Today’s Agenda...

- Q&A from Session #1
- Group Meeting
- Sequencing Activities
- Building a Network Logic Diagram (NLD)...
- ...and Transforming it into a Schedule
- Change Management Control
- Q & A
- Group Meeting

Questions about Session #1?
Group Project Discussions

- Assemble into assigned Groups
- Status update on the Group Project
- How have you been able to incorporate anything discussed so far into the management of this Project since our last meeting? Scope definition? Resource requirements? Duration estimates?
- What suggestions, questions and ideas do the Group Members have about the management of the Project since our last meeting?

“A schedule defends from chaos and whim…”
Annie Dillard, author and journalist

Planning a Project…
Sequencing the Work

- The Network Logic Diagram (the “NLD”)
- The Gantt Chart
- Two documents, different format, but same information about the project activities
First Step...

- Sequence the Activities from the lowest level(s) of the WBS
- Place in the logical order in which Activities should occur – this means without allowing for resource or calendar constraints (not yet!)
- Known as Determining the Precedence of the Activities

Determining Precedence: Travel Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>Predecessor(s)</th>
<th>Successor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pack</td>
<td>none</td>
<td>B</td>
</tr>
<tr>
<td>B. Drive to Shuttle</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>C. Ride Shuttle to Terminal</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>D. Go Through Security</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td>E. Sprint to Gate</td>
<td>D</td>
<td>none</td>
</tr>
</tbody>
</table>
### Determining Precedence: Widget Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>Predecessor(s)</th>
<th>Successor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Develop Product</td>
<td>none</td>
<td>B, C</td>
</tr>
<tr>
<td>B. Manufacture 1000 Lots</td>
<td>B, D</td>
<td>none</td>
</tr>
<tr>
<td>C. Develop Marketing</td>
<td>A</td>
<td>D</td>
</tr>
<tr>
<td>D. Advertise Product</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td>E. Sell 1000 Lots</td>
<td>B, D</td>
<td>none</td>
</tr>
</tbody>
</table>

### Determining Precedence: Revisit the Thanksgiving Feast

<table>
<thead>
<tr>
<th>Activity</th>
<th>Predecessor(s)</th>
<th>Successor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...and so on...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Building Network Logic Diagrams (NLD)

- Activities are always indicated as rectangles (Activity Boxes)
- Arrows indicate Precedence Relationship between Activities
- This example shows a Finish-to-Start (FS) relationship which is the most common type.
- Activity IDs are always shown in the center of the Activity Box
- Activity Durations are always shown in units of time (usually defined days or defined weeks) outside and on top of the Activity Box

Widget Project Network Logic Diagram...

Thanksgiving Feast Project Network Logic Diagram...
Use whole units of time – one day, one defined week
  • Here we will use days

Assume Activity finishes at end of a day

Assume Successor starts at beginning of next day

Example – Activity A has a Duration of 3 days
  Activity A starts at beginning of Day 1
  Activity A finishes at end of Day 3 (NOT Day 4!)
  Successor Activity E starts at beginning of Day 4

Formula:  \( \text{Start} + \text{Duration} - 1 = \text{Finish} \)

What is the Duration in days of the Widget Project?

Estimate realistic Durations in days for the Activities in your Thanksgiving Feast Project...
  • what is the Project Duration?
  • but is it realistic when taking into account
    • your holiday schedule?
    • supermarket crowds?
    • anything else?
Definition of “A Day in the Life of a Project Manager”

First Step: Determine what is needed to meet your schedule, assuming all resources are available.

Second Step: Adjust schedule to reflect current reality of resource availability (quantity, quality and/or calendar constraints) (emphasis added).

Pure Estimates – Resource and/or Duration estimates derived for “generic” Activities and without accounting for context or circumstances of specific Project.

Pure Resourcing – Determining Resources needed to complete work assuming that they will be available in correct quantity and quality.

Pure Durations – Determining Activity Durations assuming:
- Resources will be available when needed for as long as needed, AND
- no other constraints exist to impact negatively.

Recall from Session #1...

