- How to **O**rganize?
- How to create good **I**deas?

The 4 P's of Software Project Management

2.The Product
- a) Product scope
- b) Problem decomposition

The 4 P's of Software Project Management

2.The Product

a) Product scope:

    a) Product objectives should be defined.

    b) Alternative solution need to be considered

    c) Technical and management constraints should be considered

Project Scoping Form		
Project Name	Project Manager	Team Members
Problem / Opportunity (Why do this project?):		
Project Goal:		
Objectives (Specific, Measurable, Assignable, Realistic, Time-Based (SMART)), Duration? Cost?		
Success Criteria (Outcomes):		
Assumptions, Risks, Obstacles:		

The 4 P's of Software Project Management

2.Product

a) Product scope

b) Problem decomposition(Partitioning), is at core of software requirement analysis. It leads to:

- Reasonable and accurate estimates of cost
- Realistic breakdown of project tasks
- Project schedule that provides meaningful indication of progress.

The 4 P's of Software Project Management

3. The Process:
   a) Blending the product and process
   b) Process decomposition

The 4 P's of Software Project Management

3. The Process:

    a) Blending the product and process:

- Provides a framework from which a comprehensive plan of software development can be established.
- Select proper SDLC model for the software development.

The 4 P's of Software Project Management

3. The Process:

a) Blending the product and process:
- Provides a framework from which a comprehensive plan of software development can be established.
- Select proper SDLC model for the software development.

b) Process decomposition: Team works to decompose the work tasks based on common framework activities.

The 4 P's of Software Project Management

4. The Project: To manage a successful software project, we must know about what to avoid.

- John Reel defined 10 signs which indicates a project is in danger:
  1. Software people don't understand customer's' need
  2. The product scope is defined poorly
  3. Changes managed poorly
  4. The chosen technology changed
  5. Business needs change or poorly defined
  6. Product deadlines are unrealistic
  7. User are resistant
  8. Sponsorship is lost
  9. Lack of appropriate skills
  10. Managers/developers avoid best practice and lesson learned.

The 4 P's of Software Project Management

4. The Project:
   a) Factors that influence the end result
   b) Reel's good approaches to project
      a) Start with right foot
      b) Maintain momentum
      c) Track progress
      d) Make smart decision
      e) Conduct Post-mortems analysis
   c) Project management skills

Software Project Manager

Closely monitors the:

- Development process
- Prepare and executes various plans
- Arranges necessary and adequate resources
- Maintains communication between all team membe
- Be continually making adjustments

Software Project Manager Skills

- Budget planning
- Decision-making
- Risk management
- Communication skills
- Knowledge of software project
- Leadership
- …

Benefits of Product Management

Benefits for the team and management:

1. Project success

2. General team motivation

3. Team's competitive advantage

4. Better coordination

5. Higher efficiency and effectiveness

6. Better team management

7. High risk and change resistance

8. Lower costs

Benefits for individual team members

1. Clarity over role and position

2. Productivity and time management

3. Motivation to work

Benefits for the clients

1. Increased satisfaction with product

2. Better service delivery

Software Project Management Tools

- Planning/scheduling
- Collaboration
- Documentation
- Evaluation

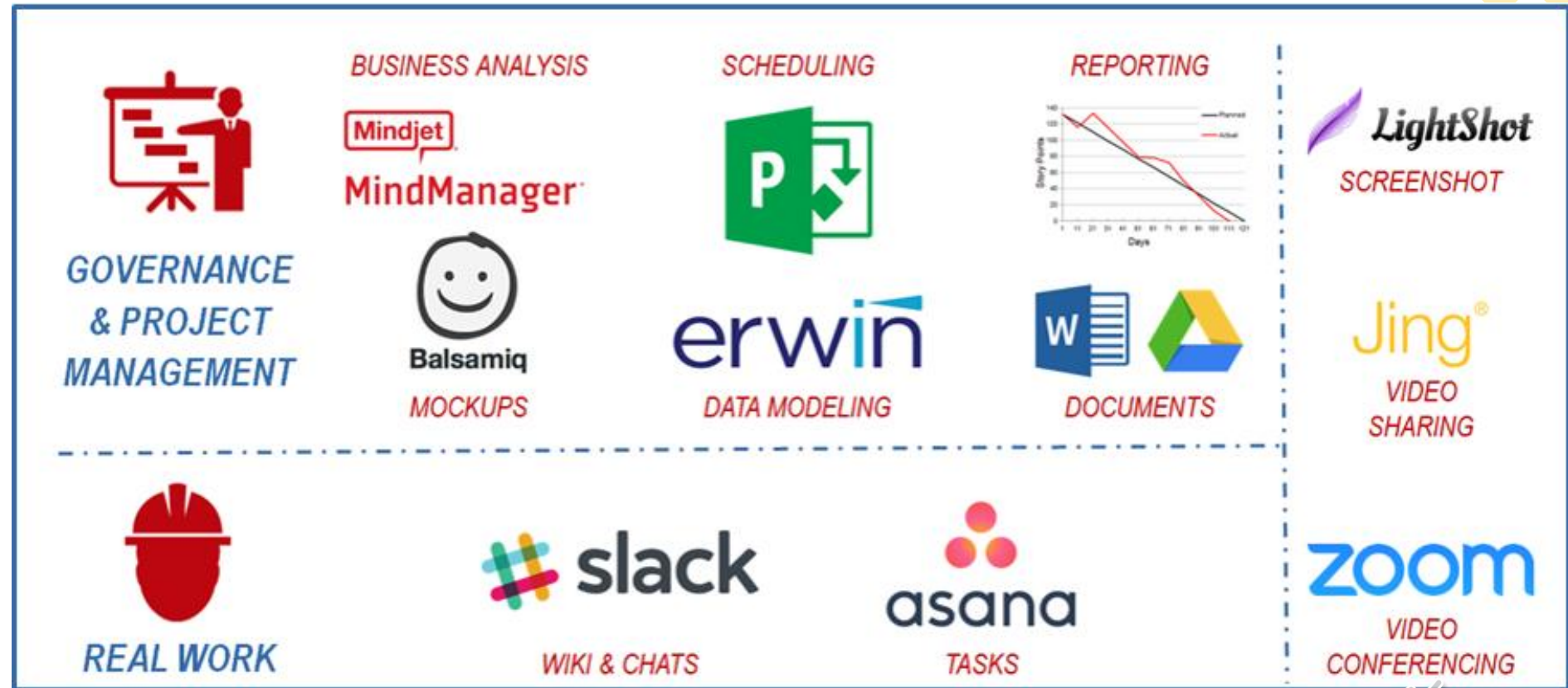# Project Management Software

Teamwork

ZOHO Projects

Monday

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Notion

Questions: