CS3203 Software Engineering Project

Project Management

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Outline

- Project vs Product

- Project management activities

- SPA Project Management

Project vs Product

- **Product** : something that can be offered to a user(or customer or market) to solve a problem, or to satisfy a requirement.
  - Products have a life cycle that consists of multiple stages from conceptualisation to development to management to retirement.

- **Project:** A time-bound venture undertaken to create a unique product or service, which brings about a beneficial change or added value for a user(or customer or market)
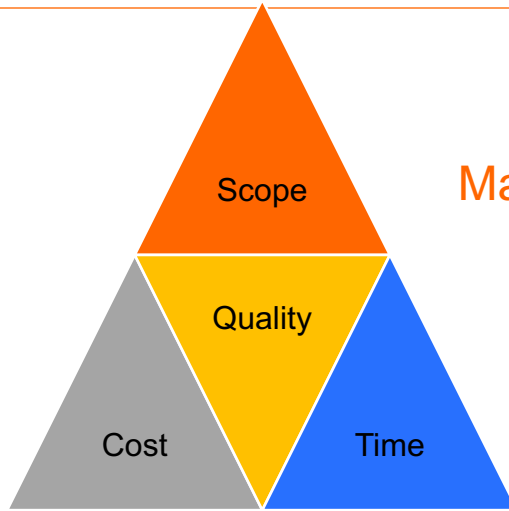 - Software projects organize work for software development.

Project Management(PM)

- The application of knowledge, skills, tools and techniques to project activities to meet project requirements

and

- organizing and managing resources so the project is completed within defined scope, quality, time and cost constraints

PM Triple Constraints

Manage these or they will manage you!

Software project failure = not delivering the project on time, within budget, and according to scope.

Other reasons for Software Projects Failures

- Weak business case

- Lack of senior management commitment

- Inadequate project planning (budget, schedule, scope, etc.)

- Absence of user involvement

- New or unfamiliar technology

Effective SW project management

Focus on 3 P's:

- people

- problem

- process

Managing People

- must be organized into effective teams

- motivated to do high-quality work

- coordinated to achieve effective communication and results

Project Stakeholders : Senior managers, Technical managers, Team leaders, Developers, customers, end users

Managing People- Common Team structures

Democratic Team
- no leader, task coordinators appointed for short time and then replaced, decisions made by group consensus, horizontal communication

Controlled Team
- a leader who coordinates tasks, secondary leaders responsible for subtasks, group problem solving, horizontal communication among subgroups, vertical communication along control hierarchy

Chief-programmer team
-   top-level problem solving and team coordination managed by a team leader, vertical communication between leader and team members
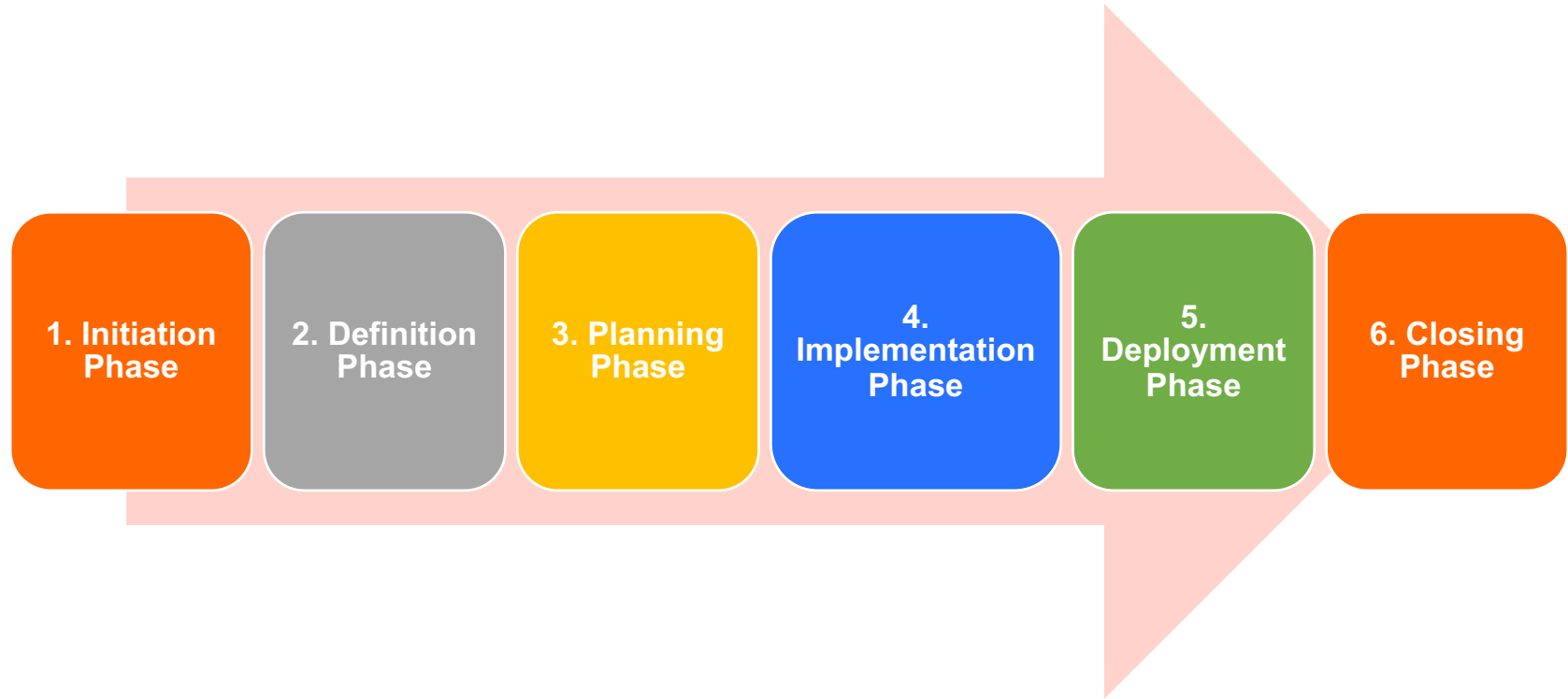
Managing Problem

