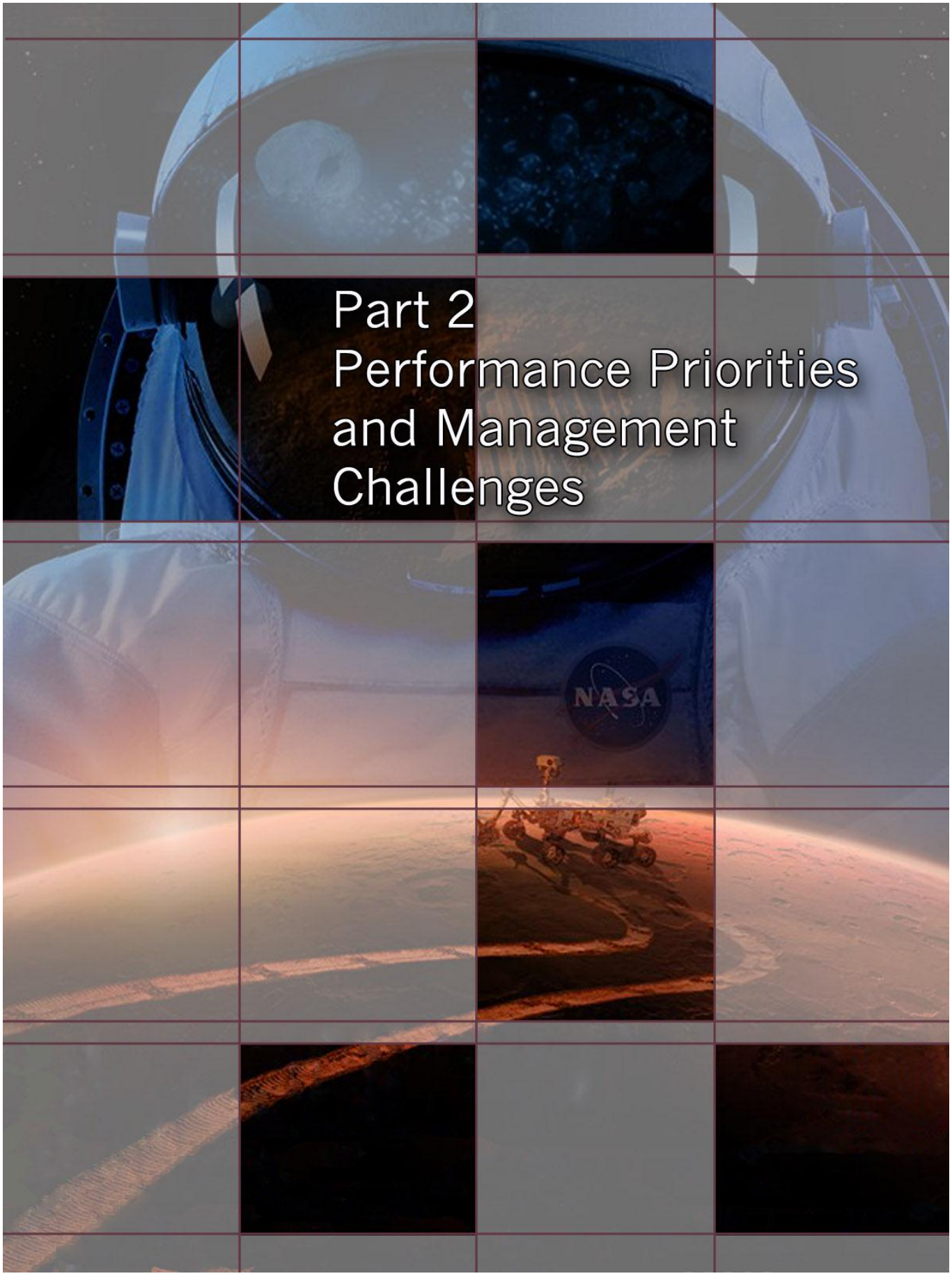


Part 2
Performance Priorities and Management Challenges

Performance Priorities

The recently initiated Strategic Reviews process is aimed at analyzing performance information at the strategic objective level. NASA also prioritizes select performance objectives that are driven by federal mandates, Agency mandates, or both. Agency priority goals are high profile, two-year goals focused on some of NASA's most vital near-term priorities. Cross-agency priority goals link NASA's priorities to those of other agencies across the Federal Government. The following section provides an overview of these three processes, as well as a summary of recent impacts and results.

Strategic Reviews

Strategic Reviews are an annual assessment of each strategic objective with an analysis of an agency's progress toward its strategic direction. As of 2014, the Strategic Reviews are a new requirement for all major federal agencies. These reviews are required by Congress through the Government Performance and Results Act Modernization Act (GPRAMA) of 2010 and implemented by the Office of Management and Budget (OMB), primarily through Circular A-11, Part 6.

Per NASA's 2014 Strategic Plan, NASA has three strategic goals and 15 strategic objectives. NASA developed its Strategic Review process and methodology in late calendar year 2013 and conducted its first annual Strategic Review in spring 2014 in accordance with OMB guidance.

NASA's development principles for the Strategic Reviews requirement were the following:

- Use existing management processes and reviews to the greatest extent possible;
- Synthesize existing evidence and data to assess objectives;
- Keep it simple (do not "over-engineer" the process);
- Focus on continuous process improvement (the first year is focused on learning and change management);
- Maximize integration with the budget process;
- Ensure leadership championship; and
- Promote transparency with stakeholders through frequent communications.

The Agency will identify a subset of strategic objectives as achieving noteworthy progress or as a focus area for improvement.

NASA's first Strategic Review of these strategic objectives followed a three-step process, described below.

Assessments
Each strategic objective leader conducted a self-assessment of the impact (looking at the long-term outlook) and implementation (given near-term plans and performance) for their strategic objective. They also identified risks, challenges, and opportunities.

NASA's Performance Improvement Officer (PIO) and staff performed a crosscutting assessment to identify common themes and issues. The PIO crosscutting assessment also analyzed each strategic objective, validated self-assessment inputs, and performed a relative characterization across all 15 strategic objectives. Based on this assessment, the PIO recommended an independent rating to the Chief Operating Officer (COO) for each strategic objective. Both the self-assessment and the crosscutting assessment used a variety of sources of evidence and inputs.

Results and Impacts
The COO reviewed the summary of the self-assessments and the crosscutting assessment at the end of April 2014 and decided on final ratings for the strategic objectives and next steps for NASA. As a result of NASA's 2014 Strategic Review, 11 out of 15 strategic objectives are considered as having satisfactory performance. Two strategic objectives are considered as making noteworthy progress, and two strategic objectives are considered as a focus area for improvement. Full details, including these ratings, progress updates, and next steps are provided in Part 3.

After the first Strategic Reviews cycle in 2014, NASA completed a survey of key stakeholders and participants for feedback on the baseline year's processes and methodology, as well as to solicit suggestions for future cycles. NASA will be implementing improvements for the 2015 Strategic Reviews cycle and seeks to further enhance budget-performance integration and Agency management processes.

