Project Management

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Project management? Why?

- The cost is always out of the budget
- The depedent task is not completed
- Emergency: tomorrow will be deadline
- I keep working hard, the milestone is still far away.
- problems of the process
  - how to assess
  - I will do it, you go firstly.

The goals

- To help you think about managing your own group project and complete your design report
- To introduce project management focusing on project scheduling tools and techniques

Triple Constraints

- Scope (functionality)
- Resources (cost)
- Schedule (time)

Success criteria

- Deliver the software that meets the customer's expectations to the customer at the agreed time
- The resources are fixed, keep overall costs within budget
- Maintain a coherent and well-functioning development team

Factors influencing project management

- Software customers
- Software type,size
- Organizational culture
  - credit, relationship(chinese,关系，面子)
- Software development processes

Project Planning

- Probably the most time-consuming project management activity
- Continuous from initial concept through to system delivery
- Plans must be regularly revised as new information become available
- **A plan is more than just a schedule, it's the tools your need to run the project and how they're to be used**

In project plan(1)

- Introduction
  - Set out objectives and constraints
- Project organisation
  - Development team, roles and organisation
- Risk analysis
  - Possible risks, likelihood and possible reduction strategies
- Hardware and software resource requirements
  - Hardware and software support, estimated cost and delivery timeline of new hardware for the project

In project plan(2)

- Work breakdown
  - Activities, milestones and deliverables
- Project schedule
  - Dependencies and estimated time between activities
- Monitoring and reporting mechanisms
  - Management reports
  - Monitoring mechanisms

Planning

- The project plan created at the start of a project
  - Communicates with project team and customers, how the work will be done
  - helps assess progress on the project
- It consists of
  - breaking down the work into parts and assign these to project team members
  - anticipate problems that might arise and prepare tentative solutions to those problems

Project Plans

- In a plan-driven development project,
  - a project plan sets out the resources available to the project, the work breakdown and a schedule for carrying out the work.
- A plan needs:
  - Project organization
  - Risk analysis
  - Hardware and software resource requirements
  - Work breakdown
  - Project schedule
  - Monitoring and reporting mechanisms

Planning Assumptions

- Should make realistic rather than optimistic assumptions when you are defining a project plan
- Problems always arise, and these lead to project delays
- Initial assumptions and scheduling should therefore take unexpected problems into account
- Should include contingency in your plan

Project Scheduling Activities

- Split project into tasks and estimate time and resources required to complete each task
- Organize tasks concurrently to make optimal use of workforce
- Minimize task dependencies to avoid delays caused by one task waiting for another to complete

Scheduling Problems

- It is hard to estimate the difficulty of problems and hence the cost of developing a solution
- Productivity is not proportional to the number of people working on a task
- Adding people to a late project makes it later because of communication overheads
- The unexpected always happens.
- Always allow contingency in planning!

Tasks

- Tasks are the basic planning element.
- Each task has:
  - a duration in calendar days or months
  - an effort estimate, which shows the number of person-days or person-months to complete the work
  - a deadline by which the activity should be complete,
  - a defined end-point, which might be a document, the holding of a review meeting, the successful execution of all tests,etc.

Milestones and deliverables

- Milestones are points in the schedule against which you can assess progress, for example, the handover of the system for testing.
- Deliverables are work products that are delivered to the customer, e.g.
  - a requirements document for the system.

Activity tools

- Activity bar chart
- Activity network
- Gantt chart
- Staff allocation chart

Risk and Issue Management

- Risk management is concerned with identifying risks and drawing up plans to minimise their effect
- You have to anticipate risks, understand the impact of these risks on the project, the product and business, and take steps to avoid them
- An issue is a risk that's happened!
- Risk and issue logs are needed throughout

Risk classification

- There are two dimensions of risk classification
  - The type of risk (technical, organizational, ..)
  - What is affected by the risk:
    - Project risks affect schedule or resources;
    - Product risks affect the quality or performance of the software being developed;
    - Business risks affect the organisation developing or procuring the software

Risk analysis

- Assess probability and seriousness of each risk
  - Probability may be very low, low, moderate, high or very high
  - Risk consequences might be catastrophic, serious, tolerable or insignificant

Risk planning

- Consider each risk and develop a strategy to manage that risk.
- Avoidance strategies
  - The probability that the risk will arise is reduced;
- Minimization strategies
  - The impact of the risk on the project or product will be reduced;
- Contingency plans
  - If the risk arises, contingency plans are plans to deal with that risk;

Risk monitoring

- Assess each identified risk regularly to decide whether or not it is becoming less or more probable
- Also assess whether the effects of the risk have changed
- Each key risk should be discussed at management progress meetings

Communication plan

- Stakeholder
- Communication method
- Frequency
- Responsibility
- With whom

THE END