VERBETER CHANGE MANAGEMENT MET FIELD CHANGE TRACKING

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Cost Engineering Consultancy
Position

- Senior Cost Engineer (CCE) at Cost Engineering Consultancy
- Director of the Cost Engineering Academy
- Teacher at the DACE

Experience

- Provided consulting services to major companies such as: Shell, Unilever, Bayer, Cargill, Heineken, Fluor, Vopak, Enbridge, Yara and Rijkswaterstaat
Cost Engineering Consultancy

- 24+ years experience
- Operating worldwide
- Consultancy and software solutions
- Knowledge Provider
- Empowering organizations to improve their project performance
Clients and Industries

- Bulk storage
- Construction industry
- EPC(M)
- Food and Nutrition
- Infrastructure
- Offshore
- Oil & Gas industry
- Heavy industry
- Pharmaceutical industry
- Petro-/chemical industry
- Power industry
- Mining & Minerals
Our vision:
- Benchmarking
- Cost Management
- Consultancy
- Estimating
- Academy
- Cleopatra Enterprise
- Scheduling
- CESK: cost estimating data
Topics

- Change management
- Change tracking
Change management
Cost Control supports the overall viability of the project by:
- Supporting change management,
- Forecasting,
- Risk analysis,
- Corrective action planning
- Otherwise it is accounting (tracking only spending)
- This is lagging in the Netherlands and Europe
Added value of cost control

- Only tracking spending:
  - Performance problems are not noticed until too late
  - Corrective actions are more costly (if possible at all)

Goal is to spot trends and changes early and correct them when problems are manageable
Where do changes come from?

**Internal (variance/deviation)**

Examples:
- Contractor’s mistakes in design, procurement, or construction
- Productivity, labour rates, and mix variances
- Wrongly planned contractor’s work
- Engineering contractor’s design development
- A variation which the contractor should have foreseen
- Non Client-directed changes to design or execution plan

**External (scope changes)**

Examples:
- Client change to contractor's scope
- Schedule acceleration or slowdown by the Client
- Additional Client design studies
- Unidentified adverse soil and other site conditions
- Client delays in issuing information to contractor
- Defects in Client-supplied equipment and materials
- Mistakes in Client-supplied information
Changes can be significant
Can have negative side effects
  - Schedule disruption
  - Slow job momentum
  - Dampen cost conscious atmosphere
  - Divert effort from more critical tasks
  - Productivity loss
Number of changes can be significant... paper chasing instead of managing
We need a way to manage changes!
Changes for owners

- Deviation from agreed scope with the business (project plan): **scope change**
  - Additional funds needed from business

- Design changes, errors, price changes, etc. are not scope changes
  - Covered by owner’s contingency/escalation
Changes for contractors

- Deviation from agreed scope with the client (contract): **scope change**
  - Additional funds needed from client
  - Scope change for the **contract** may not be a scope change for the **project**

- Within the contract, design changes, errors, price changes, performance issues, etc. are not scope changes
  - Covered by contractor’s contingency/escalation
Setup a formal process to:

- Manage and document changes
- Support clear communication between client and contractor
- Analyse the impact of changes
- Examine risks due to changes
- Influence changes to be beneficial
- Maintain contingency/ change allowances

These processes exist and are used extensively in the US
Key steps of a Change Management Process

1. **Identify** variances, deviations and scope changes
2. **Impact** and trend analysis: Time, Cost, Quality, Scope, Business Case, Benefits, Risk
3. Consider **alternative** options
4. Make the **decision**
5. **Implement** change
6. **Lessons learned**: continuous improvement
Change management process
AACE Total Cost Management Framework
Variance analysis: spot trends

Cost Management Dashboard

Impact of changes on budget (%) 2.94
Change management process
AACE Total Cost Management Framework
Contingency & changes

- A change may create down stream risk events: be aware and build in the appropriate costs
- **Accepting a change is accepting the inherent risks**
Contingency & changes

- Track changes against contingency usage
- Poor contingency estimating and poor change management leads to early consumption of all contingency
Change Tracking
During project execution a quicker change process is common: Field Change Order (FCO) procedure.

Requested by the Owner or Contractor during execution.
Field changes occur in case of:

- Rework
- Discovery work/ extra scope that is not in the agreed work packages
- Deletion of scope from the agreed work package
- Deviation from quantities (incl. hours)
- Changes in agreed staffing plans
- Waiting hours
- Extra or fewer costs made.
Preparing for FCO tracking

- When the FCO procedure is clearly defined, paper chasing is minimized
- Centralized, tracible data
- Real-time change and trend management
  --> improved forecasting
FCO procedure

- FCO procedure follows these steps:
  
  **FCO initiation:** Contractor or Owner submits FCO in a timely manner.
  
  **FCO approval** by construction coordinator for small FCOs, Project manager for large FCOs.
  
  **Copy of signed FCO** for Owner controller, Contractor and Owner construction coordinator.
  
  **Estimate and work order** of the required resources and schedule impact.
1. **Contractor initiates** Field Change Order (FCO) request and estimates cost and hours

2a. **Owner construction coordinator.** Can approve FCO immediately if cost < €5000.

2b. **Owner project manager.** Additionally, needs to approve FCO if cost > €5000.

3. **Contractor** executes work

4. **Owner project controller** checks if FCO is part of existing scope. If yes, payment is rejected.

5. **Contractor** calculates exact cost and hours

6. **Owner project controller** checks calculation and informs owner’s project manager

7. **Owner project manager** approves/ rejects

8. **Owner project controller** adds FCO in database and updates estimate and schedule
Automation of FCO tracking process
Change is not always bad, but it must always be managed.
A streamlined process must be in place.
To achieve the best results, owner and contractor should work together.
Questions