Agency Priority Goals

In accordance with GPRAMA, NASA identified four agency priority goals for the FY 2014 to FY 2015 reporting cycle that represent important near-term targets that the Agency will achieve to benefit the American people in the areas of space operations, human spaceflight, and astrophysics (see Figure 11). While the agency priority goals do not provide a complete picture of every high-profile activity within NASA, they do represent several important priorities. These goals reflect activities already being pursued and measured by NASA for FY 2014 and FY 2015; through the agency priority goals, NASA is tracking more detailed action plans and quarterly milestones.

Figure 11: NASA's FY 2014-FY 2015 Agency Priority Goals

Agency Priority Goal	Responsible Organization
By September 30, 2015, NASA will complete the Space Launch System, Orion, and Exploration Ground Systems Critical Design Reviews (CDRs), allowing the programs to continue to progress toward Exploration Mission (EM)-1 and EM-2 missions.	Human Exploration Operations Mission Directorate, Exploration Systems Division
By September 30, 2015, NASA will increase the utilization of the International Space Station internal and external research facility sites with science and technology payload hardware to 70 percent.	Human Exploration Operations Mission Directorate, International Space Station Program
By September 30, 2015, the Commercial Crew Program will complete the first phase of certification efforts with Commercial Crew Transportation partners, and will make measurable progress toward the second certification phase with industry partners while maintaining competition.	Human Exploration Operations Mission Directorate, Commercial Crew Program
By October 2018, NASA will launch the James Webb Space Telescope, the premier space-based observatory. To enable this launch date, NASA will complete the James Webb Space Telescope primary mirror backplane and backplane support structures and deliver them to the Goddard Space Flight Center for integration with the mirror segments by September 30, 2015.	Science Mission Directorate, James Webb Space Telescope Program

Impacts and Results

The tables on the following pages provide brief background information and summarize major accomplishments. More detailed information on each of the agency priority goals, including overviews, strategies, and contributing programs, is available on http://performance.gov.

Agency Priority Goal: Exploration Systems Development

GOAL STATEMENT

By September 30, 2015, NASA will complete the Space Launch System, Orion, and Exploration Ground Systems Critical Design Reviews (CDRs), allowing the programs to continue to progress toward Exploration Mission (EM)-1 and EM-2 missions.

INFORMATION

Goal Leader: William Hill, Assistant Deputy Associate Administrator for Exploration Systems Development

Mission Directorate: Human Exploration and Operations Mission Directorate

CONTRIBUTING PROGRAMS

Space Launch System
Orion Multi-Purpose Crew Vehicle
Exploration Ground Systems

FY 2014 PROGRESS UPDATE

In the 4th quarter of 2014, the Orion Program continued making steady progress in preparation for the Exploration Flight Test (EFT)-1 test flight launch in December 2014. The EFT-1 vehicle was transferred to Kennedy Space Center's Payload Hazardous Servicing Facility, where the spacecraft was fueled with ammonia, hydrazine, and high-pressure helium. The spacecraft was then moved again to the Launch Abort System Facility for the installation of the launch abort system prior to rollout to the launch pad. On December 5, 2014, EFT-1 completed its uncrewed test and was recovered successfully.

The Space Launch System (SLS) Program also continues to make progress toward manufacturing of the first flight vehicle. The Vertical Assembly Cell (VAC) welding tool at the Michoud Assembly Facility (MAF) in New Orleans, Louisiana, was officially accepted and activated in September 2014. The VAC will support assembly of the SLS core stage barrel sections and is the largest welding tool in the world. NASA began welding of the pathfinder barrel sections in the 4th quarter of FY 2014.

The Exploration Ground Systems (EGS) Program successfully completed the third round of underway recovery tests to practice recovering Orion at the end of its December flight test. The mid-September test series continued to perfect techniques and ensure readiness of the full team and all equipment. In December 2014, the EGS Program successfully coordinated the landing and recovery of EFT-1 with the U.S. Navy, Lockheed Martin, and Orion Program, including the cross country transport of EFT-1 back to Kennedy Space Center.

Design review progress has been made with the clearance of the SLS Key Decision Point (KDP)-C and the EGS KDP-C memoranda, as well as completion of the SLS core stage and booster element Critical Design Reviews.

NEXT STEPS

In FY 2015, the Space Launch System (SLS), Orion, and Exploration Ground Systems (EGS) Programs will continue to make progress completing milestones toward the FY 2018 first launch of the combined uncrewed SLS and Orion vehicles on Exploration Mission (EM)-1 to a distant retrograde orbit around the Moon.

The following milestones are based upon current program planning.

FY 2015

- Q2: Complete the Qualification Motor-1 booster test firing.
- Q2: Complete the mobile launcher structural modifications.
- Q3: Complete the Critical Design Reviews for the SLS elements (i.e., upper stage).
- Q3: Complete the Ground Systems Development and Operations CDR.
- Q4: Complete the Orion Critical Design Review.
- Q4: Complete the SLS Critical Design Review.

Agency Priority Goal: International Space Station

GOAL STATEMENT

By September 30, 2015, NASA will increase the utilization of the International Space Station internal and external research facility sites with science and technology payload hardware to 70 percent.

INFORMATION

Goal Leader: Sam Scimemi, Director, International Space Station Division

Mission Directorate: Human Exploration and Operations Mission Directorate

CONTRIBUTING PROGRAMS

International Space Station

FY 2014 PROGRESS UPDATE

During the fourth quarter of FY 2014, NASA successfully completed its milestone to launch payloads and payload resupply on Automated Transfer Vehicle-5 on July 29, 2014. Its payload included a new external exposure facility and a new electromagnetic levitator facility for containerless processing of materials. SpaceX-4 was launched on September 21, 2014, delivering payload resupply, the first set of rodent research hardware with 20 mice, and the RapidScat Scatterometer to measure ocean wind.

In addition, SpaceX-5 was launched on January 10, 2015. Its payload included the new Cloud-Aerosol Transport System (CATS) external payload to study the atmospheric constituents that impact Earth's climate.

NEXT STEPS

During FY 2015, NASA will continue to support ongoing research disciplines, as well as increase the International Space Station (ISS) research facility occupancy by adding new research payload hardware on orbit. In general, the Orbital Sciences Corporation's Cygnus and European Automated Transfer Vehicles support internal pressurized payloads, while the Space Exploration Technologies Corporation's (SpaceX's) Dragon and Japanese H-II Transfer Vehicles (HTVs) support both internal pressurized and external unpressurized payloads.

The vehicle launch dates below reflect current program planning, but actual launch dates may change based on the ISS program requirements and launch vehicle readiness. Additional new research payload hardware beyond that listed below is in development and will be launched to the ISS as the hardware becomes available.

FY 2015

- Q2: Launch one new external science payload and payload resupply on SpaceX-5. As noted in the Progress Update section, SpaceX-5 launched in January 2015, ahead of schedule.
- Q3: Launch one or more new external science payloads and payload resupply on SpaceX-6.
- Q3: Support the 4th ISS Research and Development Conference, Boston, MA.
- Q4: Launch payload hardware and resupply on HTV5.

