

MS Word Exhibit 300 for DME/Mixed (BY2008) (Form) / GSFC NASA Center for Computational Sciences (Item)

Form Report, printed by: System Administrator, **Jan 31, 2007**

OVERVIEW

General Information	
1. Date of Submission:	Jan 29, 2007
2. Agency:	026
3. Bureau:	00
4. Name of this Capital Asset:	GSFC NASA Center for Computational Sciences
Investment Portfolio:	BY OMB 300 Items
5. Unique ID:	026-00-01-02-01-1502-00
(For IT investments only, see section 53. For all other, use agency ID system.)	

All investments

6. What kind of investment will this be in FY2008?
<i>(Please NOTE: Investments moving to O&M ONLY in FY2008, with Planning/Acquisition activities prior to FY2008 should not select O&M. These investments should indicate their current status.)</i>
Mixed Life Cycle
7. What was the first budget year this investment was submitted to OMB?
FY2003
8. Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap.
<p>The NASA Center for Computational Sciences (NCCS) supports primary scientific modeling in Earth and space sciences, engineering applications, and the exploration initiative. The NCCS is a key resource in the effort to restore international leadership to the U.S. program in weather and climate prediction, to increase the understanding of Earth's climate system, natural and human influences on climate, and consequences for life on Earth. NCCS system applications will lead to greater understanding of the Earth system, the solar system, and the universe through computational use of space-borne observations and computer modeling.</p> <p>The NCCS' high performance computer systems, mass data storage systems, and high performance networks serve about 600 users. NCCS is an ongoing operational data center, with cyclical acquisition of supercomputer systems and contract services. Most hardware assets have an approximate three to four year lifecycle. NCCS constantly refreshes and updates its suite of hardware, software, mass storage, and network infrastructure, consistent with resource availability.</p> <p>The overall investment has been reviewed during July, 2006 by the Program Management Council (PMC) and the NASA headquarters OCIO as part of the NASA CPIC control processes. The investment is meeting its value objectives and a decision to continue funding has been made.</p> <p>This year, NCCS funding is restated as Mixed Life Cycle based on the most recent headquarters guidance - most dollars are Steady State, but new high performance system acquisitions are classified as DME. The cyclical acquisition of supercomputer systems and contract services should be classified as Mixed Life Cycle overall.</p> <p>This investment closes an agency performance gap that would appear if the investment were not present - that NASA computational Earth and space scientists, who examine physical phenomena of interest by building large mathematical models, models that frequently incorporate science data gathered from Earth-observing satellites as well as other sources - would not have systems for model execution that have as much capability, capacity, and functionality as the NCCS systems that are specifically designed and optimized for these workloads - and so would not achieve progress in NASA's scientific goals as rapidly as they do now, or in some cases achieve at all.</p>
9. Did the Agency's Executive/Investment Committee approve this request?
Yes

9.a. If "yes," what was the date of this approval?

May 18, 2006

10. Did the Project Manager review this Exhibit?

Yes

12. Has the agency developed and/or promoted cost effective, energy-efficient and environmentally sustainable techniques or practices for this project.

Yes

12.a. Will this investment include electronic assets (including computers)?

Yes

12.b. Is this investment for new construction or major retrofit of a Federal building or facility? (answer applicable to non-IT assets only)

No

12.b.1. If "yes," is an ESPC or UESC being used to help fund this investment?

12.b.2. If "yes," will this investment meet sustainable design principles?

12.b.3. If "yes," is it designed to be 30% more energy efficient than relevant code?

13. Does this investment support one of the PMA initiatives?

Yes

If "yes," select the initiatives that apply:

Human Capital	
Budget Performance Integration	Yes
Financial Performance	
Expanded E-Government	Yes
Competitive Sourcing	Yes
Faith Based and Community	
Real Property Asset Management	
Eliminating Improper Payments	
Privatization of Military Housing	
R and D Investment Criteria	Yes
Housing and Urban Development Management and Performance	
Broadening Health Insurance Coverage through State Initiatives	
Right Sized Overseas Presence	
Coordination of VA and DoD Programs and Systems	

13.a. Briefly describe how this asset directly supports the identified initiative(s)?

ComSou: NCCS outsourced acq/integration of hpc systems formerly done in-house (~ A-76); ExEgov: uses open system standards to promote interoperability; facilitates interoperability by acquiring systems w/internal arch promoting standards for parallel processing. Rsrcs&infrastructure are web-enabled. BudPerInt: Perf measures are tied to budget requests & allocations. R&DInCr: Increased computer system perf. results in improved science analysis. Improvements are linked to computing performance.

14. Does this investment support a program assessed using OMB's Program Assessment Rating Tool (PART)?

Yes

14.a. If "yes," does this investment address a weakness found during the PART review?

No

14.b. If "yes," what is the name of the PART program assessed by OMB's Program Assessment Rating Tool?

Earth-Sun System Research

14.c. If "yes," what PART rating did it receive?

Moderately Effective

15. Is this investment for information technology (See section 53 for definition)?

Yes

For information technology investments only:

16. What is the level of the IT Project (per CIO Council's PM Guidance)?

Level 2

17. What project management qualifications does the Project Manager have? (per CIO Council's PM Guidance)

(1) Project manager has been validated as qualified for this investment

18. Is this investment identified as "high risk" on the Q4 - FY 2006 agency high risk report (per OMB's "high risk" memo)?

No

19. Is this a financial management system?

No

19.a. If "yes," does this investment address a FFIA compliance area?

19.a.1. If "yes," which compliance area:

Not Applicable

19.a.2. If "no," what does it address?

Not Applicable

19.b. If "yes," please identify the system name(s) and system acronym(s) as reported in the most recent financial systems inventory update required by Circular A-11 section 52.

Not Applicable

20. What is the percentage breakout for the total FY2008 funding request for the following? (This should total 100%)

Area	Percentage	
Hardware	58.00	
Software	4.00	
Services	38.00	
Other	0.00	
Total	100.00	

21. If this project produces information dissemination products for the public, are these products published to the Internet in conformance with OMB Memorandum 05-04 and included in your agency inventory, schedules and priorities?

Yes

22. Contact information of individual responsible for privacy related questions

Name	Patti Stockman
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Phone Number	202-358-4787
Title	NASA Privacy Officer
Email	patti.stockman@nasa.gov

23. *Are the records produced by this investment appropriately scheduled with the National Archives and Records Administration's approval?*

Yes

SUMMARY OF FUNDING

SUMMARY OF SPENDING FOR PROJECT PHASES (In Millions)

1. Provide the total estimated life-cycle cost for this investment by completing the following table. All amounts represent budget authority in millions, and are rounded to three decimal places. Federal personnel costs should be included only in the row designated "Government FTE Cost," and should be excluded from the amounts shown for "Planning," "Full Acquisition," and "Operation/Maintenance." The total estimated annual cost of the investment is the sum of costs for "Planning," "Full Acquisition," and "Operation/Maintenance." For Federal buildings and facilities, life-cycle costs should include long term energy, environmental, decommissioning, and/or restoration costs. The costs associated with the entire life-cycle of the investment should be included in this report.

All amounts represent Budget Authority

(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY	CY	BY
	2006	2007	2008
Planning:	0.050	0.050	0.050
Acquisition:	8.500	4.262	4.392
Subtotal Planning & Acquisition:	8.550	4.312	4.442
Operations & Maintenance:	10.625	10.562	8.882
TOTAL	19.175	14.874	13.324
Government FTE Costs	1.200	1.284	1.331
# of FTEs	9.2	9.2	9.2
Total, BR + FTE Cost	20.375	16.158	14.655

Note: For the cross-agency investments, this table should include all funding (both managing partner and partner agencies).

Government FTE Costs should not be included as part of the TOTAL represented.

2. Will this project require the agency to hire additional FTE's?

No

2.a. If "yes," how many and in what year?

Not Applicable

3. If the summary of spending has changed from the FY2007 President's budget request, briefly explain those changes.

Some additional funding has been provided for additional high performance system capacity and functionality in response to previously unmet latent demand for these resources by Earth and space computational research scientists. The NCCS NOA operating authority for FY 06 is \$14.741M; funding from Applied Sciences was \$1.362M (FY 05); research funding from RTOP Code Y was \$.368M (FY 05) and \$.400M (FY 06). Carry-over funding for NCCS from FY 05 was \$3.5M received in August 2005 (after subtracting \$1.5M forward funding for labor in FY 07 - in the event of a continuing resolution). Total funding for the NCCS for FY 06 = \$20.371M.