- must be well communicated from customer to developer team

- decomposed into parts

- positioned for work by the developer team

Managing Process

- must be adapted to the people and problem

- SDLC(process framework) is selected

- appropriate SWE paradigm is applied

- set of work tasks created and allocated

Project Management Life Cycle

1. Initiation Phase

2. Definition Phase

3. Planning Phase

4. Implementation Phase

5. Deployment Phase

6. Closing Phase

1. Initiation Phase

- Define the need

- Return on investment analysis

- Make or buy decision

- Budget development

2. Definition Phase

- Determine goals, scope and project constraints

- Identify members and their roles

- Define communication channels, methods, frequency and content

- Risk management planning

3. Planning Phase

- Work breakdown structure

- Project schedule development

- Resource planning

- Quality assurance plan
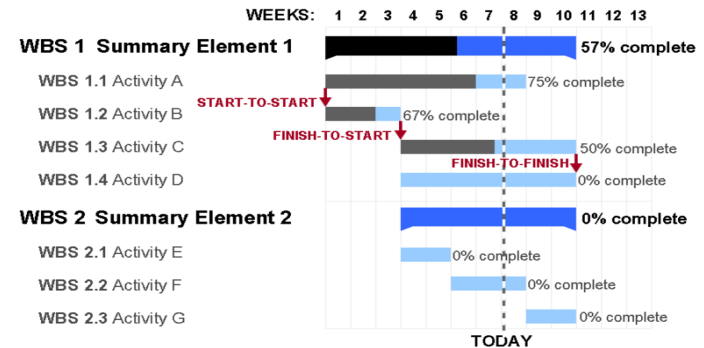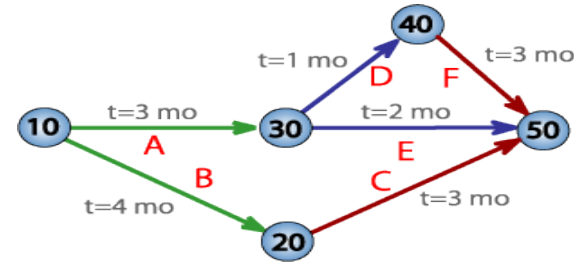
Topics of Pert Chart & Gantt Chart for scheduling covered in earlier software engineering modules.

4. Implementation Phase

- Execute project plan and accomplish project goals

- Training plan

- System build

- Quality assurance

5. Deployment Phase

- Production review

- User training

6. Closing Phase

- Contractual closeout

- Post-production transition

- Lessons learned

Project Management Tools

- Tools help in managing projects in small to large development

- Who uses them
  - Owner, managing director, controller, project manager, and team leads

- Tools allow for
  - collaboration, time tracking, expense reporting, etc.

Resource Management

Project Management

Team Collaboration

Project Accounting

Business Intelligence

Examples

PM Tool for SPA

- Use a tool or use a few in combination

- Make your consultation tutor/teaching team member in your project management group.

Team organization for SPA

- Democratic team with control and reporting
  - No 'Social-Loafing' or 'I will do everything'
  - Storm to Perform – Keep your teamwork transparent and dreamy
  - Set clear roles and responsibilities – *"who is doing what & when"*
    - » e.g. follow RACI framework
    - » **Responsible:** person who performs an activity or does the work.
    - » **Accountable:** person who is ultimately accountable and has Yes/No/Veto.
    - » **Consulted:** person that needs to feedback and/or contribute to the activity.
    - » **Informed:** person that needs to know of the decision or action.
    - » RACI matrix
    - - typically created with a vertical axis (left-hand column) of tasks (from a work breakdown structure*) or deliverables (from a product breakdown structure*), and a horizontal axis (top row) of roles (from an organizational chart).

Form	→	Storm
		↓
Perform	←	Norm
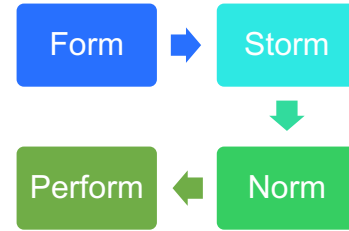
Work breakdown structure(WBS) vs product breakdown structure(PBS)

  PBS: focus on product, reduce a complex product, into manageable components

  WBS: focus on project, reduce a complex project into work assigned in a project

Project reporting for SPA

- Process documentation
  - Project/iteration plans, schedules, wbs/ pbs, roles, resolutions/reflections, standards, metrics,…

Note, this is in addition to the product documentation of SPA. Both project and product documentation is to be submitted in a single report for each iteration.

Summary

- Continuous oversight of project is critical
  - Break bad habits

- Project Management skills
  - Leadership, critical thinking, planning, communication, scheduling, risk evaluation, negotiation, task management, quality management, budgeting, tech-savvy, a sense of humor ☺