Agency Priority Goal: Commercial Crew Transportation

GOAL STATEMENT

By September 30, 2015, the Commercial Crew Program will complete the first phase of certification efforts with Commercial Crew Transportation partners, and will make measurable progress toward the second certification phase with industry partners while maintaining competition.

INFORMATION

Goal Leader: William Hill, Assistant Deputy Associate Administrator for Exploration Systems Development

Mission Directorate: Human Exploration and Operations Mission Directorate

CONTRIBUTING PROGRAMS

Commercial Crew

FY 2014 PROGRESS UPDATE

On September 16, 2014, NASA announced the selection of two Commercial Crew transportation Capability (CCtCap) partners, the Boeing Company and Space Exploration Technologies Corporation (SpaceX), to continue the development and certification efforts for their respective commercial crew transportation systems. On September 26, 2014, the Sierra Nevada Corporation filed a protest of the selection with the Government Accountability Office (GAO).

On October 9, 2014, under the statutory authority available to it, NASA decided to proceed with the CCtCap contracts awarded to the Boeing Company and SpaceX, notwithstanding the bid protest filed at the GAO by the Sierra Nevada Corporation. NASA decided to proceed because delays in the CCtCap transportation service pose several risks to the International Space Station (ISS) program.

On October 21, 2014, the U.S. Court of Federal Claims allowed NASA to proceed with the performance of its CCtCap contracts while the GAO was considering the bid protest filed by the Sierra Nevada Corporation.

On January 5, 2015, GAO denied the bid protest filed by the Sierra Nevada Corporation.

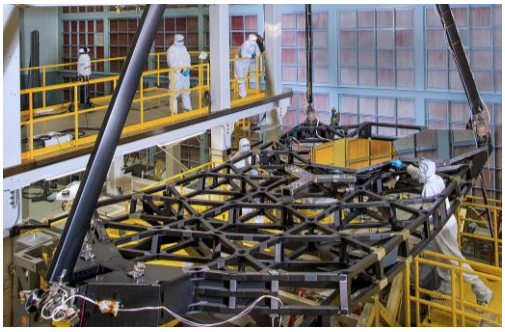
NEXT STEPS

NASA and its commercial partners will continue Commercial Crew transportation Capability (CCtCap) contract activities.

FY 2015

- Q2/Q3/Q4: Execute contract elements in alignment with negotiated contract milestones.

Agency Priority Goal: James Webb Space Telescope



GOAL STATEMENT

By October 2018, NASA will launch the James Webb Space Telescope, the premier space-based observatory. To enable this launch date, NASA will complete the James Webb Space Telescope primary mirror backplane and backplane support structures and deliver them to the Goddard Space Flight Center for integration with the mirror segments by September 30, 2015.

INFORMATION

Goal Leader: Dr. Eric P. Smith, Program Director (Acting), James Webb Space Telescope Program Office

Mission Directorate: Science Mission Directorate, James Webb Space Telescope Program Office

CONTRIBUTING PROGRAMS

James Webb Space Telescope

FY 2014 PROGRESS UPDATE

In the fourth quarter, NASA initiated placement of the spare mirror segments on the pathfinder primary mirror backplane support structure. The backplane support fixture is part of the optical telescope element (OTE). The backplane support fixture will hold the science instrument module and provide the connection between the telescope and spacecraft.

In addition, the flight primary mirror wings were delivered to Northrop Grumman Aerospace Systems (NGAS). The wing installation ground support equipment was assembled at NGAS in preparation for attaching the wings to the flight primary mirror backplane support structure.

In the first quarter of FY 2015, NASA completed the Pathfinder Telescope on schedule. This included not only the placement of primary mirror segments onto the Pathfinder Backplane, which was the planned first quarter FY 2015 milestone, but also the installation of the secondary mirror, all required wire harnesses, and testing of the Pathfinder.

Currently, the Mid-InfraRed Instrument (MIRI) cryocooler system is on the critical path. The critical path of a mission is a dynamic quantity that changes with time depending on the challenges faced in designing, assembling, and testing the hardware and software.

The MIRI cryocooler system has experienced poor cost and schedule performance, and NASA, the Jet Propulsion Laboratory (JPL), and NGAS are devoting considerable attention to it. No further critical path reserve was consumed during the first quarter of FY 2015. Significant management changes were made both at NGAS and JPL. Since those changes, schedule performance has been improved. The flight cold head assembly was delivered from NGAS to the Goddard Space Flight Center and installed onto the Integrated Science Instrument Module (ISIM) for use in the ISIM cryovacuum test #3 in 2015.

NEXT STEPS

During the upcoming quarters, NASA will perform assembly activities on the primary mirror backplane support structure. Once completed, the structure will be ready for integration with the other parts of the optical telescope element (OTE), such as the primary mirror wings and secondary mirror support structure.

FY 2015

- Q2: Initiate flight OTE structure assembly integration.
- Q3: Provide completed secondary mirror support structure to OTE structure integration and testing.
- Q4: Deliver flight backplane to Goddard Space Flight Center.

Cross-Agency Priority Goals

GPRAMA requires that each Agency address the cross-agency priority (CAP) goals in the Agency Strategic Plan, the Annual Performance Plan, and the Annual Performance Report. (Please refer to http://performance.gov for NASA's contributions to the CAP goals and progress, where applicable.) NASA currently contributes to the CAP goals noted in Figure 12 below.

CAP goals focus on major issues that require active collaboration between multiple federal agencies to implement and are intended to accelerate progress on a limited number of Presidential priority areas. The original set of CAP goals covered the FY 2012-FY 2013 reporting period. In FY 2014, OMB designated 15 new CAP goals to cover the FY 2014-FY 2017 reporting period.

To ensure effective leadership and accountability across the Federal Government, each CAP goal has a named senior leader both within the Executive Office of the President and within one or more of the key delivery agencies. NASA is not a goal leader for any of the FY 2014-FY 2017 CAP goals, but does contribute to 10 of the CAP goals.

Figure 12: Cross-Agency Priority Goals Supported by NASA, FY 2014-FY 2017

FY 2014 FY 2017 Cross Agency Priority Goals	Goal Type
Supported by NASA	
Cybersecurity	Mission
Climate Change (Federal Actions)	Mission
Science, Technology, Engineering, and Mathematics (STEM) Education	Mission
Efficiency: Strategic Sourcing	Management
Effectiveness: Smarter IT Delivery	Management
Efficiency: Shared Services	Management
Efficiency: Benchmark and Improve Mission-Support Operations	Management
Economic Growth: Open Data	Management
Economic Growth: Lab-to-Market	Management
People and Culture	Management
Not Supported by NASA	
Effectiveness: Customer Service	Management
Insider Threat and Security Clearance	Mission
Job-Creating Investment	Mission
Infrastructure Permitting Modernization	Mission
Service Members and Veterans Mental Health	Mission

As part of the CAP goal requirements, agencies complete internal, data-driven reviews of their progress in implementing each of the goals. NASA leverages its Baseline Performance Review, described in more detail in the Governance and Strategic Management section of this report, to meet this requirement. The Baseline Program Review is a monthly forum for the program offices and mission-support offices to report on their performance results to NASA leadership. The meetings are results-oriented and ensure that performance information is

communicated regularly across the Agency. During its highlighted BPR month, the responsible organization for each CAP goal within NASA reports on its progress towards the goal to the Chief Operating Officer, Performance Improvement Officer, and other senior NASA leadership.