Budget Comments * Internal Use Only*

PERFORMANCE

Performance Information

In order to successfully address this area of the exhibit 300, performance goals must be provided for the agency and be linked to the annual performance plan. The investment must discuss the agency's mission and strategic goals, and performance measures must be provided. These goals need to map to the gap in the agency's strategic goals and objectives this investment is designed to fill. They are the internal and external performance benefits this investment is expected to deliver to the agency (e.g., improve efficiency by 60 percent, increase citizen participation by 300 percent a year to achieve an overall citizen participation rate of 75 percent by FY 2xxx, etc.). The goals must be clearly measurable investment outcomes, and if applicable, investment outputs. They do not include the completion date of the module, milestones, or investment, or general goals, such as, significant, better, improved that do not have a quantitative or qualitative measure.

Agencies must use Table 1 below for reporting performance goals and measures for all non-IT investments and for existing IT investments that were initiated prior to FY 2005. The table can be extended to include measures for years beyond FY 2006.

Table 1

	Fiscal Year	Strategic Goal(s) Supported	Performance Measure	Actual/baseline (from Previous Year)	Planned Performance Metric (Target)	Performance Metric Results (Actual)
1	2006	For 2005 and earlier years: Goal #1 For 2006: All of the following 2006 NASA Strategic Goals are supported: * Strategic Goal 3 Sub-goal 3A * 3A.1. 3A.2. * 3A.3. 3A.4. 3A.5. * Sub-goal 3B * 3B.1. * Sub-goal 3D: * 3D.1. * 3D.2. * 3D.3. * 3D.4.	2006 – 1100% compared to baseline T3E; 2007 – 1100%; 2008 – 1100%; 2009 – 1100%; 2010 – 1100%; 2011 – 1100%	100%	Factor1-High Performance Computing ROI/TCO -Strategic Enterprise Perspective-Financial and Investment Performance This factor measures the NCCS's financial return on its investment in high performance computers and support services and facilities.	200% estimate, annualized (03 and 04); 800% for 2005; 1100% for 2006
2	2005	For 2005 and earlier years: #1 (Same as #1)	N/A after 2005 - See factor 2a below	80%	Factor2 % Utilization of Allocated Capacity Internal Business Measures. An 80% measure means that 80% of the processors on average are assigned to user jobs. This measure indicates how well the NCCS is providing high performance capacity to end users	67% - 2003; 87% - 2004; 80% - 2005; N/A - 2006
3	2006	For 2005 and earlier years: #1 & #3 (Same 2006 Goals as for Factor 1, above.)	Maintain 90% of maximum possible score per quality assurance plan. 2006 – maintain 90%; 2007 – 90%. Switch to Factor 3a starting in 2008.	90%	Factor 3 User Support (US) - % TO Performance, Customer Perspective and Satisfaction; This measure is extracted from the QA performance ratings for NCCS contractors that provide US, which includes: Technical Assistance, Help Desk, Account Maintenance	93% - 2003; 93% - 2004; 93% - 2005; 93% - 2006
4	2005	For 2005 and earlier years: #1 (Same 2006 Goals as for Factor 1, above.)	Maintain 90% of maximum possible score per quality assurance plan.	90%	Factor 4. Software Engineering/Application Support - % TO Performance - Innovative and Learning Perspective - Deleted 2006 and following due to reorganization.	93% - 2003; 93% - 2004; 93% - 2005; N/A - 2006

