Project Planning

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Chapter 9
Learning Objectives

- Clearly defining the project objective
- Developing a work breakdown structure
- Developing a network diagram
- Utilizing a project management methodology called the systems development life cycle for information systems development projects
Real-World Discussion

- Planning is an essential part of project management.
- In essence, the plan is a roadmap.
Real-World Discussion (Cont.)

- Andrew Smith compiled “thirty nuggets of wisdom”, including:
  - Stop and think before you actually start a project.
  - Focus on the work.
  - Find out how similar problems were handled before.
  - Communicate your ideas.
  - Don’t set the plan until the required data are available.
Project Objective

- The first step is to define the project objective.
- The objective must be clear, attainable, specific, and measurable.
- The objective is usually defined in terms of scope, schedule and cost.
Work Breakdown Structure (WBS)

- The second step is to determine what activities need to be performed.
- A list of all the activities must be developed.
- The WBS is a hierarchical tree of end items to be accomplished.
- A work item is one small piece of the project.
- A work package is the lowest-level item.
Responsibility Matrix

- Displays in tabular format the individuals responsible for the work items.
- “X” can be used to indicate who is responsible.
- “P” indicates who has primary responsibility.
- “S” indicates who has secondary responsibility.
Activities, Defined

- An activity is a piece of work that consumes time.
Developing the Network Plan

- After all activities have been defined, they are graphically portrayed in a network diagram.

- Two network planning techniques were developed in the 1950’s:
  - Program evaluation and review technique (PERT)
  - Critical path method (CPM)
Gantt Charts

- Gantt charts, or bar charts, are popular due to their simplicity.
- Activities are listed down the left-hand side.
- A time scale is shown along the bottom.
Gantt Charts (Cont.)

- Does not display the interrelationships of activities.
- If one activity is delayed, it is not obvious how that will affect other activities.
- Most project management software show these relationships with arrows.
Network Principals

- Different formats can be used to draw the diagram:
  - Activity in the box (AIB)
    - a.k.a. activity on the node (AON)
  - Activity on the arrow (AOA)
Activity in the Box (AIB)

- Each activity is represented by a box.
- The activity description is written in the box.
- Each box is assigned a unique activity number.
- Activities have a precedent relationship.
- Some activities may be done concurrently.

Mix Ingredients

2

Bake Cake

3
Activity on the Arrow (AOA)

- Each activity is represented by an arrow.
- Activity description is written above the arrow.
- Tail of arrow designates start of activity.
- Head of the arrow designates completion of activity.

Mix Ingredients → Bake Cake

2 3 4
Activity on the Arrow (AOA) (Cont.)

- Activities are linked by circles called events.
- An event represents the finish of activities entering and the start of activities leaving.
- Each event is assigned a unique activity number.
Dummy Activities

- Used in the AOA format.
- Consumes zero time.
- Represented by a dashed arrow.
- Needed for:
  - Helping in the unique identification of activities.
  - Showing certain precedent relationships.
Dummy Activities (e.g.)

- Activities A and B can be done concurrently.
- After A is finished, C can start.
- After A and B are finished, D can start.

![Diagram of activities and dependencies]
Loops

- Not allowed because it portrays a path of activities that perpetually repeats itself.
Laddering

- Used for projects that have a set of activities that are repeated several times.
- Activities use limited resources.
- Activities scheduled to make best use of resources and complete in shortest possible time.
Preparing the Network Diagram

- Ask the following questions regarding each activity:
  - Which activities must be finished immediately before this activity can be started?
  - Which activities can be done concurrently with this activity?
  - Which activities cannot be started until this activity is finished?
Preparing the Network Diagram (Cont.)

- Should flow from left to right.
- Not drawn to a time scale.
- Can vary in how detailed the diagram should be.
- AIB vs. AOA is a matter of personal preference.
- AIB is the most common in project management software packages.
Preparing the Network Diagram (Cont.)

- Determining level of activity detail
  - Change in responsibility implies a new activity.
  - Output of deliverables should define and end to an activity.
  - Activities should not overlap intervals in which project progress is reviewed.
Information System, Defined

- An information system (IS) is a computer-based system that accepts data as input, processes the data, and produces useful information for users.
Planning for Information Systems Development

- The systems development life cycle (SDLC) is used to help plan, execute and control IS development projects.

- Many people view the SDLC as a classic problem-solving approach.
Steps of the SDLC

1. Problem definition
2. System analysis
3. System design
4. System development
5. System testing
6. System implementation
SDLC: Problem Definition (1)

- Data collection and analysis
- Define problems and opportunities
- Study feasibility
  - Technical
  - Economic
  - Operational
SDLC: System Analysis (2)

- Define system scope
- Interview potential users
- Study existing system or process
- Define user requirements
SDLC: System Design (3)

- Produce alternative conceptual designs
- Evaluate alternatives
- Select best alternative
SDLC: System Development (4)

- Purchase hardware
- Purchase, customize or develop software
- Prototype system
SDLC: System Testing (5)

- Test individual modules
- Test entire system
- Corrections made to new system
- Testing complete when both users and developers satisfied
SDLC: System Implementation (6)

- Replace existing system with the new, improved system
- Train users
SDLC Continues

- Review development process
- Maintenance
- Modifications
- Enhancements
Project Management Software

- Allow the project manager and the project team to plan and control projects interactively.
- Contain many common features.
- See Appendix A.
- Directory of project management software
  
  http://www.infogoal.com/PMC/PMCSWR.htm