Federal Facilities Council and International Facility Management Association Policy Forum

Owner Behaviors – Construction Success

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- The Answer Up Front:
  - Owner engagement at a level not common in most organizations.
  - Independent assessments, estimates, and progress reviews from planning through completion of the project.

Major Publications Resources

- **Megaprojects and Risk: An Anatomy of Ambition**
  - By Bent Flyvbjerg, Nils Bruzelius, Werner Rothengatter, 2003
- **The Major Drivers of Risk**
  - By Bent Flyvbjerg, Martin Wachs
- **Predicting Construction Contract Failure Prior to Contract Award**
  - By Jeffrey S. Russell and Edward J. Jaselskis
- **Optimal Allocation of Project Management Resources for Achieving Success**
  - By Edward J. Jaselskis and David B. Ashley
- **Determination of Construction Project Success**
  - By David Ashley, Clive Lurie, Ed Jaselskis

The Major Drivers of Risk Flyvbjerg

- Professor Bent Flyvbjerg of Oxford University and Martin Wachs of University of California, Los Angeles have shown that big public-works projects often have cost overruns due to strategic misrepresentation—"that is, lying", as Flyvbjerg defines the term.

  - Numerous studies have found that the greatest cause of cost growth was poorly-defined scope at the time that the budget was established. The *cost growth* can be predicted by rating the extent of scope definition, even on complex projects with new technology.

Recommended Reading

- **Megaprojects and Risk: An Anatomy of Ambition**
  - By Bent Flyvbjerg, Nils Bruzelius, Werner Rothengatter
    - Mega-project development today is not a field of what has been called 'honest numbers.'
    - In more antagonistic situations the words used….are 'deception', 'manipulation', and even 'lies'…..
- Flyvbjerg recommends independent teams to review and drive out optimism bias, better assess risks, etc. in the early planning stages.

Predictors of Success Jaselskis and Russell

- No empirical aids that include the interaction of key inputs to the evaluation process such as project, owner, contractor...exist to assist.. . in the decision process. No prior investigations have attempted to develop failure models for predicting construction project outcomes. Input from both owner and contractor are the primary focus of this investigation.
- 36 projects were included in the study. The top two owner behaviors are the strong predictors of contractor (success or) failure: The amount of owner evaluation and interaction; and whether or not (regularly scheduled) cost monitoring was performed by the owner.

Predictors of Success

- Owners can reduce the likelihood of … Construction failure by performing a "good" amount of contractor evaluation. (such as) telephoning references, credit rating reports, formal interviews of contractor staff, visit the contractor's home office and work sites.
- However, this alone is not necessarily sufficient for preventing contractor failure. The owner should perform periodic performance monitoring, including cost monitoring, unit pricing for work items prior to the start of construction (*NB:* an element of EVMS), measurements to be used to measure progress (*NB:* also an element of EVMS), progress reviews, and job site tours, at least twice per month.

Jaselskis and Ashley

- Successful owners tend to expend more effort in terms of monitoring and appraising performance of the construction project, especially in the areas of quality and safety. In these two areas, successful owners had conducted about twice as many quality and safety inspections per month on their outstanding projects. Moreover, both owners and contractors seem to have more budget and schedule updates on their successful projects.

Management Behaviors for Success Jaselskis and Ashley

- Despite seemingly endless hurdles, it is nevertheless possible for a project manager to consistently achieve outstanding project results.
- 75 construction projects were included in the study; about half were classed as outstanding, and about half as average. Mostly in the U.S., some were international. The largest segment was process plants, with the balance being manufacturing, office, power, pipeline, dams. 60% were cost plus; 36% were fixed price.
- The probability of achieving "outstanding" goes to 99 percent if there are 8 face to face review meetings per month. The probability of achieving outstanding **drops** to two percent if there are only two face to face review meetings per month. Four such meetings per month results in a 75 percent probability of an outstanding outcome.

Determination of Construction Project Success – David Ashley, Clive Lurie, Ed Jaselskis

- Studied 16 projects in great detail.
- The top 6 factors that correlated to success all related to the qualifications, experience, skills and behaviors of the top project manager.
- Project manager goal commitment; capabilities/experience; engagement in planning; motivation and orientation of the team; focus on scope and work definition; personal involvement in regular reviews.
- The next three – objectives, control systems, and safety, are high on the list of personal face to face reviews.
- Note there are 46 elements on the list, but the higher correlation to success drops off after you pass the top 15 or so.

The Future?

A comprehensive study of cost overrun published in the Journal of the American Planning Association in 2002 found that: (NOTE: THIS IS OLD: WHAT HAS CHANGED?)

- 9 out of ten construction projects had underestimated costs.
- Overruns of 50 to 100 percent were common.
- Cost underestimation was found in each of 20 nations and five continents covered by the study.
- Cost underestimation had not decreased in the 70 years for which data were available.

Assessment (All from Flyvbjerg)

- In project planning, it is important to develop a cost and schedule range that is realistic, minimizing optimism bias.
- The estimates are only as good as the evaluation of the parameters relative to the project.
- The scope should be clearly defined.
- Understand and quantify risk.