5	2006	For 2005 and earlier years: #1 & #3 (Same 2006 Goals as for Factor 1, above.)	Maintain 90% of maximum possible score per quality assurance plan. 2006 – maintain 90%; 2007 – 90%; replace with Factor 5a in 2008.	90%	Factor 5. Acquisition Support - % TO Performance - Customer Perspective and Satisfaction - The performance measure is extracted from the QA performance ratings for NCCS contractors that support system acquisition.	88% - 2003; 90% - 2004; 93% - 2005; 97% - 2006
6	2006	For 2005 and earlier years: #1 & #3 (Same 2006 Goals as for Factor 1, above.)	Maintain 90% of maximum possible score per quality assurance plan. 2006 – maintain 90%; 2007 – 90%. Replace with Factor 6a starting in 2008.	~90%	Factor 6. System Administration - % TO Performance - Customer Perspective and Satisfaction This performance measure is extracted from the QA performance ratings for NCCS contractors that support System Administration.	95% - 2003; 93% - 2004; 90% - 2005; 89% - 2006
7	2006	For 2005 and earlier years: #1 & #3 (Same 2006 Goals as for Factor 1, above.)	Qualitative	Not Applicable	Factor 7. Supplemental Contextual and Explanatory Information Plans Reports & Narratives * Responses to significant changes in the High Performance Computer market, industry, or community	Increasing integration, improving software engineering, faster acquisitions, improved competitive processes
8	2006	For 2005 and earlier years: #1 (Same 2006 Goals as for Factor 1, above.)	Product of Total System Capacity in TeraFlops and System Utilization	2.9	Factor 2a: Net TeraFlops	2006 - 5.1 Net TeraFLOPs
9	2008	Same Goals as Factor 1	80% or better, as determined by Performance Plan	No prior year - estimated baseline is 80%	Factor 3a: User Support as measured by the Performance Plan	2008 - Estimated 90%
10	2008	Same Goals as Factor 1	80% or better, as determined by the Performance Plan	No prior year - estimated baseline is 80%	Factor 5a: Acquisition Support as measured by the Performance Plan.	2008 - Estimated 90%
11	2008	Same Goals as Factor 1	80% or better, as determined by the Performance Plan	No prior year - estimated baseline is 80%	Factor 6a: System Administration support as measured by the Performance Plan	2008 - Estimated 90%

All new IT investments initiated for FY 2005 and beyond must use Table 2 and are required to use the FEA Performance Reference Model (PRM). Please use Table 2 and the PRM to identify the performance information pertaining to this major IT investment. Map all Measurement Indicators to the corresponding "Measurement Area" and "Measurement Grouping" identified in the PRM. There should be at least one Measurement Indicator for at least four different Measurement Areas (for each fiscal year). The PRM is available at www.egov.gov.

Table 2

	Fiscal Year	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvements to the Baseline	Actual Results
1	2006	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	1100%

2	2007	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
3	2006	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9 Net TeraFLOPs	Achieve 4.5	5.1 Net TeraFLOPs
4	2007	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 5.5	TBD
5	2006	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Achieve 90%	89%
6	2007	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Achieve 90%	TBD
7	2006	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4, Software Engineering, eliminated in 2006 and forward - now treated under a separate investment)	90% & Qualitative	N/A	N/A
8	2007	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4, Software Engineering, eliminated in 2006 and forward - now treated under a separate investment.)	90% & Qualitative	N/A	N/A
9	2006	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Achieve 90%	97%
10	2007	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Achieve 90%	TBD
11	2008	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
12	2008	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 6.5	TBD
13	2008	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Achieve 90%	TBD
14	2008	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4, Software Engineering, eliminated in 2006.)	90% & Qualitative	N/A	N/A
15	2008	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	90%	Maintain 90%	TBD
16	2009	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
17	2009	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 7.0	TBD
18	2009	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Achieve 90%	TBD
19	2009	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4, Software Engineering, eliminated in 2006.)	90% & Qualitative	N/A	N/A

20	2009	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5 - Acquisition Support	90%	Maintain 90%	TBD
21	2010	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
22	2010	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 7.5	TBD
23	2010	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Achieve 90%	TBD
24	2010	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4 eliminated in 2006.)	90% & Qualitative	N/A	N/A
25	2010	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Achieve 90%	TBD
26	2011	Processes and Activities	Productivity and Efficiency	Productivity	Productivity - Factor 1 - HPC Return on Investment / Total Cost of Ownership	100%	200%	TBD
27	2011	Technology	Efficiency	Load levels	Load Levels - Factor 2a - Net TeraFlops	2.9	Achieve 8.5	TBD
28	2011	Customer Results	Customer Benefit	Customer Satisfaction	Customer Satisfaction - Factor 3a - User Support & Factor 6a - System Administration	~ 80%	Maintain 90%	TBD
29	2011	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	(Factor 4 eliminated in 2006.)	90% & Qualitative	N/A	N/A
30	2011	Mission and Business Results	Supply Chain Management	Goods Acquisition	Goods Acquisition - Factor 5a - Acquisition Support	~ 80%	Maintain 90%	TBD

EA

Enterprise Architecture (EA)

In order to successfully address this area of the business case and capital asset plan you must ensure the investment is included in the agency's EA and Capital Planning and Investment Control (CPIC) process, and is mapped to and supports the FEA. You must also ensure the business case demonstrates the relationship between the investment and the business, performance, data, services, application, and technology layers of the agency's EA.