Impacts and Results

The following pages provide the overall Federal Government goal statement and sub-goals from http://performance.gov for each of the CAP goals that NASA supports, a brief section describing some of the significant contributions that NASA has made or is making to each of the CAP goals, and, where appropriate, linkages to performance goals and annual performance indicators in the Annual Performance Plan.

Cybersecurity

Government-wide Goal Statement

Improve cybersecurity performance through ongoing awareness of information security, vulnerabilities, and threats impacting the operating information environment, ensuring that only authorized users have access to resources and information; and the implementation of technologies and processes that reduce the risk of malware.

Government-wide Sub-Goals or Focus Areas

- Information Security Continuous Monitoring (ISCM): Provide ongoing observation, assessment, analysis, and diagnosis of an organization's cybersecurity posture and operational readiness.
- Identity, Credential, and Access Management (ICAM): Implement a set of capabilities that ensure users must authenticate information technology resources and have access to only those resources that are required for their job function.
- Anti-Phishing and Malware Defense: Implement technologies, processes, and training to reduce the risk of malware introduced through email and malicious or compromised Web sites.

NASA Contribution to the CAP Goal

NASA submits data on all three of the cybersecurity priority areas as part of its required reporting in response to the Federal Information Security Management Act. In addition, one of the three information technology (IT) strategic goals in the 2014 Information Resources Management (IRM) Strategic Plan, which NASA released in March 2014, is specifically focused on cybersecurity:

Strategic Goal 2—Enhance and strengthen IT security and cybersecurity to ensure the integrity, availability, and confidentiality of NASA's critical data and IT assets.

Cybersecurity is a critical driving force to protect the intellectual property, power of invention, and natural ingenuity that is at the heart of NASA. Therefore, NASA works to provide timely, reliable, and cost-effective enterprise security to protect its information and information systems, in alignment with federal cybersecurity priorities. IT threats are evolving globally, and NASA's capabilities to protect information assets need to evolve accordingly. To this end, the Agency will anticipate and defend against these changing threats in order to enable the continued success of NASA's missions. NASA is transforming its cybersecurity capabilities and integrating cybersecurity as a vital part of its cultural identity. Achieving full awareness of Agency-wide IT security posture will complement approaches to improve its capability to combat sophisticated cyber attacks. NASA also will ensure that it integrates the appropriate level of security needed to safely unlock the value of innovation, such as increasing end user mobility and burgeoning cloud computing

capabilities. These cybersecurity challenges demand balanced collaboration, resources, and communication to proactively defend against the ever-changing threat environment.

As part of its cybersecurity education efforts, in FY 2015, NASA is participating in the Department of Homeland Security's *Stop | Think | Connect* campaign, which is designed to raise awareness of best practices that will help safeguard vital NASA IT equipment against cyber attacks.

Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
3.3.1: Enhance NASA's information security posture through implementation of automated security and privacy tools and technologies.	**Yellow**
Annual Performance Indicator	**FY 2014**
AMO-14-19: Achieve 95 percent implementation of continuous monitoring cybersecurity capabilities.	**Yellow**
AMO-14-23: Achieve 50 percent implementation of strong authentication cybersecurity capabilities.	**Green**
AMO-14-24: Achieve 99 percent implementation of Trusted Internet Connection consolidation cybersecurity capabilities.	**Green**
AMO-14-25: Achieve 100 percent implementation of Trusted Internet Connection 2.0 cybersecurity capabilities.	**Yellow**
For FY 2015: AMO-15-25: Increase the security of NASA's information operations by implementing the FY 2015 target cross-agency priority cybersecurity capabilities, including Information Security Continuous Monitoring (ISCM), Identity, Credential, and Access Management (ICAM), and Anti-Phishing & malware defense.	
For FY 2016: AMO-16-25: Increase the security of NASA's information operations by implementing the FY 2016 target cross-agency priority cybersecurity capabilities, including Information Security Continuous Monitoring (ISCM), Identity, Credential, and Access Management (ICAM), and Anti-Phishing & malware defense.	

Climate Change (Federal Actions)

Government-wide Goal Statement

More than double Federal Government consumption of electricity from renewable sources to 20 percent by 2020 and improve energy efficiency at federal facilities as part of the wider strategy to reduce the Federal Government's direct greenhouse gas emissions by 28 percent and indirect greenhouse gas emissions by 13 percent by 2020 (2008 baseline).

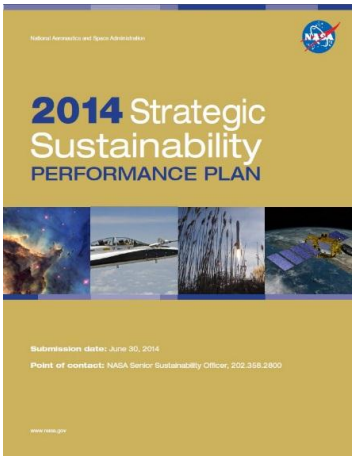
Government-wide Sub-Goals or Focus Areas

- Greenhouse Gas (GHG) Emissions: Reduce GHG emissions by the Federal Government for Scope 1 and 2 by 28 percent by 2020, and for Scope 3 by 8 percent by 2020.
  - Scope 1 includes direct GHG emissions from sources owned by NASA.
  - Scope 2 includes indirect GHG emissions from purchased electricity, heat, or steam.
  - Scope 3 includes other indirect GHG emissions; e.g., travel in non-NASA vehicles.
- Renewable Energy: Increase renewable energy consumed by the Federal Government to 20 percent by 2020.
- Performance Contracting: Improve energy and water efficiency in Federal buildings through the use of Energy Savings Performance Contracts (ESPCs) or Utility Energy Service Contracts (UESCs).

NASA Contribution to the CAP Goal

NASA's sustainability policy is to execute its Mission without compromising the Earth's resources, so that future generations can meet their needs. Sustainability also involves taking action now to provide a future where the environment and living conditions are protected and enhanced. In implementing sustainability practices, NASA manages risks to its missions, risks to the environment, and risks to local communities. To this end, NASA seeks to use public funds efficiently and effectively, promote the health of the planet, and operate in a way that benefits its neighbors.

