Information System Design

IT60105

Lecture 21

Staff Organization, Risk Management and Software Configuration Management

Lecture #21

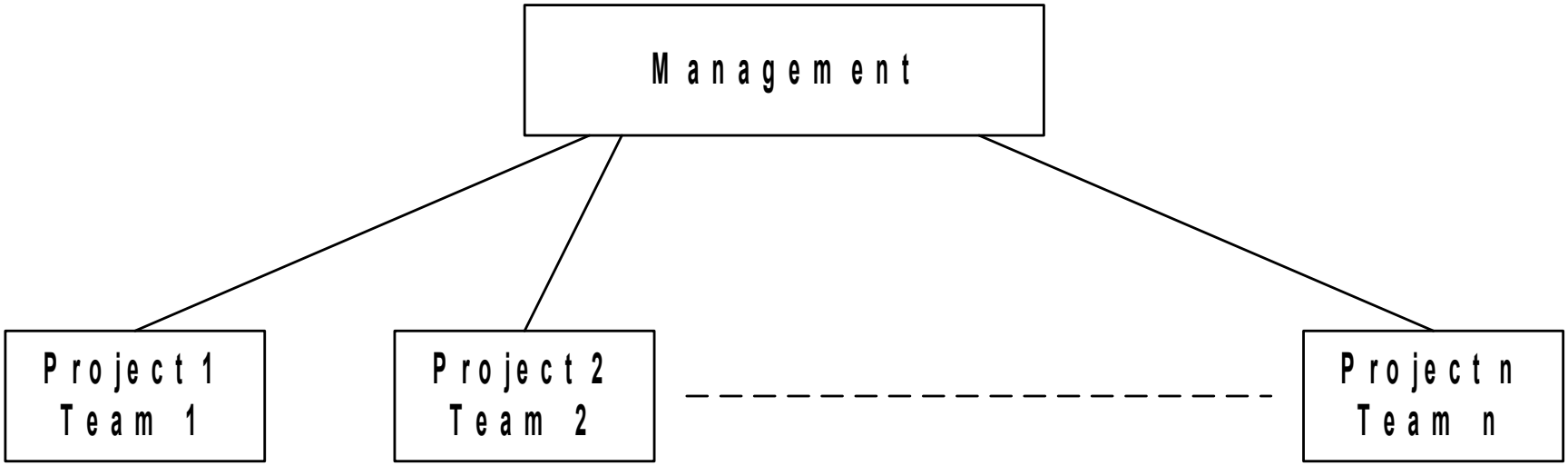
- Items in SPMP Documentation
  - Staff organization
  - Risk management and planning
  - Software configuration management
  - Scheduling

