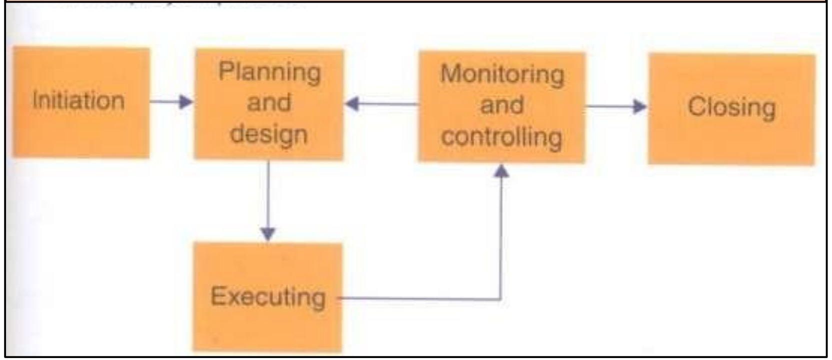
Project Management

What is Project management?

- A **project** is a series of related jobs or tasks that are focused on completion of an overall objective.
- **Project management** is planning, directing and controlling resources to meet the technical, cost and time constraints of a project.

Stages of Project Management



Stages of the Project Life Cycle

1. Project Initiation

- Identify the initial ideas for the project
- Set the project goals
- Identify the key stakeholders in the project
- Carry out a feasibility study
- Requirements for the project are identified

All the stakeholders are made aware of the expectations of the project.

Objectives of the project, scope, risks, approximate budget, timescales will also be defined at this stage.

Stages of the Project Life Cycle

2. Project planning

- A comprehensive budget and detailed timescale is formulated
- Milestones for certain parts of the project are set
- A **Gantt chart** is produced. It shows the order in which the tasks are to be done and how long each project is.
- Personnel needed for the project are coordinated. This ensures that they are available when needed.

PROJECT MANAGEMENT
1st Month
2nd Month
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
PLAN
DESIGN
DEVELOP
ANALYZE
TESTING
SUCCESS
Team A
Team B
Team C
Team D
dreamstime.com
ID 172384885 © Asfiakhan

Stages of the Project Life Cycle

3. Project Execution

- The actual work begins. The plan MUST be followed closely for better management of resources, and keeping within the timeline.
- Each team member is made aware of their roles and responsibilities and their targets, and the timescales they have to deliver their targets.

Stages of the Project Life Cycle

4. Project Monitoring and Control

- This is done throughout the execution phase.
- The project manger ensures that the tasks are completed on time. Tasks that delay are rescheduled
- Monitoring of the progress and performance of team members
- Monitoring and tracking budgeting and spending
- Monitoring the scope of the project so that it remains within the boundaries agreed upon.
- Regular review meetings are held with the stakeholders to discuss the progress of the project.
- Sometimes the project plan can be adjusted accordingly

Stages of the Project Life Cycle

5. Project Closure

- The project is handed over to the.
- Resources set for the project are released. Employees can be re-deployed elsewhere
- A review of the project between the client and the project management team is done.
- The project is signed off as completed.

Each stage has to have a phase review. This is to ensure that the project is moving according to plan with all resources being used optimally.

Project Management Tasks

PM Tasks

- Project planning
- Estimation and scheduling
- Resource management
- Project oversight
- Project reviews and presentations
- The project post-mortem

Project Planning

- Introduction and explanation of the project
- Project organization
- Risk analysis
- Hardware, software, and human resource requirements
- Work breakdown and task estimates
- Project schedule
- Project monitoring and reporting mechanisms, collectively known as project oversight

Project Organization

- How you’re going to organize the team
- What process model the project will be using
- How will the project be run on a day-to-day basis

Risk Analysis

- Schedule slips
- Defect rate is excessive
- Requirements misunderstood
- Requirements churn
- Turnover
- ...

Risk Addressing

- Avoidance
- Mitigation
- Risk handling plan

Resource Requirements

- People requirements
- Time requirements
- Hardware and software requirements
- Knowledge requirements

Work Breakdown and Task Estimates

- Tasks definition
- Size estimation
- Time estimation

Project Schedule

- Developments constraints
- People constraints
- Time constraints
- Customer constraints

Project Schedule

- Get your developers to tell you the dependencies between tasks.
- Figure out what your duty cycle is. Out of each eight-hour day, how many hours do your developers actually do development?
- Take weekends, vacations, sick days, training, and slack into account when you’re making the schedule.
- You can’t schedule a developer to work on two tasks at the same time.

Project Oversight

Project oversight is what happens once you’ve got a schedule. Once the project begins, the work needs to be managed. How this happens depends on the used process.

Status Reviews and Presentations

- Presentation for the customer
- Presentation for management
- Presentation for the development team

Defect Management

- Fatal: Either this defect causes the product to crash, or a fundamental piece of functionality doesn’t work.
- Severe: A major piece of functionality doesn’t work, and there is no workaround for it that the user can perform.
- Serious: A piece of functionality doesn’t work, but there is a workaround for it that the customer can perform.
- Annoying: A minor defect or error in the documentation that may annoy the user, but doesn’t affect how the program works.
- New Feature Request: This isn’t a defect, but a request for the product to do something new.

The project post-mortem

- What went right?
- What went wrong?
- What process issues came up?
- What do we need to fix for next time?
- Who is responsible for the fixes?

Requirements

Requirements

The hardest single part of building a software system is deciding what to build. No other part of the conceptual work is as difficult in establishing the detailed technical requirements, including the interfaces to people, to machines, and to other software systems. No other part of the work so cripples the results if done wrong. No other part is more difficult to rectify later. Therefore, the most important function that the software builder performs for the client is the iterative extraction and refinement of the product requirements.

Fred Brooks

Requirements

- ***Functional requirements*** - the list of features the user will see and be able to use when they fire up your program (black box)
- ***Functional specification*** - lower-level requirements that talk more about how your program works, rather than what it does
- ***Technical specification*** - describes the internal implementation details of the program.

Outline of a Functional Specification

- Overview
- Disclaimer
- Author’s Name
- Scenarios of Typical Usage
- Detailed Screen-By-Screen Specifications
- Non-requirements
- Open Issues
- Design and Feature Ideas
- Backlog

Types of Requirements

- User Requirements
- Domain Requirements
- Non-functional Requirements
- Non-requirements

Requirement Digging

- The requirements are often too general
- The statements can be hard-coded
- Requirements can include implementation details

Requirement Digging Problems

- Problems of Scope
- Problems of Understanding
- Problems of Volatility
- Non-technical Problems

Analyzing the Requirements

- Categorize
- Prioritize
- Examine

Requirements Examination

- Is each requirement consistent with the overall project objective?
- Is this requirement really necessary?
- Is this requirement testable?
- Is this requirement doable in the technical environment?
- Is this requirement unambiguous?

Literature

John Dooley:

Software Development and Professional Practice (Chapters 3, 4)

Thank You!