

Managing Science Mission Cost Performance

The Impetus for Better Cost Management

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NASA SMD PI Forum 4

Annapolis, MD

Nov. 9, 2011

THE OVERRUN FOOD CHAIN
& WHY EXPLORER PIS SHOULD CARE

FLAG

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EXP

The food Chain

Loirens Gomey



The 'No Brainers' of the Mission Performance Challenge

- ✓ Technical >
- ✓ Schedule >
- ✓ Cost : **dependent variable? DTC?**

In an ideal world, this is a prioritized order
However, ideal does not exist ;
it's a delicate inter-relationship

- OMB, GAO and Congressional Committees are pushing for better SMD cost performance.

Managing SMD Mission Cost

1. In 2009 NASA, with Aerospace, initiated an extensive study of 30 ~SMD mission costs, close to done, lots of Lessons Learned (again?)
2. The 1981 “Hearth” study dealt with many of the same issues . **30 yrs later the problem largely still exists**

WHY?

1. is NASA inept? (not usually)
2. Is NASA a slow learner? (sometimes)
3. does the external world contribute significantly to the problem? (yes)
- 4. is it the “nature of the beast” ? (often)**

Taming the Cost Beast

The “Cost Reason” (NB: not excuse)

- Science missions are one of a kind – not production
- Scientists are incentivized to ‘pack it in’ to win; PIs are clever
 - Forefront science demands forefront technology
 - newest, with unknowns

A Partial Solution (not all new)

- Compete by cost-defined (capped) mission class:
 - Fit the appetite to the funding (a variant of Design-to-Cost)
 - Explorers, Discovery, New Frontiers, Flagships
 - Catalog s/c buses (however: mission uniques, obsolescence)
- **Competitive down-select, emphasize cost w/equal science**
- Conduct adequate Phase A and B (10 – 15% of mission cost)
 - schedule and budget to match the challenge
 - **historically not done well (mainly budget driven)**

If the 'External' World Does Not Understand, That Makes it OUR PROBLEM

Thus it is essential to:

1. inform them
2. get agreement on the process
3. the *sine qua non*: meet and document commitments within our control

Roy Maizel and Jim Adams will now address what SMD is doing on these issues.