Staff Organization

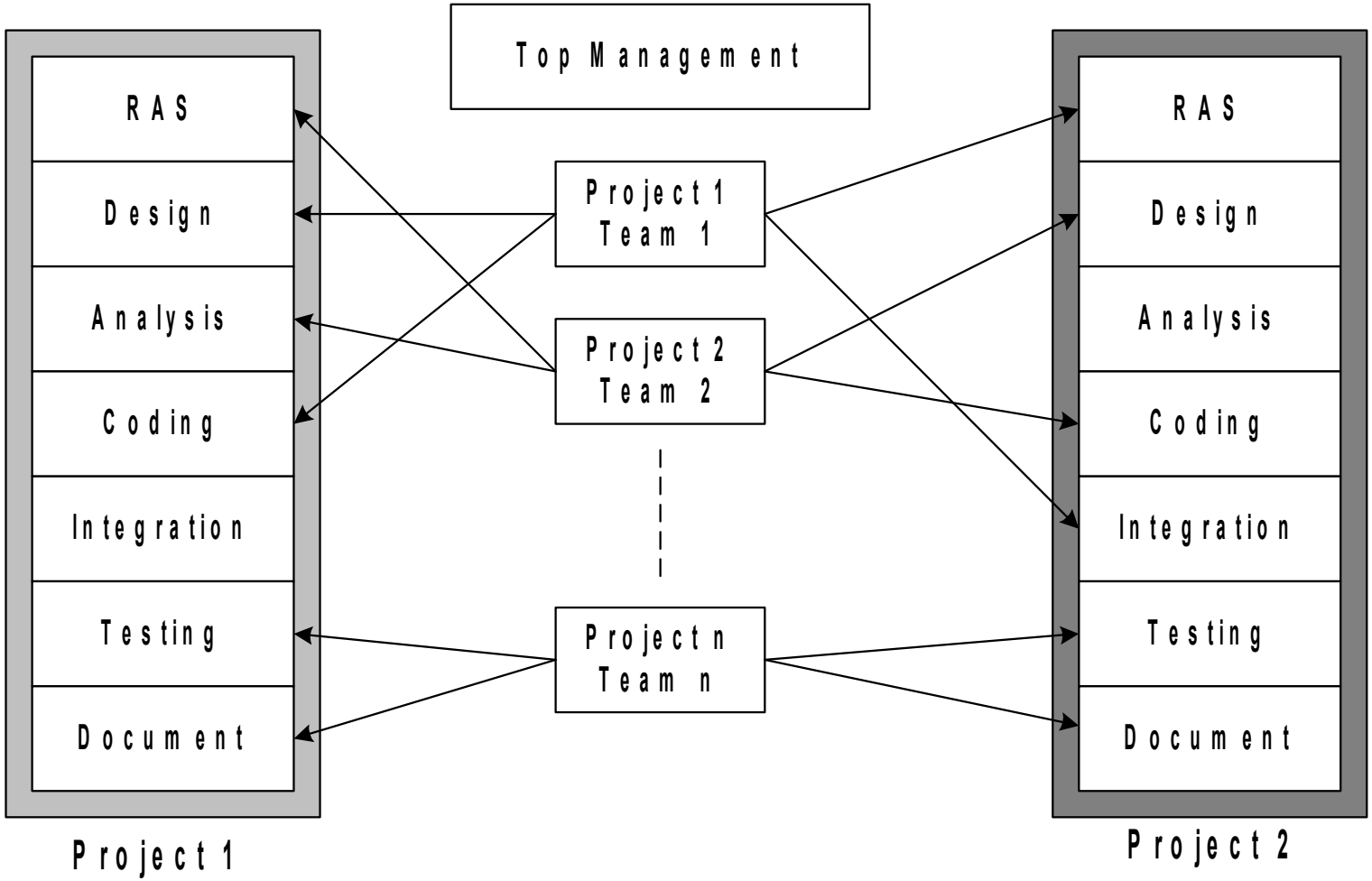
Staff Organization

- Addresses the problem: Who will be assigned for what?
- Two ways:
  - Project form
    - A team is assigned a project and they remain with the project until the completion of the project
    - Requires less communication among the team members
  - Functional form
    - Several teams are there, a team is responsible for one or more task (usually the task with which a team is specialized)

Staff Organization (Project Form)



Staff Organization (Functional Form)