NASA continues to devote significant effort towards meeting its sustainability goals. NASA was awarded green ratings in all but one focus area of the January 2014 Office of Management and Budget (OMB) Scorecard on Sustainability/Energy. In addition, NASA received green ratings in all three goals that directly relate to the focus areas for the Climate Change CAP goal in its 2014 Strategic Sustainability Performance Plan (SSPP), which was released on October 31, 2014. In particular, NASA greatly exceeded the goals for ESPCs and UESCs. NASA pledged to invest $19.6 million in 2011-2013 for these contracts, which guarantee energy savings and pay for project construction costs through the realized cost savings. NASA actually awarded $45.3 million in ESPCs and UESCs in 2011-2013, more than double what was pledged. In response to the Agency's success, NASA now is voluntarily increasing its pledge to $73.9 million. More examples of NASA's recent successes and planned actions are included in the 2014 SSPP.



Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
3.1.7: Ensure that NASA continues progress towards implementing statutory or Executive Order targets and goals reflected in its annual Sustainability Plan.	**Green**
Annual Performance Indicator	**FY 2014**
AMO-14-22: Ensure that at least 7.5 percent of electricity is generated from renewable energy sources.	**Green**
For FY 2015: AMO-15-12: Ensure that at least 10 percent of electricity is consumed from renewable energy sources.	
For FY 2016: AMO-16-12: Ensure that at least 15 percent of electricity consumed is generated from renewable energy sources.	

STEM Education

Government-wide Goal Statement

Improve Science, Technology, Engineering, and Mathematics (STEM) Education by implementing the Federal STEM Education 5-Year Strategic Plan.

Government-wide Sub-Goals or Focus Areas

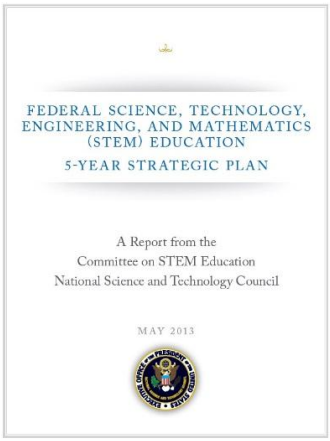
- Improve STEM instruction.
- Increase and sustain youth and public engagement in STEM.
- Enhance STEM experience of undergraduate student.
- Better serve groups historically under-represented in STEM fields.
- Design graduate education for tomorrow's STEM workforce.

NASA Contribution to the CAP Goal

NASA's STEM education expertise and assets play a unique role in the Nation's STEM education portfolio. The Agency aims to increase both the effectiveness and utilization of NASA resources to achieve the Administration's STEM education goals through interagency efforts. The Agency also aims to increase the reach of its programs, including engaging a diverse audience of educators and students, including women, minorities, and persons with disabilities.

The National Science and Technology Council maintains a Committee on Science, Technology, Engineering, and Math Education (CoSTEM). The purpose of the CoSTEM is to coordinate federal program and activities in support of STEM education pursuant to the requirements of Section 101 of the America COMPETES Reauthorization Act

of 2010. CoSTEM functions to review STEM education activities and programs, and the respective assessments of each, throughout federal agencies to ensure effectiveness; coordinate, with the Office of Management and Budget, STEM education activities and programs throughout Federal agencies; and develop and implement through participating agencies a five-year STEM education strategic plan, to be updated every five years. In May 2013, CoSTEM issued its first Federal STEM Education 5-Year Strategic Plan.


FEDERAL SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) EDUCATION
5-YEAR STRATEGIC PLAN
A Report from the
Committee on STEM Education
National Science and Technology Council
MAY 2013

The CoSTEM established the Federal Coordination in STEM Education (FC-STEM) sub-committee. The FC-STEM serves as a forum for discussion and policy coordination to facilitate implementation of the STEM strategic plan. To facilitate implementation of the Plan, the FC-STEM has chartered five Inter-agency Working Groups (IWGs) organized around the STEM education priority areas. The IWGs report quarterly to the FC-STEM.

NASA's Chief Scientist is its representative to CoSTEM and the Associate Administrator for Education is co-chair to FC STEM. NASA has representation on all five priority area working groups; including serving as co-lead to the engagement group.

Linkages to the NASA Annual Performance Plan(s)

All of the performance goals and annual performance indicators under Strategic Objective 2.4, for the Office of Education, link to the STEM Education CAP goal. Please refer to this section for the complete list of measures.

Smarter IT Delivery

Government-wide Goal Statement

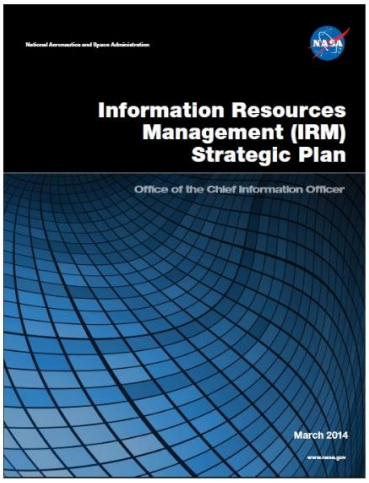
Improve outcomes and customer satisfaction with Federal services through smarter IT delivery and stronger agency accountability for success.

Government-wide Sub-Goals or Focus Areas

- Attract, recognize, hire, and retain more of the best talent working inside government in order to increase the government's internal technical capacity and bring federal IT culture in line with private sector best practices.
- Get more of the best companies and partners working with government to rapidly deliver innovative solutions and systems that meet or exceed customer and agency expectations in terms of cost, time, experience, and capabilities.
- Put the right processes and practices in place to drive outcomes and accountability through High Impact List (HIL) engagements, PortfolioStat, and Digital Services pilot engagements.

NASA Contribution to the CAP Goal

NASA takes advantage of new technologies to efficiently deliver end user IT services to its workforce. For example, where possible, the Agency is increasing its use of cloud computing, rather than purchasing computer hardware, such as servers. The Smarter IT Delivery CAP goal aligns with Strategic Goal 3 in the 2014 Information Resources Management (IRM) Strategic Plan:



Strategic Goal 3—Enable innovative, sustainable, and transparent mission support through effective IT planning, enterprise architecture, and governance.

As a united IT community, NASA ensures the financial sustainability of its IT operations by being more responsive and adaptable while making innovative investments to deliver increased value to its customers. Core approaches to providing a responsive, economical enterprise IT platform for NASA include strategic sourcing; buying "services-on-demand" when appropriate, instead of owning infrastructure; and consolidating duplicative services. To improve the effective and efficient use of IT, NASA needs to understand the allocation of its pool of IT resources in order to enable decisions that direct these resources towards achieving agreed-upon architectures and solutions that achieve its mission support commitments. Supporting NASA's Mission demands a high level of performance from its diverse IT workforce, whose knowledge, skills, and dedication form the backbone of its achievements. NASA empowers and relies on its workforce for the timely and effective planning and execution of the strategies defined within the IRM Strategic Plan. Collectively, through more effective governance, management discipline, and execution accountability, NASA's IT staff will reduce NASA's IT operations and maintenance costs, improve NASA's information security posture, and better enable mission success.

Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
3.3.7: Increase the adoption of technologies and services such as cloud computing throughout NASA's infrastructure and mission, leveraging savings from solutions such as reduced capital expenditures from not owning hardware, benefits from new technology capabilities, and increased computing flexibility available with "pay as you go" services.	**New for FY 2015**
Annual Performance Indicator	
For FY 2015: AMO-15-29: Onboard two significant communities into the cloud in FY 2015.	
For FY 2016: AMO-16-29: Onboard two significant communities into the cloud in FY 2016.	
For FY 2016: AMO-16-30: Implement at least one new technology solution that improves efficiency and the effectiveness of end user service delivery to NASA's workforce.	

Strategic Sourcing

Government-wide Goal Statement

Expand the use of high-quality, high-value strategic sourcing solutions in order to improve the government's buying power and reduce contract duplication.

Government-wide Sub-Goals or Focus Areas

- Achieve savings through the implementation of strategic sourcing initiatives.
- On an annual basis, demonstrate increased adoption of new strategic sourcing initiatives.
- To the maximum extent practicable, increase small businesses participation in federal contracting by making sure that strategic sourcing efforts meet small business expectations, as outlined in OMB Memorandum M-13-02.
- Reduce contract duplication by optimizing strategic sourcing efforts.

NASA Contribution to the CAP Goal

In order to support the Agency's Mission in a more effective and efficient manner, NASA established its Strategic Sourcing Program in 2006 to strategically acquire products and services common across the Agency, Centers, or organizations. This process involves critical analysis of Agency spending and the utilization of the data obtained through that analysis in structured and collaborative acquisition planning efforts that:

- Increase effectiveness and efficiency within the acquisition lifecycle;
- Optimize contractor performance;
- Evaluate total lifecycle management costs;
- Create value to the Agency in the form of tangible and intangible process and resource savings;
- Improve the methods and processes utilized for managing spending;
- Enhance achievement of socio-economic goals; and
- Reduce the total cost of ownership.

NASA also is one of a small number of large agencies that participates on the Strategic Sourcing Leadership Council (SSLC). The majority of federal spending is driven by SSLC agencies, so these agencies are critical to the implementation and success of government-wide strategic sourcing efforts. Many of these agencies have experience with strategic sourcing efforts, and some of them currently manage government-wide acquisition contracts that could be adapted to support strategic sourcing efforts.

Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
3.1.6: Achieve savings for the Agency through acquisition reforms.	**Green**
Annual Performance Indicator	**FY 2014**
AMO-14-30: Achieve savings through increased use of both Federal-level and Agency-level strategic sourcing vehicles.	**Green**
For FY 2015: AMO-15-8: Achieve savings through effective use of both Federal-level and Agency-level strategic sourcing approaches.	
For FY 2016: AMO-16-8: Achieve savings through effective use of both Federal-level and Agency-level strategic sourcing approaches.	

Shared Services

Government-wide Goal Statement
Strategically expand high-quality, high value shared services to improve performance and efficiency throughout government.

Government-wide Sub-Goals or Focus Areas
- Marketplace development: Enhance the capabilities and capacity of shared service providers.
- Improve governance of shared service providers.
- Identify "quick wins" for shared service adoption.

NASA Contribution to the CAP Goal
The NASA Shared Services Center (NSSC) was established on March 1, 2006, at the Stennis Space Center. The NSSC performs selected business activities for all NASA Centers in financial management, human resources, information technology, procurement, and business support services. The NSSC is supported in its mission, under contract, by its service provider.

NSSC also runs the Enterprise License Management Team (ELMT), which maintains licenses and maintenance agreements and negotiates economy-of-scale pricing for selected software used by the Agency. The ELMT is a tool that allows each NASA Center to take advantage of reduced software and procurement costs. Tangible benefits include increased Agency access to vendor software suites, centralized license compliance and audit support gained through leveraged purchasing power, and economies of scale. During FY 2014, the ELMT consolidated 10 software license agreements, for a cost savings of roughly $15 million.

Linkages to the NASA Annual Performance Plan(s)

While NASA is undertaking numerous efforts in support of the Shared Services CAP goal, there are no direct linkages to the performance goals or annual performance indicators reported in the NASA Annual Performance Plan.

Benchmark and Improve Mission Support Operations

Government-wide Goal Statement
Improve administrative efficiency and increase the adoption of effective management practices by establishing cost and quality benchmarks of mission-support operations and giving agency decision-makers better data to compare options, allocate resources, and improve processes.

Government-wide Sub-Goals or Focus Areas
- Reduce administrative costs and improve service quality in acquisition functions.
- Reduce administrative costs and improve service quality in financial management functions.
- Reduce administrative costs and improve service quality in human capital functions.
- Reduce administrative costs and improve service quality in information technology (IT) management functions.
- Reduce administrative costs and improve service quality in real property functions.

NASA Contribution to the CAP Goal

NASA is participating fully in the effort, led by the Office of Management and Budget (OMB) and General Services Administration (GSA), to develop benchmarks for the administrative functions performed across the Federal Government. During FY 2014, the initial focus of this effort was on the development of efficiency measures. NASA reported its results on roughly 40 efficiency measures across five functional areas, including acquisitions, financial management, human capital, IT management, and real property. NASA participated in working groups and meetings, which focused on specific key takeaways from an initial review of the data across agencies.

The next step for this effort, planned for FY 2015, is to begin selecting quality and level-of-service measures to accompany the efficiency measures. The quality measures will complement the efficiency measures by demonstrating that agencies are not compromising customer service or quality in the pursuit of improved efficiency.

NASA also will continue working with OMB, GSA, and other participating agencies to develop standard definitions and methodologies for the benchmarking metrics. At this time, there are inconsistencies in how agencies report on these measures, so the data are not always comparable across agencies. Comparability is critical to ensure that meaningful conclusions can be drawn based on the data.

The ultimate goal of these efforts is to help senior leadership in each agency better understand the cost and quality of their administrative functions, particularly as they compare to other agencies. Due to differing business operations and requirements across agencies, even once the data have been made comparable, they may not always be useful in drawing meaningful conclusions or actionable findings. That said, ideally, benchmarking could be used to identify best practices, areas for improvement, and potential solutions or strategies to address underperformance.

Linkages to the NASA Annual Performance Plan(s)

While NASA is undertaking numerous efforts in support of the Benchmark and Improve Mission-Support Operations CAP goal, there are no direct linkages to the performance goals or annual performance indicators reported in the NASA Annual Performance Plan.

Open Data

Government-wide Goal Statement

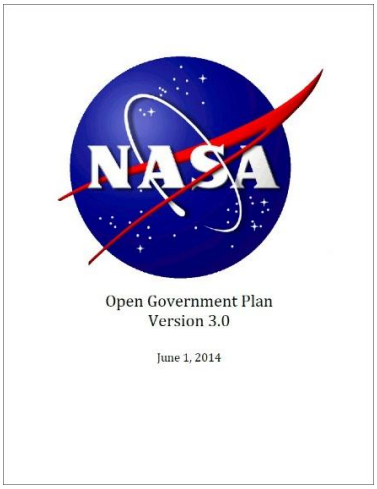
Fuel entrepreneurship and innovation and improve government efficiency and effectiveness by unlocking the value of government data and adopting management approaches that promote interoperability and openness of this data.

