

Managing Schedule Change

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Managing Schedule Change

Outline

- *Change Drivers*
- *Contract Changes Clause*
- *Schedule Change Control*
- *Questions & Discussion*

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Why Schedule Change Management?

“Time is a resource that cannot be stored and reused on a Project.”

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The Project Triangle

PCTS Relationship

- Performance
- Cost/ Resources
- Time
- Scope of Work

You can pick any three!



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The Project Schedule

The Project Schedule serves several purposes:

- Project Planning (and Communication)
- Monitoring Progress and Changes
- Evaluate Time Impacts
- Forecasting: Acceleration and Recovery Plans
- Historic Record of What Happened on the Project.

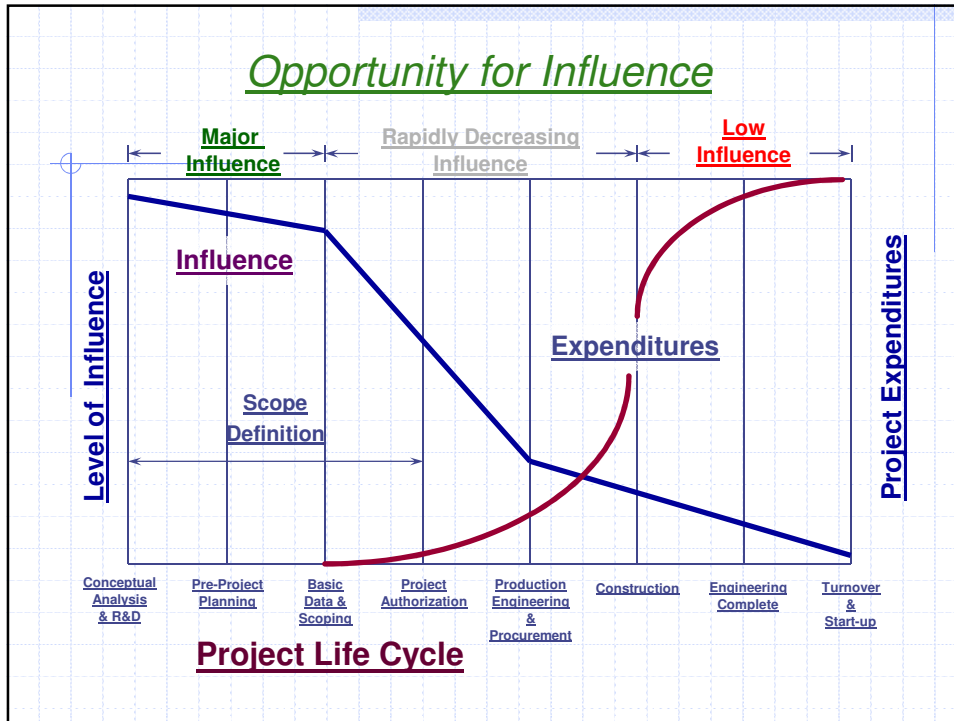
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Changes ~ Observation

“Changes on an engineering and construction project can be expected, but those directing the change must understand the potential for cost and schedule consequences of those changes.”

- Construction Industry Institute (CII)

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Change Management Planning & Design Phase

“Changes made during the planning and engineering phase of a project are more cost effective.”

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Change Management Planning & Design Phase

Owner should “freeze the scope as early as possible in the design process.”

- Construction Industry Institute (CII)

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Review The Contract

- ✓ No Damage for Delay Clauses
- ✓ Ownership of Project Float
- ✓ Treatment of Concurrent Delays
- ✓ Notification Requirements
- ✓ Definitions & categories of Delays
- ✓ Accepted Methods of Time Impact Analysis

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Contract Considerations

- Risk Allocation in Construction Contracts
- Timely Written Notice
- Project (Schedule) Documentation
- Format for Dispute Resolution

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Potential Schedule Impacts & Risks

- *Weather days– adjustments for seasonal averages? Severe or Adverse Weather?*
- *Acceleration – options to improve schedule*
- *“Time versus Cost” comparison with Budget*
- *Is Schedule Contingency included?*

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Schedule Progress Reporting & Updating

- *Frequency of Status updates*
- *Level of Detail - reported upward to Owner*
- *Method of Reporting Impacts and/or delays
Incorporation of Change Orders*
- *Method of Highlighting Schedule “Issues”*
- *Float Ownership and Use*

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Schedule Integration

- ☆ *Integration of Engineering, Procurement Deliveries,
Owner Furnished Fixtures or Equipment (FFE), or
Commissioning “by Others”*
- *Integration and Coordination with Subcontractors*
- *Master Project Schedule – Who is responsible?
Owner’s Representative? Construction Manager?
or General Contractor?*
- *Schedule Revision process*

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Why a Change Process?

The owner will have the right to order changes.

*The contractor will be required to make changes
in return for an equitable adjustment in the
contract price and time.*

*Arthur F. O'Leary
A Guide to Successful Construction*

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What are Change Sources?

Scope Changes:
are any additions, modifications or deletions
to the end product or service.

Baseline Change sources can be:

- Client driven
- Regulatory driven
- Internal sources
- External sources

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Change Source ~ Client Drivers

Client Drivers may:

Alter the scope (end product or service)

Increase or decrease the project cost

Alter the schedule by either:

- Advancing project or milestone completion
- Delaying project dates

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Change Sources ~ Regulatory

Regulatory Drivers:

Originate from organizations having authority to mandate directives on the project.