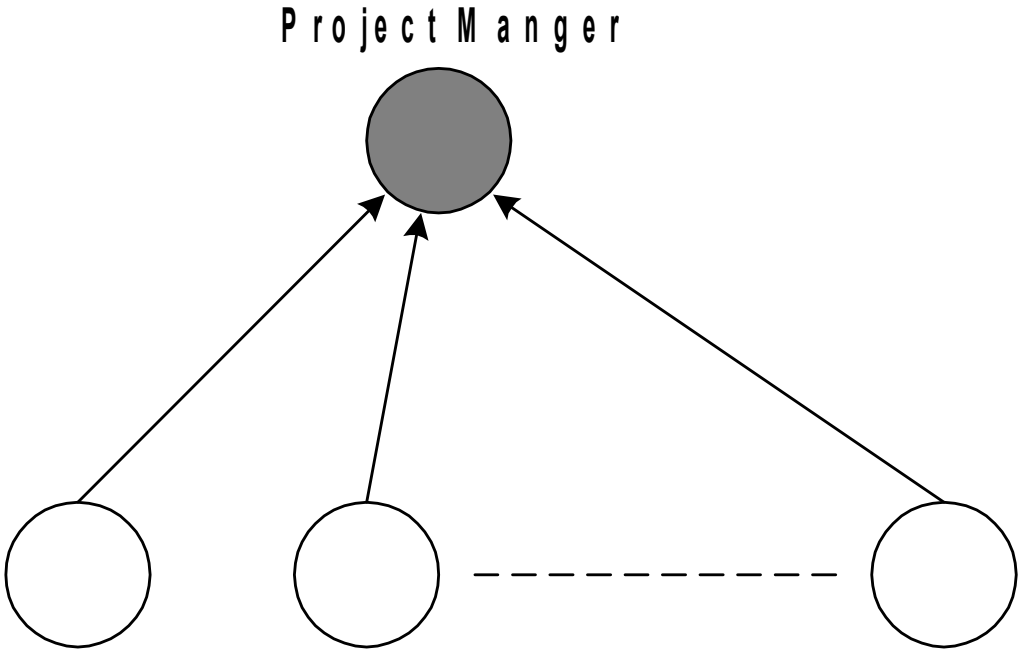


Team Structures

- Addresses the issue of organization of the individual project teams

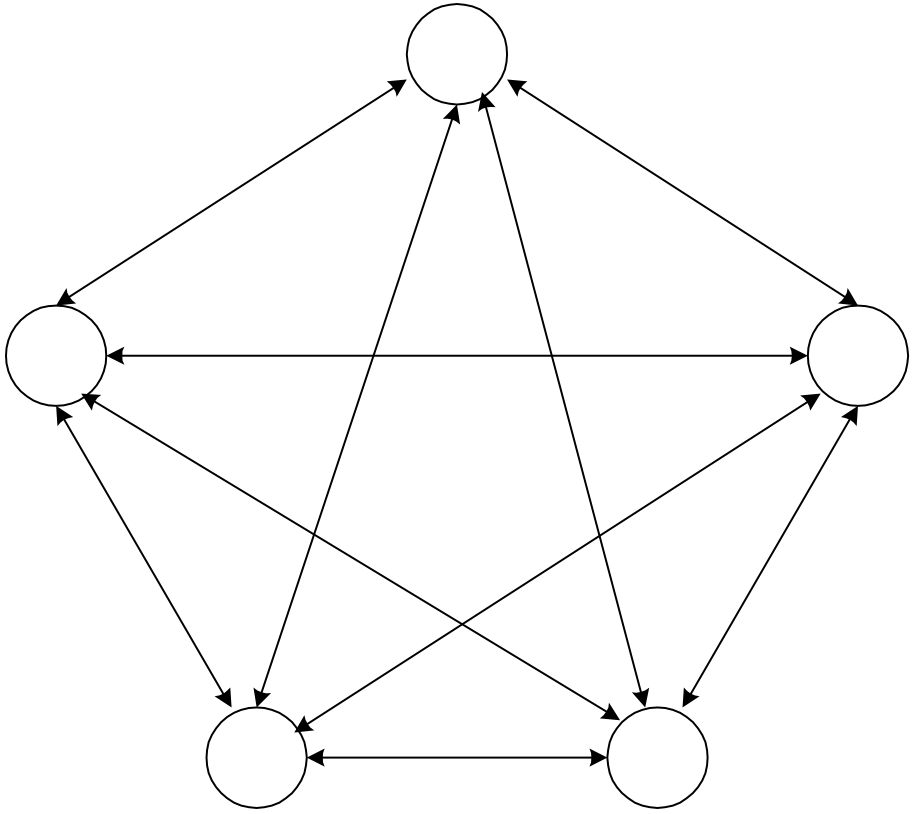
- Three types of team structures are known:
  - Centralized team structure
  - Democratic team structure
  - Mixed team structure