REQUIREMENTS vs. AVAILABILITY

Definition of “A Day in the Life of a Project Manager”

First Step: Determine what is needed to meet your schedule, assuming all resources are available.

Second Step: Adjust schedule to reflect current reality of resource availability (quantity, quality and/or calendar constraints) (emphasis added).

Determining Project Duration...

..."First Step"
Recall Also From Session #1...  
..."Second Step"

- Adjust to reflect this Project’s current reality – these factors (among many others) CANNOT be ignored –
  - The length of review and approval cycles
  - The amount of time required for obtaining approvals
  - The timing of budget cycles
  - The amount of time required for administrative processes such as internal communication and documentation
  - The additional amount of time required for inter-department processes
  - The amount of time required for obtaining resources if not available internally

But Wait...There’s More...!

- Things are about to become even more exciting because we haven’t yet created a workable Project Schedule!
- That’s right...we haven’t yet considered the biggest obstacle between a Project Team and its “Pure” Durations

THE CALENDAR

Determining Project Duration...  
...Last Step

- Calendarization- Final step required to transform a Network Logic Diagram into a true Schedule by imposing it upon a calendar
  - Start of the first Activity is “pinned” to the calendar date that is the beginning of the Project
  - Finish of the last Activity provides the calendar date on which the Project ends

- Calendarization- Also final step required to adjust “Pure” Estimates to the harsh realities of calendar and seasonal constraints
To the “Reality Factors” listed back on Slide 25 consider adding the following calendar constraints, among many other possibilities –

- Some are applicable in any organization –
  - National and regional holidays
  - Religious and cultural holidays
  - Maternity/paternity leaves
  - Pre-existing Resource allocations
  - Business travel schedules
  - Security time mandates
  - Others?

And yet more calendar constraints, among many other possibilities –

- Some are applicable specifically to Boston College –
  - Fiscal Year end date May 31st
  - Academic calendar requirements
  - Faculty schedules
  - Friday “early release”
  - Schedules of sporting events
  - Procurement Office cycles
  - Others?

And on an even more granular level, still among many other possibilities –

- Some are applicable to certain departments/offices –
  - Training/certification cycles
  - Professional conference schedules
  - Security needs impact on time
  - Peak work cycles – busiest time for Network Services is different than that for Housekeeping Services is different than that for Alumni Relations, and so forth
  - Others?
“We’ve produced a Work Breakdown Structure (WBS)
Congratulations! We now have a Project Scope Baseline.
- This is what we will measure scope progress against in status reports
- This is what needs to be followed (no more and no less) in order to complete the project successfully and as planned!
All attempts to depart from this Baseline must be controlled!”

Take a Moment to Assess...First, Our Session #1 Milestone...

Now, Another Milestone...
- We’ve produced a Schedule
- Congratulations! We now have a Project Schedule Baseline.
- This is what we will measure current schedule status against in periodic project status reports
- This is what needs to be followed in order to complete the project on time and as planned!
- All attempts to depart from this Baseline must be controlled!”
Change Control Plan and Processes

From a BC ITS Project Charter Template

- 10.4 Change Requests
  - Describe how changes to the schedule, scope, or budget will be tracked and managed.

The Answer to That Question...

- The Change Control Plan and its Change Control Processes
Some Definitions...

- Change Control Plan (or Change Management Plan)
  - Defines the processes for managing requests for project changes as well as those for controlling and managing approved project changes
  - Deals with changes to all of the “triple constraint” parameters
    - but typically emphasize scope changes since most common

Some Definitions...

- Change Control Processes (or Change Management Processes)
  - Reviewing all change requests
  - Rejecting/approving change requests
  - Assuring that only approved changes are incorporated in the project
  - Coordinating approved changes across all project processes
  - Communicating approved changes to stakeholders
  - Allocating and managing responsibility for integration of approved changes

Caveats About Controlling Changes

- Controlling Changes = No Changes!
- Change is inevitable, and often a positive development
- Need to manage the change, not prevent it (and, not be managed by it)
- Seek to avoid nasty surprises – both for yourself and others
Types of Change Requests

