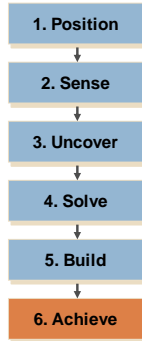


PSU Problem Solving Process



The Last Step

- PLAN
- IMPLEMENT
- EVALUATE

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The Last Step

- PLAN
 - IMPLEMENT
 - EVALUATE
- } Project Management

How does a project get one year late?

...One day at a time.

-Frederic P. Brooks



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Project Management Questions

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- How long will it take to complete the project?
- What individual tasks make up the project and in what order must they occur?
- Where do we have flexibility in task start and finish dates, i.e., which tasks can be delayed without affecting the overall schedule?
- What tasks are “critical” and must be completed exactly as planned in order to keep on schedule?
- Who is working on which task, and is there any flexibility, if needed?
- Are we going to be finished on time and on budget?

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Project Management Tools

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- Modern project management tools can help answer these questions:
 - Critical Path Method (CPM) scheduling
 - PERT (Program Evaluation & Review Technique) for task analysis
 - GANTT charts for evaluation and control
- Programs like Microsoft Project combine these techniques so that projects can be more predictable and managed more proactively.

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CPM (Critical Path Method)

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- An approach that helps you organize, manage and control a project.
 - Identify the tasks/activities
 - Determine task sequence
 - Calculate task lengths
 - Graphically present an overview
- And most importantly...
 - Work out the critical path

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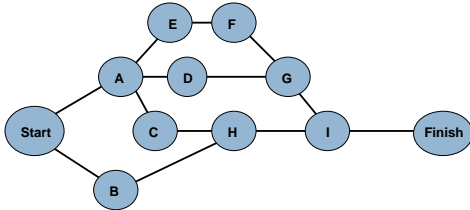
Modernize A Shopping Center

| Task Code | Description | Predecessor | Time (weeks) |
|-----------|--------------------------------|-------------|--------------|
| A | Prepare architectural drawings | None | 5 |
| B | Identify potential new tenants | None | 6 |
| C | Develop prospectus for tenants | A | 4 |
| D | Select contractor | A | 3 |
| E | Prepare building permits | A | 1 |
| F | Obtain permit approval | E | 4 |
| G | Perform construction | D, F | 14 |
| H | Finalize tenant contracts | B, C | 12 |
| I | Tenants move in | G, H | 2 |

Total Time = 51 weeks

Viewing The Plan Visually

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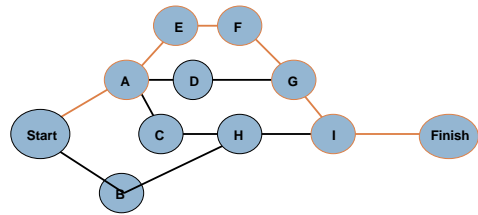
- Now you can see which task can be done concurrently

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Critical Path

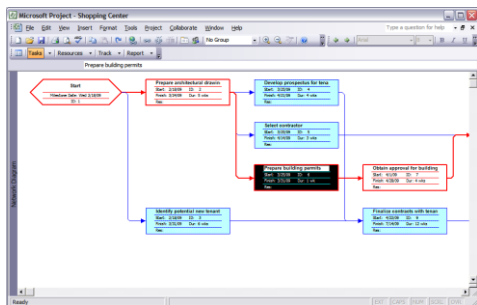
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- Figure out the Critical Path – the longest path through the project
- Total time can be reduced from 51 weeks to 26 weeks by working concurrently



Critical Path

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PERT

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- It lets you make an optimistic, pessimistic and “best guess” estimate of the time it will take for each task and the entire project
- Use a weighted average and a formula
- Plug this timing into the Project Management Software

$$\text{Estimated Time} = \frac{(\text{Optimistic} \times 1) + (\text{Best Guess} \times 4) + (\text{Pessimistic} \times 1)}{6}$$

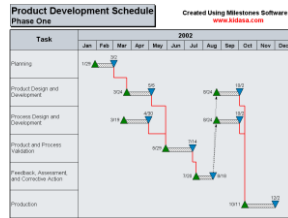
Best Guess = 10 weeks
 Pessimistic = 14 weeks
 Optimistic = 8 weeks
Estimated Time = 10.2 weeks

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GANTT Charts

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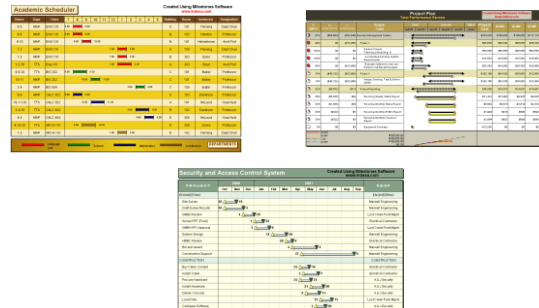
- Another way of looking at the relationships between activities and manipulating dependencies.



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Many Types Of GANTT Charts

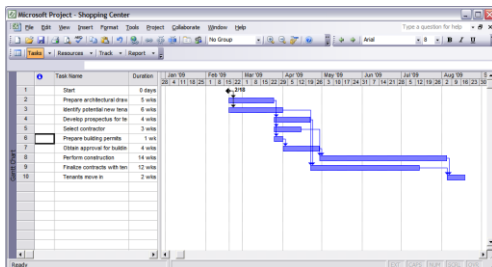
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Microsoft Project

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Resources

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- You must also allocate resources to each of the activities.
 - Who will do it?
 - How much will it cost?
 - Materials and labor
- Many software packages will allow you to track progress against budget and manage resource allocation.

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Managing Project Meetings

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- **DO** produce an agenda and provide it before the meeting.
- **DON'T** ignore what your team members have to say.
- **DO** make a note of who is following up on each course of action.
- **DON'T** let deadlines drift – keep a tight rein on them.
- **DO** review any action planned at a meeting
- **DON'T** neglect to prepare properly for each meeting.
- **DO** face up to change if it proves necessary.

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