1. Is this investment included in your agency's target enterprise architecture?

Yes

1.a. If "no," please explain why?

Not Applicable

2. Is this investment included in the agency's EA Transition Strategy?

Yes

2.a. If "yes," provide the investment name as identified in the Transition Strategy provided in the agency's most recent annual EA Assessment.

NASA Center for Computational Sciences

2.b. If "no," please explain why?

Not Applicable

Service Reference Model

3. Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to <http://www.whitehouse.gov/omb/egov/>.

Component: Use existing SRM Components or identify as "NEW". A "NEW" component is one not already identified as a service component in the FEA SRM.

Reused Name and UPI: A reused component is one being funded by another investment, but being used by this investment. Rather than answer yes or no, identify the reused service component funded by the other investment and identify the other investment using the Unique Project Identifier (UPI) code from the OMB Ex 300 or Ex 53 submission.

Internal or External Reuse?: 'Internal' reuse is within an agency. For example, one agency within a department is reusing a service component provided by another agency within the same department. 'External' reuse is one agency within a department reusing a service component provided by another agency in another department. A good example of this is an E-Gov initiative service being reused by multiple organizations across the federal government.

Funding Percentage: Please provide the percentage of the BY requested funding amount used for each service component listed in the table. If external, provide the funding level transferred to another agency to pay for the service.

	Agency Component Name	Agency Component Description	Service Domain	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
1	Modeling	NCCS provides high performance computer (HPC) systems (100's to 1000's of processors) to Earth & space science researchers. Srvcs are processing, infrastructure, & data storage. Components are: Modeling; Predictive; Simulation; Mathematical. Users run large numerical simulations of physical systems & own the applications. NCCS provides h/w, s/w tools (dev tools, debuggers, compilers, math libraries) & tech services. Systems are tuned for efficient processing of large, complex science models.	Business Analytical Services	Knowledge Discovery	Modeling			No Reuse	80.00
2	Mathematical	Description is the same as row #1, Modeling.	Business Analytical Services	Analysis and Statistics	Mathematical			No Reuse	13.00
3	Simulation	Description is the same as row #1, Modeling.	Business Analytical Services	Knowledge Discovery	Simulation			No Reuse	76.00
4									
5	Information Retrieval	NCCS provides network infrastructure & services that promote knowledge & information discovery, retrieval, & sharing. Platforms & network services allow high bandwidth sharing of very large data sets across backbones & switches, web-accessibility to raw data (e.g., satellite observations), assimilated & modeled data sets, and intellectual capital (scientific research papers, etc). Users own the data; NCCS provides infrastructure that allows the data to be stored, retrieved, and shared.	Digital Asset Services	Knowledge Management	Information Retrieval			No Reuse	6.00
6	Information Sharing	Description is the same as for Information Retrieval.	Digital Asset Services	Knowledge Management	Information Sharing			No Reuse	2.00
7	Knowledge Capture	Description is the same as for Information Retrieval.	Digital Asset Services	Knowledge Management	Knowledge Capture			No Reuse	1.00
8	Data Exchange	The NCCS mass storage subsystems are rapidly approaching 2 Petabytes of storage. NCCS provides hierarchical storage subsystems (tape silos, disks, servers, network infrastructure, and system software) that securely store and swiftly retrieve very large data sets. NCCS is evolving its storage platforms using commercial software products to serve the Goddard Earth and space science research user community better.	Back Office Services	Data Management	Data Exchange			No Reuse	4.00
9	Data Warehouse	Description is the same as for Data Exchange.	Back Office Services	Data Management	Data Warehouse			No Reuse	1.00

	Agency Component Name	Agency Component Description	Service Domain	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
10	Extraction and Transformation	Description is the same as for Data Exchange.	Back Office Services	Data Management	Extraction and Transformation			No Reuse	11.00
11	Loading and Archiving	Description is the same as for Data Exchange.	Back Office Services	Data Management	Loading and Archiving			No Reuse	6.00
12	Data Classification	Description is the same as for Data Exchange.	Back Office Services	Data Management	Data Classification			No Reuse	1.00
13	Data Recovery	Description is the same as for Data Exchange.	Back Office Services	Data Management	Data Recovery			No Reuse	1.00

Technical Reference Model

4. To demonstrate how this major IT investment aligns with the FEA Technical Reference Model (TRM), please list the Service Areas, Categories, Standards, and Service Specifications supporting this IT investment.