Government-wide Sub-Goals or Focus Areas

- Fuel economic growth and innovation.
- Make open and machine-readable the new default for all government information.

NASA Contribution to the CAP Goal

NASA has a longstanding commitment, central to its founding legislation in 1958, to make its data open and accessible to as wide an audience as possible. Developers, technologists, entrepreneurs, citizen scientists, and others contribute directly to the understanding of Earth and space by helping to create new ways of looking at this information.



NASA released its Open Government Plan Version 3.0 in June 2014. As highlighted in the plan, NASA has an open data movement that is multifaceted, and includes the further release of datasets, the publication of datasets to https://www.data.gov, and the development of strategies to process large datasets.

As part of its Open Government Initiative, NASA is improving the accessibility of its data and incentivizing the use of government data by citizens. To address the ever-increasing amount of tools and data catalogues that are publicly available on NASA's many Web sites, the Agency created a directory of publicly-available datasets at http://data.nasa.gov. The directory includes information and direct links to more than 500 datasets, grouped into nine broad categories:

1. Aeronautics: Data related to the study, design, and manufacture of flying machines.
2. Earth Science: Earth science and physical Earth observations.
3. Space Science: All types of planetary or astronomical data; anything outside of the Earth and the Earth's atmosphere.
4. Life Science: Life sciences and human data, including space medicine and human factors.
5. Climate: Atmospheric and environmental data.
6. Engineering: Engineering data, charts, or specifications.
7. Operations: Mission operations data relating to flight programs, mission control, or on-orbit operations.
8. Institutional: Data related to the historical and administrative functions of NASA as an Agency.
9. Catalogs: This category points to external NASA catalogs on data.gov.

NASA also encourages the use of its data through open challenge programs (e.g., the flagship Climate Data Initiative and International SpaceApps Challenge).

NASA is adding capabilities to the http://data.nasa.gov site to build a rich mechanism for data-customer engagement. For example, NASA is establishing an Agency-wide data management team to ensure that new datasets adhere to information architecture standards, including open format and the use of metadata. The agency continues to encourage, and will soon require, missions to publish non-sensitive data and to periodically update the data inventory.

More information on these and other efforts is available on the Open Government Initiative Web site.

Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
3.3.6: Enhance NASA's data management through open data actions, research and development data access, and new data modeling and technologies.	**New for FY 2015**
Annual Performance Indicator	
For FY 2015: AMO-15-27: Provide access to high-quality data that is available and accessible to spur innovation.	
For FY 2016: AMO-16-27: Provide information architecture to manage NASA's data more efficiently.	
For FY 2016: AMO-16-28: Provide hosting and data infrastructure for R&D data and publications.	

Lab To Market

Government-wide Goal Statement
Increase the economic impact of Federally funded research and development by accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace.

Government-wide Sub-Goals or Focus Areas
- Developing Human Capital.
- Empowering Effective Collaborations.
- Opening R&D Assets.
- Fueling Small Business Innovation.
- Evaluating Impact.

NASA Contribution to the CAP Goal
NASA has a robust Technology Transfer program to ensure that the technologies developed for missions in exploration and discovery are broadly available to the public and private enterprises, maximizing the benefit to the Nation.

In October 2012, NASA released a five-year Plan for Accelerating Technology Transfer. As noted below, NASA reports on its progress towards implementing the objectives of the five-year plan in its Annual Performance Report.

FY 2014 achievements in support of this CAP goal include but are not limited to the following:
- The NASA Technology Transfer program was the recipient of several major awards this year, most notably from the Federal Laboratory Consortium and *R&D Magazine*.
- A new technology transfer portal has gone live online at http://technology.nasa.gov/ with available technologies and software, success stories, and other resources.
- An Agency-wide software catalog was published containing well over 1,000 technologies. It is available both online and in hardcopy at no cost to the public. NASA is proud to be the first federal agency to produce such a comprehensive offering. The catalog is available at http://software.nasa.gov.
- NASA made significant advances in developing a new approach to agency-level portfolio management for all of NASA's patented and patent-pending technologies. In addition, new and modernized agency technology transfer polices have been written and published. NASA explored three innovative methods for licensing its technologies to industry. One was the expansion of the QuickLaunch platform, which showcases a selection of the licensing portfolio, is available online for non-negotiated, non-exclusive licenses, and features modest licensing fees. The other two initiatives involved working with two innovative companies, Marblar and Edison Nation, whose missions are to facilitate the engagement of non-traditional partners to explore novel ways of incorporating technologies.

Linkages to the NASA Annual Performance Plan(s)	
Performance Goal	**FY 2014**
2.3.1: Implement the five-year Strategic Plan to improve the ability to transfer NASA-developed technologies.	**Green**
Annual Performance Indicator	**FY 2014**
ST-14-8: The Agency will develop and implement two innovative methods for technology licensing.	**Green**
For FY 2015: ST-15-7: Each Center will engage with at least one university business school for technology marketing assessments and encouragement of technology application.	
For FY 2016: ST-16-7: Streamline, augment, and automate intellectual property and license portfolio management through a licensee monitoring system.	
For FY 2016: ST-16-9: Implement initiatives to encourage and track infusion of NASA-developed technology into NASA missions.	

People and Culture

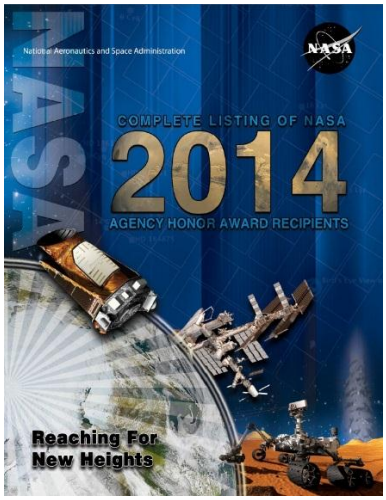
Innovate by unlocking the full potential of the workforce we have today and building the workforce we need for tomorrow.

Sub-Goals or Focus Areas

- Engagement: Driving greater employee engagement.
- SES Leadership: Build a world-class federal management team, starting with the Senior Executive Service.
- Recruitment and Hiring: Enable agencies to recruit and hire the best talent.

NASA Contribution to the CAP Goal

NASA continues to lead the Federal Government in employee engagement, as demonstrated by the results of the 2014 Federal Employee Viewpoint Survey (FEVS). NASA has the highest employee engagement score for a large agency, and increased its employee engagement score over the last five years, from 76.0 percent in 2010 to 77.3 percent in 2014. Successful agencies foster an engaged working environment that ensures that each employee can reach his or her potential and contribute to the success of the Agency. NASA also has the highest global satisfaction score for a large agency, at 74 percent.



