

PROJECT PERSPECTIVES

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CMB-S4 COLLABORATION MEETING
2019 MARCH 14

“The Project”

- CMB-S4 is transitioning to being a “project”
- Life with “The Project” will be different

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From what?

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From what? — What you’re used to in:

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From what? — What you’re used to in:

science collaborations

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From what? — What you’re used to in:

science collaborations
small projects

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From what? — What you’re used to in:

science collaborations

small projects

academic departments

WHY?

Three Reasons

- Size
- Success criterion: on-time, on-budget delivery of whatever
- Whatever has many complicated parts and takes a long time to build

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- Not a matter of good or bad — it's **necessary**
 - Applies to any big undertaking with a deliverable
 - Space missions
 - Ground experiments
 - Highway construction
 - Olympic games
 - You can understand this, anticipate what will happen, and work comfortably and productively in the project

Size

$$\frac{\$600 \text{ M}}{\$250 \text{ k FTE}^{-1}} = 2400 \text{ FTE}$$

(1 FTE \equiv 1 full time equivalent \equiv 1 person year of work)

- Spread over 6 years \Rightarrow 400 FTE working on CMB-S4

$$\frac{\$600 \text{ M}}{6 \text{ years} \times 365 \text{ days year}^{-1}} = \$274 \text{ k day}^{-1}$$

Consequences of Size

- $N!$ is impossible \Rightarrow small subgroups must work independently
- Design first
- Requirements Fixes what must be fixed; leaves free what doesn't
- Interfaces
- Changes in requirements or interfaces are **expensive**
configuration control
- Time is money \Rightarrow schedule and cost rule!
- Need margins and contingencies to accommodate the unknowable
NOT to avoid making decisions in a timely fashion
- Continuous improvement \Rightarrow continuous chaos

Styles

- Within the unavoidable basics, there are many ways to manage a project
- The “style” of CMB-S4 will be one with seamless involvement of scientists
- The driving principal of both managers and scientists will be “maximize science within cost and schedule constraints”