FEA SRM Component: Service Components identified in the previous question should be entered in this column. Please enter multiple rows for FEA SRM Components supported by multiple TRM Service Specifications.

Service Specification: In the Service Specification field, Agencies should provide information on the specified technical standard or vendor product mapped to the FEA TRM Service Standard, including model or version numbers, as appropriate.

SRM Component	Service Area	Service Category	Service Standard
Data Exchange	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Data Exchange	Service Platform and Infrastructure	Hardware / Infrastructure	Embedded Technology Devices
Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers
Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers
Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers
Modeling	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers
Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Information Retrieval	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Extraction and Transformation	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Extraction and Transformation	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Information Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals

SRM Component	Service Area	Service Category	Service Standard
Information Sharing	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage
Data Warehouse	Service Platform and Infrastructure	Database / Storage	Storage
Loading and Archiving	Service Platform and Infrastructure	Database / Storage	Storage
Loading and Archiving	Service Platform and Infrastructure	Database / Storage	Storage
Information Retrieval	Service Access and Delivery	Access Channels	Web Browser
Information Retrieval	Service Access and Delivery	Access Channels	Web Browser
Information Retrieval	Service Access and Delivery	Access Channels	Wireless / PDA
Information Retrieval	Service Access and Delivery	Access Channels	Collaboration / Communications
Data Exchange	Service Access and Delivery	Access Channels	Collaboration / Communications
Information Retrieval	Service Access and Delivery	Access Channels	Collaboration / Communications
Data Exchange	Service Access and Delivery	Access Channels	Other Electronic Channels
Information Retrieval	Service Access and Delivery	Delivery Channels	Internet
Information Sharing	Service Access and Delivery	Service Requirements	Authentication / Single Sign-on
Modeling	Service Access and Delivery	Service Transport	Supporting Network Services
Modeling	Service Access and Delivery	Service Transport	Supporting Network Services
Modeling	Service Platform and Infrastructure	Support Platforms	Platform Independent
Modeling	Service Platform and Infrastructure	Support Platforms	Platform Independent
Modeling	Service Platform and Infrastructure	Support Platforms	Platform Dependent
Information Sharing	Service Platform and Infrastructure	Delivery Servers	Web Servers
Modeling	Service Platform and Infrastructure	Software Engineering	Integrated Development Environment
Modeling	Service Platform and Infrastructure	Software Engineering	Software Configuration Management
Modeling	Service Platform and Infrastructure	Software Engineering	Software Configuration Management
Modeling	Service Platform and Infrastructure	Software Engineering	Modeling
Data Classification	Service Platform and Infrastructure	Database / Storage	Database
Data Classification	Service Platform and Infrastructure	Database / Storage	Database
Extraction and Transformation	Service Platform and Infrastructure	Database / Storage	Storage
Modeling	Component Framework	Business Logic	Platform Independent

SRM Component	Service Area	Service Category	Service Standard
Knowledge Capture	Component Framework	Business Logic	Platform Dependent
Data Classification	Component Framework	Business Logic	Platform Dependent
Knowledge Capture	Component Framework	Presentation / Interface	Content Rendering
Information Sharing	Component Framework	Security	Supporting Security Services
Loading and Archiving	Component Framework	Data Management	Database Connectivity
Modeling	Service Interface and Integration	Integration	Middleware
Loading and Archiving	Service Interface and Integration	Interoperability	Data Format / Classification
Modeling	Service Platform and Infrastructure	Delivery Servers	Application Servers
Information Sharing	Service Platform and Infrastructure	Delivery Servers	Portal Servers
Data Recovery	Service Platform and Infrastructure	Database / Storage	Storage
Data Recovery	Service Platform and Infrastructure	Database / Storage	Storage
Data Recovery	Service Interface and Integration	Interoperability	Data Format / Classification

5. Will the application leverage existing components and/or applications across the Government (i.e., FirstGov, Pay.Gov, etc)?

Yes

5.a. If "yes," please describe.

