A Perspective on NSF’s No Cost Overrun Policy (NCOP)

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• History & Purpose
• Where NSF is today
• Thinking Differently – 2016 Independent NCOP Report
History & Purpose
(LFM Section 4.2.5)

• Dr. Arden Bement; FY 2009 budget request to Congress
  • Adequate contingency to cover all foreseeable risks
  • Any cost increases not covered by contingency accommodated by reductions in scope
  • “…identify potential mechanisms for offsetting any cost increases in accordance with this policy.”

• Instills diligence and rigor in establishing the Total Project Cost (TPC)
• Gives NSF a strong oversight position

Management Tool
(Disciplined but flexible)
Where NSF is Today
(LFM Section 4.2.5)

Mechanisms for offsetting any cost increases under NCOP:

• Risk-adjusted TPC set following Preliminary Design Review (PDR)
• Re-plan staying under authorized TPC
• Use of budget contingency for Recipient-held risks (known-unknowns)
• Scope Management Plan (Risks and Opportunities)
• “Management reserve” for agency-held risks (unknown-unknowns) – if authorized as part of TPC (Very Rare)
• Board authorization to increase TPC – Directorate responsible for first 10%
• Request additional appropriations
Where NSF is Today

The linear Design-Construct process is classic “Waterfall Model” implementation.

Once the process proceeds to the next phase, there is no turning back.
“Design a Little”
“Build a little”
“Test a little”
“Use a little”

Repeat!

Boehm, 1988
Thinking Differently - Examples

- Early Agency and Recipient recognition on value of “spiral development” methods for certain applications
  - Risk identification and reduction
  - Shorter timescales between “projects”?
  - Codify in Internal Management Plan (IMP; NSF) and Project Execution Plan (PEP; Recipient)

Design - Construct

TPC #1

NEON – Regional Prototype?

TPC #2

TPC #3

LHC & AdvLIGO (Phased up-grades/“prototypes”)