



**Estimated Two-Year FTE Requirements  
To Support the STDT Studies**

**March 2015**

# Preparing for the 2020 Decadal Survey

## Supporting SMD's STDT Assessment

- HQ has documented and initiated a plan for Science and Technology Definition Teams (STDTs) to conduct mission concept studies
- The STDTs will be charged with the following tasks:
  - Define science objectives for the mission concept
  - Develop a design reference mission, including a “straw man” payload
  - Identify the technology development requirements
  - Identify a mission cost-box
- Study management and appropriate engineering support will be provided to the STDT by partnering institutions (i.e., GSFC and ATLAST partners, academia, industry)
  - Provide the necessary technical resources for the STDT to carry out its charge from HQ
- These charts summarize estimated support for the STDT
- Charts do not include
  - technology funding (the highest priority “medium activity” in the 2010 Decadal Survey) estimated in the \$10 -- \$30 M range per year.
  - Distribution of FTEs among participating institutions
  - Study management, administrative support, etc.; may be supplied by participating Center(s)

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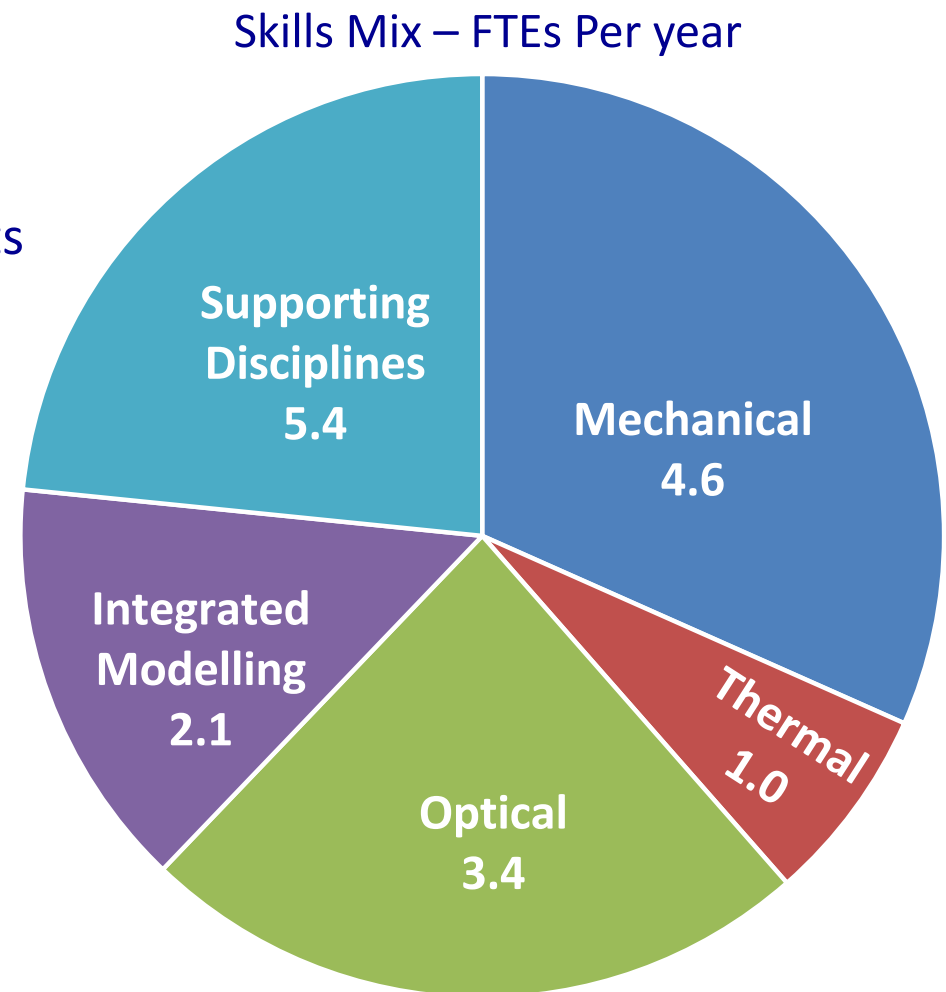
## Supporting SMD's STDT Assessment

The resources identified in these charts include:

- **Engineering support to STDT analyses and products**
  - Define a straw man payload
  - Identify the technology development requirements
  - Develop a design reference mission
  - Conduct a cost assessment with the possibility of iteration in order to identify a cost-effective approach.
- **Professional outreach and engagement**
  - Report to and build support within science and engineering communities
  - Educate likely members of NRC review teams: SSB, CAA, 2015 Mid-Decade Review, Decadal Survey, industry/academic/international partners
  - TIMs with partnering institutions, visualizations, graphics

# Example: Allocation of FTEs Across Skills

- Support STDT processes and products with quantitative analyses
- Enable decision making and substantiation of STDT's findings
- Requires successive refinement of formulation analyses to support STDT's charge



# Impacts of Partial Funding for FTEs

The resources indicated are necessary to assist the STDT in carrying out its charge from HQ.

If less resources are provided, then risks increase:

- Incomplete or inadequate definition of payload
- Technology development requirements inadequately identified and inadequately substantiated
- Design reference mission inadequately specified, and with inadequate detail to support costing effort
- Cost assessment with uncertainties so large, results are of little credibility

# Preparing for the 2020 Decadal Survey

## Supporting SMD's STDT Assessment

- Professional outreach and engagement includes
    - Report to and build support within science and engineering communities
      - Conferences, workshops, and TIMs, including hosting workshops
    - Educate likely members of NRC review teams: SSB, CAA, 2015 Mid-Decade Review, Decadal Survey, industry/academic/international partners
      - Industry and international partners offer significant opportunities for cost savings
      - Academic and research institutes (SAO, STScI, NRAO, USRA . . . ) are major sources of review teams
    - TIMs among partnering institutions , visualizations, graphics, web development
  - WAG on outreach and engagement costs
    - Travel: four professional meetings/year for half the study team:  $2 \text{ years} \times 8 \times 4 \times \$1500 = \$96 \text{ K}$
    - Conference registrations:  $2 \text{ years} \times 8 \text{ persons} \times 2 \text{ conferences} \times \$750 \text{ per meeting} = \$24 \text{ K}$
    - Visualizations:  $2 \text{ years} \times \$25 \text{ K} = \$50 \text{ K}$
    - Publication charges:  $2 \text{ years} \times \$5 \text{ K} = \$10 \text{ K}$
- TOTAL ~ \$180 K**