NCCS participation in application and component sharing includes the following: * Application Software. There exist international communities of Earth and space scientists that share and re-use diverse components and applications, including both data and programs, across the Government and globally. This includes Earth and space scientists that are users of NCCS systems. (The scientists own the software components, applications and the data, but use the NCCS for high-performance computing and mass storage.) The Earth System Modeling Framework (ESMF) is a good example of a joint effort of NCCS, NASA Goddard, and other agencies to leverage application components across the Government. Sharing of NCCS-resident data across the global Earth and space science communities is immense. * System Software. Open source software is shared globally, not just in the Government's space. The software is available for free. NCCS use of open source system software is increasing steadily. Important examples: open-source operating systems running at NCCS on desktops, servers, and cluster supercomputers; a tool that NCCS uses primarily for collaboration, configuration management, and project management; a tool for sharing and managing code as well as ideas; an open source data base management system; a system monitoring package; an open source web server; various system security tools and an assortment of other system software packages and components. * System Architecture. The NCCS working with NASA Ames on OneNASA tools and processes to allow processing across both centers. Components that implement this shared architecture include the following: Data Centric/Data Intensive Computing, where the NCCS is evolving to a configuration where processors are (topologically) arranged around a central data resource, providing common interfaces to resources that enhance usability and storing data in a global address space; Common Interfaces, where use of clusters with common systems software will facilitate the development of user interfaces that are common across platforms and will facilitate migration across platforms over the long term and where unique system software will recede or be masked behind common interfaces; and Consolidated Storage, where storage devices are consolidated and accessible over a storage area network from multiple processor platforms.

6. Does this investment provide the public with access to a government automated information system?

Yes

6.a. If "yes," does customer access require specific software (e.g., a specific web browser version)?

No

6.a.1. If "yes," provide the specific product name(s) and version number(s) of the required software and the date when the public will be able to access this investment by any software (i.e. to ensure equitable and timely access of government information and services).

Not Applicable

RISK

Risk Management

You should perform a risk assessment during the early planning and initial concept phase of the investment's life-cycle, develop a risk-adjusted life-cycle cost estimate and a plan to eliminate, mitigate or manage risk, and be actively managing risk throughout the investment's life-cycle.

Answer the following questions to describe how you are managing investment risks.

1. Does the investment have a Risk Management Plan?

Yes

1.a. If "yes," what is the date of the plan?

Oct 31, 2006

1.b. Has the Risk Management Plan been significantly changed since last year's submission to OMB?

Yes

1.c. If "yes," describe any significant changes:

The NCCS developed an NIST (FISMA) compliant Security Plan, which includes the requirements of both a risk management plan and the NIST SP 800-30, and submitted it in April, 2006. It adheres to NIST SP 800-18, NIST 800-26, and NASA-specific guidelines. The required third party audit of the NCCS has been completed. In addition, NCCS management approved a new, standalone Risk Management Plan, drawing from multiple existing sources.

2. If there is currently no plan, will a plan be developed?

2.a. If "yes," what is the planned completion date?

2.b. If "no," what is the strategy for managing the risks?

3. Briefly describe how investment risks are reflected in the life cycle cost estimate and investment schedule: (O&M investments do NOT need to answer.)

Risks common to all alternatives: a) bleeding edge supercomputer technology; b) rapidly evolving marketplace; c) changes in user workload composition; d) limited supply of staff skilled in evolving supercomputer technology. Net impact: \$10M LCC all alternatives. Alternative 2 additional risks: e) reduced competition for hardware; f) use of inaccurate performance (benchmark) data. Net impact \$15M. Alternative 3 additional risks: e) reduced competition for hardware; g) suboptimal choice of either integrator or hardware or both. Net impact: \$5M. (No unique risks for Alternatives 1 and 4.)

COST & SCHEDULE

Cost and Schedule Performance

1. Does the earned value management system meet the criteria in ANSI/EIA Standard – 748?

Yes

2. Answer the following questions about current cumulative cost and schedule performance. The numbers reported below should reflect current actual information. (Per OMB requirements Cost/Schedule Performance information should include both Government and Contractor Costs):

2.a. What is the Planned Value (PV)?

8.550

2.b. What is the Earned Value (EV)?

8.447

2.c. What is the actual cost of work performed (AC)?

6.729

2.d. What costs are included in the reported Cost/Schedule Performance information?

Contractor and Government

2.e. "As of" date:

Dec 5, 2006

3. What is the calculated Schedule Performance Index (SPI= EV/PV)?

0.99

4. What is the schedule variance (SV = EV-PV)?

-0.103

5. What is the calculated Cost Performance Index (CPI = EV/AC)?

1.26

6. What is the cost variance (CV = EV-AC)?

1.718

7. Is the CV or SV greater than 10%?

Yes



7.a. If "yes," was it the CV or SV or both?