Recommendations

- **Planning Phase:**
  - Commit to scope, cost and schedule baseline only at proper design maturity, with validated estimate.
  - Include risk analysis and quantification to determine cost and schedule ranges.
  - Consider local culture and type of work, in their broadest context, in estimates and risk analysis.
  - Drive out optimistic assumptions, and strive for "most likely" scenario.
  - Require that "Critical Decisions" or "Stage Gate Decisions" be made by higher level officials in the owner organization.
  - Utilize External Independent Reviews, and Independent Cost Estimates by qualified professionals.
  - Be sure to have a project management organization with the appropriate skills and knowledge to cover the general and specific aspects of the project.
  - For larger projects, utilize the Earned Value Management System (EVMS).

Recommendations

- **Execution Phase:**
  - Mandate that only professionals with the appropriate skills, experience and knowledge be placed in key positions.
  - Require periodic project performance reporting.
  - If EVMS is being utilized, require an independent certification of the contractor's system, and a compliant implementation of that system.
  - Perform face-to-face reviews, using a specified format, so that the owner, the CM organization, and the contractor are all using the "same sheet of music."
  - Utilize Periodic External Independent Reviews to assess management performance, technical and quality performance, and forward-looking risk.

Recommendations on Project Reviews – My own practice

- Personally conduct face-to-face project performance reviews on a periodic basis.
- Each project review is briefed by the PM/CM, with staff participation as appropriate.
- The cover slide for each review is identical in format.
- The ***real reason*** to do project performance reviews.

Location: XYZ

Project: 001

Title: Process Special Chemicals

Assessment **R**

Acquisition Executive: ABC
Status: CD-3a

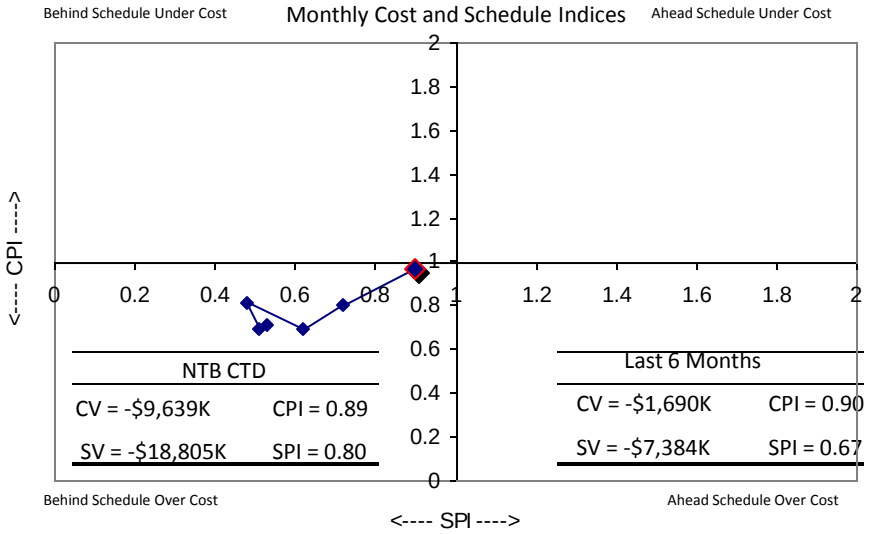
Scheduled Term: FY07 – FY10

Prior Costs = $0K
Cost Range = $360,849K- $384,821K
Projected Cost at Completion = $360,848K

Federal Project Director: John Doe, Certified Level III
Contractor: PPP&T

Project Narrative Description: Design and Construct process plant to convert chemicals bcd to constituents b and d, discarding c as a waste at an approved disposal site..

EARNED VALUE MANAGEMENT
Monthly Cost and Schedule Indices



KEY PROJECT RISK and RISK MITIGATION

Risk: New: Existing: X
Prime contractor fails to deliver the final design on schedule and within budget.
Planned Action:

Management action:
Upon agency approval, PPP&T issued and awarded A&E Services contract. Plan to evaluate documents and utilize existing design to the extent possible to meet 60% design review in 4-09.

SAFETY PERFORMANCE

Occurrence Category	Assessment
Ttotal Injury Rate	Green
Lost Time Injury Rate	Green
Electrical	Green
Industrial Operations	Green
Mechanical Control	Green
Near Misses	Green
Authorization Basis	Green
Significant Injuries	Green
Quality Assurance Profile	Green
Operational	Green
Environmental Release	Green
Conduct of Operations	Green
Equipment Degradation/Failure	Green
Fire Protection	Green
OS/IH	Green

Legend
Green – No Attention Required
Yellow – Requires Some Attention
Red – Attention Required

Are There Keys to Success?

- Common attributes of lessons learned:
  - The owner must be involved and engaged
  - Solid cost estimates to drive out "optimism bias"
    - Independent cost estimates by qualified professionals
  - Approval of "Stage Gate Decisions" by a senior official in the owner organization, predicated on objective assessment and information
  - Avoid fractured team of owner, PM/CM, contractor
    - Guaranteed difficulty
  - Communicate honestly and often
    - Reports
    - Quarterly substantive reviews/Construction Project Reviews
      - What is the real purpose of these?
  - Sometimes, a fresh look is necessary to resolve issues

Discussion

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