NASA also is emphasizing innovation when it recognizes and rewards performance. NASA developed the annual NASA Innovation Awards to recognize, encourage, and celebrate a spirit of innovative behavior. There are two categories of awards, the Lean Forward; Fail Smart Award and the Champion of Innovation Award, and the NASA workforce selects the winner in each category:

- Lean Forward; Fail Smart Award: As an Agency that welcomes and nurtures a culture of innovation, failure is seen as merely a stepping stone to success. Whenever an employee encounters failure, they should use it as an opportunity for learning. Whether the innovation involves creating something new, improving an existing technology or process, or adapting a tried and true idea to a new context, the purpose of this category is to showcase innovative behavior within NASA.
- Champion of Innovation Award: Supervisors/managers play a unique role in fostering innovation at NASA. In addition to being innovative themselves, they can support and encourage their employees to think outside the box and become creative problem solvers.

Linkages to the NASA Annual Performance Plan(s)
While NASA is undertaking numerous efforts in support of the People and Culture CAP goal, there are no direct linkages to the performance goals or annual performance indicators reported in the NASA Annual Performance Plan.

Management Challenges

NASA leverages its internal reviews to identify management challenges, but also looks to external opinions. NASA's Office of Inspector General (OIG) provides a list of the top management and performance challenges annually. The Government Accountability Office (GAO) performs numerous audits of NASA activities, but the High Risk report addresses management challenges specifically and calls out NASA acquisition management as a long-standing issue.

While the individual GAO and OIG reports provide a snapshot of the challenges at one- to two-year intervals, NASA examined the topics highlighted in the reports over a longer timeframe for additional insight. NASA looked for trends in the GAO reports over a 22-year span and in the OIG reports a 14-year span (see Figure 13).

Figure 13: Trends in GAO High Risk and OIG Management Challenges, 1991-2014

Category	Report Year											
	1991 1992	1993 1994	1995 1996	1997 1998	1999 2000	2001 2002	2003 2004	2005 2006	2007 2008	2009 2010	2011 2012	2013 2014
Financial Management	GAO	GAO	GAO	GAO	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG	OIG		
Contract Management	GAO	GAO	GAO	GAO	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG
Program and Project Management/Cost and Schedule Performance	GAO	GAO	GAO	GAO	GAO OIG	GAO OIG	GAO	GAO OIG	GAO OIG	GAO OIG	GAO OIG	GAO OIG
IT Governance and Security					OIG	OIG	OIG	OIG	OIG	OIG	OIG	OIG
Infrastructure and Facilities Management	GAO	GAO		GAO			OIG		GAO	OIG	OIG	OIG
Human Capital Management				GAO		GAO	GAO	OIG	OIG	OIG		
Human Spaceflight Transition and Future								OIG	OIG	OIG	OIG	OIG
Safety and Mission Assurance					OIG	OIG	OIG	OIG	OIG			
Science Portfolio												OIG
Space Communications Networks												OIG
Weather Satellites*												GAO

* NASA acts as the National Oceanic and Atmospheric Administration's (NOAA's) acquisition agent; GAO corrective actions are directed to NOAA.

Legend: GAO = GAO High Risk/Major Management Challenges
OIG = OIG Management Challenges

GAO has identified five criteria that must be met before a focus area can be removed from the High Risk List: (1) a demonstrated strong commitment to, and top leadership support for, addressing problems; (2) the capacity to address problems; (3) a corrective action plan; (4) a program to monitor corrective measures; and (5) demonstrated progress in implementing corrective measures. As part of the 2015 High Risk Report, GAO for the first time included a scorecard detailing which of these criteria have been met, partially met, or are unmet for each High Risk area. NASA has fully met the leadership commitment, action plan, and monitoring criteria, and has partially met the criteria for capacity and demonstrated progress. In order to meet the remaining criteria, the GAO would like NASA to address gaps in the guidance for the joint confidence level (JCL) policy and earned value

management, as well as demonstrate continuing success in keeping projects within their cost and schedule baselines established at confirmation.

NASA has been working to implement a series of initiatives to improve acquisition management through a High Risk Corrective Action Plan developed in 2007. In 2014, NASA declared that the one outstanding initiative, Contractor Cost Performance Monitoring, was closed. This initiative was originally designed to improve the availability of contractor data to support performance monitoring of programs and projects. The initiative would be accomplished through the use of enhanced business systems and changes to the contractor cost reporting process. NASA performed analyses at that time to identify gaps in the existing key business systems and concepts and courses of action that could be implemented to address those gaps. While NASA has made several improvements to its business systems since 2008, the Agency has determined that the original objectives are unachievable within the framework of its current processes and systems. In place of these original objectives, NASA has instituted several process improvements designed to achieve greater insight into project performance, including contractor cost performance.

These changes have yielded more credible cost and schedule baselines, and GAO has observed that NASA's management of its major flight projects has improved over the past several years. For NASA's largest projects, such as the James Webb Space Telescope, the Space Launch System, and Orion, GAO has observed that risks remain and that failure to adequately assess these risks could put the portfolio in jeopardy.

Since the High Risk List was originally established, the GAO has been moving away from agency-specific challenges towards more government-wide challenges that involve multiple agencies. For example, the 2013 High Risk List identified for the first time the risk that potential gaps in weather satellite data pose to the government. While NOAA is the lead in addressing this issue, NASA is a major contributor to this work. The 2010 National Space Policy provides that NOAA "will primarily utilize NASA as the acquisition agent for operational environmental satellites" in support of "weather forecasting, climate monitoring, ocean and coastal observations, and space weather forecasting." NASA established the Joint Agency Satellite Division (JASD) within the Science Mission Directorate in March 2010 to manage NASA's reimbursable satellite and instrument development program in furtherance of this responsibility. JASD's primary focus is on efficiently managing operational satellite projects, particularly across multiple acquisitions. JASD provides early support to NOAA in its planning for multi-satellite operational missions, leading to better-managed and more cost-effective acquisitions. JASD also provides an integrated NASA–NOAA office through which the agencies' headquarters can provide unified direction to the NASA Centers that conduct research and development for the satellite projects. Key Decision Point reviews at both the Science Mission Directorate and Agency levels are co-chaired by NASA and NOAA, and the reimbursable nature of JASD projects gives the partner agency the final decision authority for the projects. JASD relies on the other NASA Science Mission Directorate science divisions to represent NASA's science interests to these projects through existing interagency forums. At the same time, JASD ensures the quality of mission development by implementing reimbursable programs with the same rigorous processes used to ensure mission success on NASA's research missions.

Response to OIG Management Challenges

Each fiscal year, as required by the Reports Consolidation Act of 2000, OIG issues a document summarizing what the Inspector General considers to be the most serious management and performance challenges facing the Agency and briefly assesses the Agency's progress in addressing those challenges. The letter and NASA's comments on each management challenge raised by OIG are published in NASA's FY 2014 Agency Financial Report. This listing of NASA's Top Management and Performance Challenges is a key input to the Agency's leadership when evaluating strategies and making adjustments to strategic and performance plans.