CV

7.b. If "yes," explain the variance.

The Cost Variance is 20% in a positive direction - under budget. This is primarily due to cost savings on the acquisition of the new hpc cluster and mass storage upgrades. The NCCS was able to obtain the system at a very substantial discount, at a better price/performance point than had been anticipated.

7.c. If "yes," what corrective actions are being taken?

No corrective action is necessary. However, NCCS will continue to manage the project to accommodate the budget fluctuations that it continues to experience. NCCS can productively use additional resources when they are made available to accommodate latent demand for high performance processing. NCCS, within certain limits, can absorb budget reductions but at a cost of reduced services to our customers in HPC and storage capacity and capability.

7.d. What is most current "Estimate at Completion"?

18.234

8. Have any significant changes been made to the baseline during the past fiscal year?

Yes

8.a. If "yes," when was it approved by OMB?

May 18, 2006

Actual Performance against the Current Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in \$ Millions).

	Description of Milestone	Initial End Date	Initial Total Cost (\$mil)	Planned End Date	Actual End Date	Planned Total Cost (\$mil)	Actual Total Cost (\$mil)	Schedule Variance (# of days)	Cost Variance (\$mil)	Percent Complete
1	FY 2006 Operational Support	Sep 30, 2006	15.400	Sep 30, 2006	Sep 30, 2006	11.820	11.820	0	0.000	100.00
2	FY 2007 Operational Support	Sep 30, 2007	15.400	Sep 30, 2007		16.160				0.00
3	FY 06 HPC Cluster - RFP	Dec 1, 2005	0.087	Dec 1, 2005	Dec 14, 2005	0.087	0.080	9	-0.007	100.00
4	FY 06 HPC Cluster - Evaluation	Feb 28, 2006	0.105	Feb 28, 2006	Mar 24, 2006	0.105	0.116	17	0.011	100.00
5	FY 06 HPC Cluster - Award	Mar 31, 2006	0.023	Mar 31, 2006	Mar 31, 2006	0.023	0.029	0	0.006	100.00
6	FY 06 HPC Cluster - Order - Initial	Mar 31, 2006	2.169	Mar 31, 2006	Apr 5, 2006	2.169	1.987	4	-0.182	100.00
7	FY 06 HPC Cluster - Delivery - Initial	Jun 10, 2006	0.017	Jun 10, 2006	Jun 30, 2006	0.017	0.013	14	-0.004	100.00
8	FY 06 HPC Cluster - Acceptance - Initial	Aug 16, 2006	0.040	Aug 16, 2006	Dec 31, 2006	0.040	0.116	98	0.076	100.00
9	FY 06 HPC Cluster - Order - Upgrade	May 31, 2006	3.835	May 31, 2006	Jun 30, 2006	3.835	3.071	21	-0.764	100.00
10	FY 06 HPC Cluster - Delivery - Upgrade	Sep 30, 2006	0.018	Sep 30, 2006	Nov 27, 2006	0.018	0.011	41	-0.007	100.00
11	FY 06 HPC Cluster - Acceptance - Upgrade	Nov 30, 2006	0.022	Nov 30, 2006		0.022				0.00
12	FY 06 Data Architecture - Design	Jun 30, 2006	0.035	Jun 30, 2006	Jun 30, 2006	0.035	0.031	0	-0.004	100.00
13	FY 06 Data Architecture - Order	Jul 14, 2006	2.159	Jul 14, 2006	Sep 29, 2006	2.159	1.268	55	-0.891	100.00
14	FY 06 Data Architecture - Implementation	Sep 30, 2006	0.027	Sep 30, 2006	Dec 15, 2006	0.027	0.007	54	-0.020	100.00
15	FY 06 Data Architecture - Acceptance	Oct 30, 2006	0.013	Oct 30, 2006		0.013				0.00

16	New Processor Acquisition - RFP	Dec 1, 2008	0.100	Dec 1, 2008		0.100				0.00
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			DME	Steady State	Total
Completion date: Current Baseline:	Sep 30, 2007	Total cost: Current Baseline:	22.890	171.140	194.030
Estimated completion date:	Sep 30, 2007	Estimate at completion:	18.234	190.553	211.430