Applied Software Project Management

Project Schedules

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Overview

- **Track the performance of the project**
  - Project Metrics.

- **Managing multiple projects**
  - Understand dependencies between projects.
  - Prioritize projects realistically.
  - Use the schedule to manage commitments.

- **Diagnosing scheduling problems**
  - Working backward from a deadline.
  - Misunderstood predecessors.
Project Metrics

- Baseline
- Actual Schedule
- Variance
- Earned value management
- Budgeted cost for work scheduled
- Actual cost of work performed
- Cost performance index

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Project metrics

- **baseline** is the version of the schedule that has been approved
  - The schedule will change based on the actual work done by the project team. — *Actual Schedule*
  - When the deadline of the revised schedule is later than that of the baseline, the project has **slipped**.

- **Variance** is the difference between the estimated effort in the baseline and the actual effort performed by the team.
Project metrics

**Earned value management** tracks the project by considering effort “earned” against a budget only after it has actually been performed.

- The *budgeted cost for work scheduled* (BCWS) is the estimated effort of the actual tasks that appear on the schedule to date.
- The *actual cost of work performed* (ACWP) is the effort spent on the tasks in the schedule that have actually been completed by the development team members.
- Variance = BCWS – ACWP
Project metrics [+]

- Variance is small the delay
  - The project manager should look for one or two tasks that are delayed.

- Variance is large
  - There is a problem which the way the team estimated the tasks.
  - In future, project manager should spend extra time with the team to work on the estimates. — ex: use Wideband Delphi estimation.

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Project metrics

The cost performance index is used to compare projects with each other or to compare phases within a project.

- CPI is calculated by dividing BCWS / ACWP (budgeted cost for work scheduled/actual cost for work performed) and multiplying by 100 to express it as a percentage.
- A CPI of 100% means that the estimated cost was exactly right and the project came in exactly on budget.
- A CPI under 100%, the work cost less effort than planned; a CPI greater than 100% means that the estimate was not adequate for the work involved.

  - For example, if the programming tasks took twice as long as estimated but every other type of task in the project took less time than estimated, the total variance for the project might still be low. However, the problem can still be pinpointed by calculating the CPI for each phase of development.
Managing multiple projects

Independent projects

- Just manage each project independently with a separate project schedule for each one.

Dependent projects

- Two projects rely on same resource.
- A work product generated by one project is needed by the other.
Understand dependencies between projects

- Pipelined projects
- Shared resources
- Resource pool
- Over allocation
- Under allocation
- Identify predecessors

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Prioritize projects realistically

- Every stakeholder feels that his project is the most important one.
- Follow money.
- No two projects should have same priority.
- Projects should be listed based on the priority and should indicate the dependencies.
- Each resource should be assigned to the next highest priority task.
- Periodic meetings should be held to reevaluate the project priorities.
Use the schedule to manage commitments [+]

- The schedule is a powerful tool for commitment management.
- Adding review meetings.
- Explicit adding a task to the schedule.
  - Real commitment from the team to adopt the new practice.
Diagnosing scheduling problems [+]

Projects fail if

▷ There is no schedule created by the project manager.
▷ When the schedules are not correct.
  • Working backward from a deadline.
  • Misunderstood predecessors.
Working backward from a schedule [+]

- Dates come from marketing or customer relations needs instead of being based on estimates of actual effort from the team.
- Project managers will work backward from the deadline by dividing the project into phases and assigning each phase a certain percent of the schedule.
- The people working on the project are asked to perform an impossible task.
Misunderstood predecessors

- If a dependency is discovered halfway through the project, it can send the entire team into chaos.

- If WBS is not created, it is common to discover important tasks of the project after the work has started.

- Software testers don’t create the project, yet they bear the burnt of the pressure.
Conclusion [+]  

- Track the performance of the project.  
- Managing multiple projects.  
- Diagnosing scheduling problems.
Questions?