- **Updates** – Changes (typically to Product Scope) to reflect modified or additional content or design
  - Scope changes should be directly related to a change in the project deliverable; if not, is it really necessary?
  - Run from scope creep (a/k/a, “death by a thousand cuts”)
- **Defect Repairs** – Changes based on need to repair or replace component or design element identified as defective
  - Design flaw, or part found inadequate for projected work load

Types of Change Requests

- **Corrective Actions** – Needed to bring future work performance in line with Scope and/or Schedule Baseline and Project Management Plan; often result from QA process
- **Preventive Actions** – Needed to reduce impact and/or probability of identified negative risk; often result from Risk Identification and Risk Monitoring Processes

Handling Change Requests

- All change requests that may impact scope, cost or schedule must be reviewed and approved/rejected by the specified authority – either the Project Sponsor or the Change Review Board!
- Change Review Board – Group responsible for reviewing, approving or rejecting project change requests
Handling Change Requests

- Document them...document **everything** about them!
- **Sample of Change Management Log**

<table>
<thead>
<tr>
<th>Description</th>
<th>Requested</th>
<th>Date Received</th>
<th>Date Approved</th>
<th>Date Executed</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
</table>

- Approved changes must be communicated quickly and fully to all impacted stakeholders
- Project documents and baselines must be updated to reflect approved changes prior to the first status reporting date following the approval
- Responsibility for the integration and implementation of approved changes must be assigned to a specific team member – if not, don’t be surprised when it doesn’t get done
- Resources must be provided and time must be scheduled for the integration and implementation of approved changes – if not, don’t be surprised when it doesn’t get done

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Handling Change Requests

- “Ad hoc” changes have predictable results, none of them jolly!
  - Unauthorized and unfunded cost growth
  - Schedule overruns that are “unforeseen”
  - Unplanned for resources, amazingly, are unavailable when needed
  - Creation of “The Never-Ending Project”
  - Days spent “fire fighting”
Why Get So Cranky About This?

Because... NO CHANGE REQUEST IS AN ISLAND!

- Any implemented change request will almost certainly lead to requirements for:
  - New cost estimates and more funds
  - Schedule changes
  - Revisions to activity-sequencing and milestone charts
  - Review of project risk management plan processes
  - Changes to project procurement contracts
  - Increased/additional communications to all stakeholders
  - And much more...
- Change is often positive... so let's plan to do it right!

Change Control Best Practices

- Maintain a Change Request Log
- Emphasize to team importance of NOT making changes without specific prior approval
- Make maintaining the integrity of baselines a top project priority
- Document complete impact of approved change requests for future reference (your future projects)
- Strive to produce clear and accurate Scope Statements, and have them approved
- Be prepared for Change Requests; they are inevitable and can be a positive project development
- Implement only Approved Change Requests into your Project Plan
- Escalate scope change requests promptly: costs, schedules and risks may be negatively impacted by any delay
- Control your project’s Scope, or it will surely control you!
One final thought…

“If it isn’t written down, it doesn’t exist”
Pat Armstrong, PMP

Questions?

Group Project Discussions

- Assemble into assigned Groups
- How can today’s topics be applied to your Group Project?
- Here are some examples of questions to ask and explore –
  - If you are the Project Sponsor, how confident are you of maintaining the Project Schedule?
  - For the others, does the Project Schedule seem realistic with regard to calendar constraints?
  - Have delays occurred? What have been the reasons for those delays? Have Resource/Duration Estimates been adjusted for any BC–specific constraints?
Group Project Discussions

- ...and more examples of questions to ask and explore -
  - Have there been Change Requests yet on the Project? What type (scope, schedule)? Who was the source (sponsor, end-user, other stakeholder)?
  - Among the Group members, what documentation and communication protocols have been implemented in connection with Change Requests and Change Controls? What useful practices and/or templates can you share that will be appropriate for the Group Project?

Next Session...

- Wednesday, April 9th at 9am
- Groups will meet briefly for update on the Group Project
- Topics to be presented -
  - The Critical Path Method
    - What it is
    - How it works
    - How to use it to optimize your schedules
- Groups will again meet briefly for discussion

Thanks for your participation.

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