Team Structures



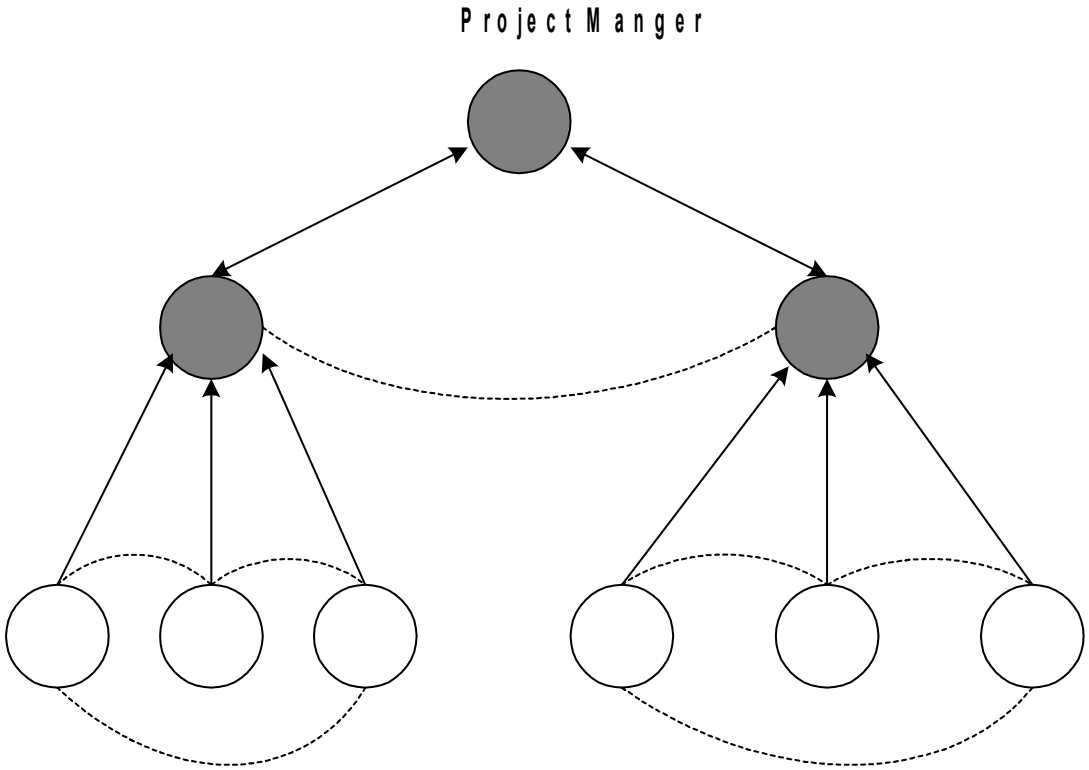
Centalized Team Structure

Team Structures



Democratic Team Structure

Team Structures



Mixed Team Structure

Risk Management

Risk Planning

- Objective:
  - Anticipate and identify different risk that a project may be susceptible to
  - Contingency plans can be adopted to contain the effects of each risk
  - Reducing the impact of all kinds of risks

- Three activities for **Risk Management**
  - Risk identification
  - Risk assessment
  - Risk containment

Risk Identification

- Project risks
  - Budgetary
    - budget may abruptly exceed the estimated amount
  - Schedule
    - schedule slippage, deadlock, dependent on other organization
  - Personnel
    - sickness, resignation, promotion, retirement etc.
  - Resources
    - increased cost, big/top priority project incumbent
  - Customer related problems
    - termination of agreement, delay in payment, change in requirement

Risk Identification

- Technical risks
  - Potential design
    - Design at par or state-of-the-art design, building excellent product
  - Implementation
    - Ambiguous specification
  - Interfacing
    - Heterogeneous specifications and subsystems incompatibility
  - Testing
    - To achieve adequate test coverage
  - Maintenance
    - Expensive cost in maintenance

Risk Assessment

- Rank a risk in terms of its damage causing potential
- A risk may be rated in two ways:
  - The likelihood of a risk coming true (α)
  - The consequence of the problems associated with that risk (β)
- Rank (priority) of a risk then

  $p = \alpha * \beta$
- High priority risks are to be handled first

Risk Containment

- Avoid the risk
  - Frequent discussion with customers
  - Good incentives to engineers
- Transfer the risk
  - Risk component development to a third party
  - Insurance cover
- Risk reduction
  - Reserve personnel, resources, new recruitment
- Different risks have their own containment policies and it is the prudence of Project Manager to tackle the risks

RMMM Plan

- **RMMM Plan** stands for Risk Mitigation, Monitoring and Management Plan

Example

Risk	Probability, P (0-1)			Impact, I (1-10)			Risk Factor = P*I			Contingency plan
	Min	Likely	Max	Min	Likely	Max	Min	Likely	Max	
Virus Infection	0.1	0.3	0.5	5	8	10	0.5	2.4	5.0	Network backup
System crash	0.0	0.1	0.3	6	8	10	0.0	0.8	3.0	System backup

Software Configuration Management

Software Configuration Management

- What is Software Configuration?
  - The items that comprise all information produced as a part of the software process are collectively called *software configuration*

Example: Software process information

- Programs (source code + executables)
- Work product (for developer + user)
- Data (contained within the program or external to programs)

Software Configuration Management

- Results (deliverables) of a system development efforts consists of
  - SRS document, design document, source code, test suit, user's manual etc.
- Configuration of a system product
  - The state of a deliverable during the development life cycle
- Software configuration management
  - Deals with efficiently tracking and controlling the configuration of a system product during its life cycle

Configuration Management Activities

- Configuration identification
  - Requirement specification document
  - Design documents
  - Tools used to build the system
  - Source code for each subsystem
  - Test suit
  - Status report

- Configuration control
  - Process of managing changes to controlled objects
  - Day-to-day operations of team members
  - Authorized changes to any controllable objects

Problems to Ponder

- In which phase of the stages of software process the SCM is done
- Why and how SCM is useful for
  - Overall productivity
  - Better quality
  - Reduced risk in the development process