- Federal
- State
- Local
- Quasi-governmental (i.e. ASTM)

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Change Sources ~ External

External Drivers:

are changes that affect the project environment:

- Economic
- Political
- Social

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Change Sources - Internal

Internal Drivers:

are forces within the project:

- Technical difficulties
- Problems meeting schedule
- Costs exceed client funding
- Resource limitations

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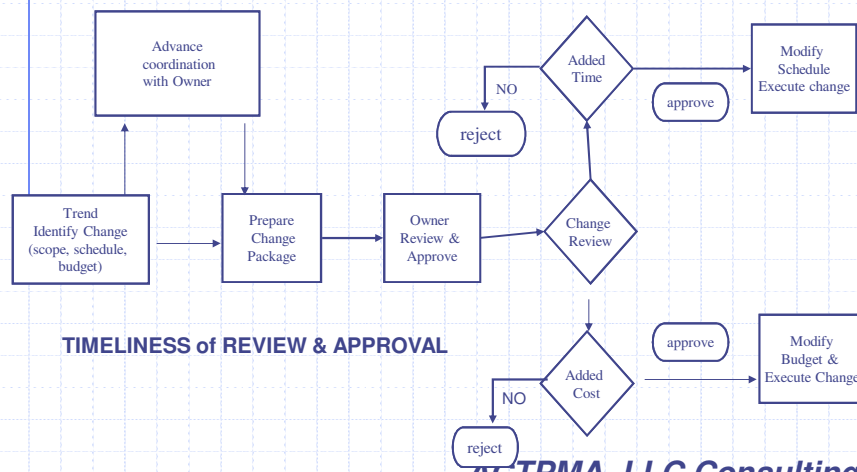
Change ~ Observation

“The overall change process must be managed efficiently during all stages: Planning and Design, Bid/ Award, and Construction.”

- Construction Industry Institute (CII)

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Change Process



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Change Process – Thoughts

“The earlier that a project resolves the change process, the more likely the project will be able to effectively manage changes.”

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Schedule Changes Contract Change Process

- *Notification, Submittal, and Approval time frame and Process*
- *Format for Schedule Change Approval*
- *Is a Time Impact Analysis or a Fragnet Required? What else?*

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Trends and Change Control

“The ability of the Project to successfully deal with change drivers is improved by establishing a viable Trend and Change Control program.”

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Trend Program

The Trend Program is an “Early Warning System” to detect any real or perceived change in project scope, schedule or cost which may cause an addition or reduction to the project baseline estimate, including corrections for scope or estimate omissions.

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Trends & Project Controls

Project Controls Responsibilities:

- Coordinate implementation
- Develop Trend Procedure
- Serve as Trend Administrator
- Schedule & Conduct Trend Meetings
- Maintain Trend Database & Log System

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Administrative Changes

Minor changes which do not impact scope or cost or contract milestones do not require formal change control processing.

The “ABC” log is maintained to document administrative baseline changes.

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Cost Reduction Changes

- *Cost reduction changes could reduce time of performance.*
- *Cost reduction changes may be due to better design definition, reduced system requirements, improved technology, or project progress.*
- *Cost reduction change proposals usually require less preparation and supporting documentation.*

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Schedule Change Control

Schedule change control is an important element of the Project change control program.

Schedule changes must be approved and documented as part of the Project record.

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Changes During Construction

Changes should be resolved in a timely manner as they occur.

Do not defer changes resolution until the end of a project.

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The Schedule Submittal

Applicable for the Baseline and the Updates

- *Submit Complete Hardcopy Reports*
- *Submit Electronic Copy of Schedule*
- *Submit written Schedule Narrative*
- *Maintain a complete file copy of all submittals*

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Document the Schedule Basis **A Graded Approach**

- *Scope of Work*
- *Work Breakdown Structure*
- *Key assumptions and constraints*
- *Issues and Impacts (Risk)*
- *Inclusions and specific Exclusions*
- *Schedule Change Process*
- *Integration & Progress Reporting Process*
- *Key Procurements and Submittals*

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Review The Baseline Schedule

- ✓ Verify that the Baseline matches the Contract Bid assumptions
- ✓ Clarify Scope; Details & Responsibilities
- ✓ Ensure that the Baseline is incorporated into the Subcontracts (and vice versa)
- ✓ Ensure Vendor Deliveries match the Baseline
- ✓ Review the predecessor/successor logic

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The Scheduler & Updates

- ❑ How to obtain Progress and Status?
- ❑ What about Changes, Delays, Impacts?
- ❑ Who maintains the record of As-Built Facts?
 - Refer to Daily Reports / Weather Reports
 - Recording Change Directives
 - Meeting Minutes / Project Correspondence

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The Scheduler's Rules

To maintain Project Schedule integrity:

- ✓ Revise only as directed by management
- ✓ Revise only when an approved change order affects activity or project durations.
- ✓ Provide recommendations to project management on schedule-related strategies.
- ✓ Communicate changes to project team
- ✓ Retain electronic copies for the project historical record.

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Schedule Time Impacts

- Obtain Schedule with Current Status
- Incorporate - Changes, Delays, Impacts
- Obtain / Record As-Built Facts
 - ✓ Daily Reports / Weather Reports
 - ✓ Change Directives
 - ✓ Meeting Minutes / Project Correspondence
 - ✓ Photographs or Video records (Key areas or critical events)

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Change Orders & Project Closeout

“All outstanding change orders and any potential change orders must be identified and resolved in a timely manner.”

~ CII Change Management Research Team

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Conclusion

When the schedule is accurately maintained and changes are documented, it is a vital element for successful project management.

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Summary

- ✓ *Contract Changes Clause*
- ✓ *Change Drivers*
- ✓ *Schedule Change Control*
- ***Questions & Discussion ?***

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