

Appendix: NASA's Performance Framework

Strategic Goals, Outcomes, and Objectives

NASA's long-term planning is guided by the strategic goals and outcomes described in the body of this Strategic Plan. The next level of performance detail is defined by the objective statements included below. Objectives identify targets within a 10-year time frame and form the framework for our annual performance plan (APP). The APP outlines measurable performance goals for each objective in the next five years, with specific annual performance goals (APGs) aligned to the annual budget request.

NASA regularly collects and assesses performance information contributing to the APP measures and goals as the basis for programmatic and institutional decision-making processes within the Agency. NASA reports progress on the APP to Congress and the public in our annual Performance and Accountability Report, to support programmatic decision-making at a government-wide level. Our performance framework is thus an important tool for communicating with our stakeholders and the public. Through this framework we are held accountable for the Nation's investment in NASA's missions, reporting on achievements as well as shortfalls, and planning our performance goals for the next year.

Strategic Goal 1: Extend and sustain human activities across the solar system.

Outcome 1.1: Sustain the operation and full use of the International Space Station (ISS) and expand efforts to utilize the ISS as a National Laboratory for scientific, technological, diplomatic, and educational purposes and for supporting future objectives in human space exploration.

Objective 1.1.1: Maintain resources (on-orbit and on the ground) to operate and utilize the ISS.

Objective 1.1.2: Advance engineering, technology, and research capabilities on the ISS.

Outcome 1.2: Develop competitive opportunities for the commercial community to provide best value products and services to low Earth orbit and beyond.

Objective 1.2.1: Enable the commercial sector to provide cargo and crew services to the International Space Station (ISS).

Outcome 1.3: Develop an integrated architecture and capabilities for safe crewed and cargo missions beyond low Earth orbit.

Objective 1.3.1: Execute development of an integrated architecture to conduct human space exploration missions beyond low Earth orbit.

Objective 1.3.2: Develop a robust biomedical research portfolio to mitigate space human health risks.

Objective 1.3.3: Identify hazards, opportunities, and potential destinations, to support future safe and successful human space exploration missions.

Strategic Goal 2: Expand scientific understanding of the Earth and the universe in which we live.

Outcome 2.1: Advance Earth system science to meet the challenges of climate and environmental change.

Objective 2.1.1: Improve understanding of and improve the predictive capability for changes in the ozone layer, climate forcing, and air quality associated with changes in atmospheric composition.

Objective 2.1.2: Enable improved predictive capability for weather and extreme weather events.

Objective 2.1.3: Quantify, understand, and predict changes in Earth's ecosystems and biogeochemical cycles, including the global carbon cycle, land cover, and biodiversity.

Objective 2.1.4: Quantify the key reservoirs and fluxes in the global water cycle and assess water cycle change and water quality.

Objective 2.1.5: Improve understanding of the roles of the ocean, atmosphere, land and ice in the climate system and improve predictive capability for its future evolution.

Objective 2.1.6: Characterize the dynamics of Earth's surface and interior and form the scientific basis for the assessment and mitigation of natural hazards and response to rare and extreme events.

Objective 2.1.7: Enable the broad use of Earth system science observations and results in decision-making activities for societal benefits.

Outcome 2.2: Understand the Sun and its interactions with Earth and the solar system.

Objective 2.2.1: Improve understanding of the fundamental physical processes of the space environment from the Sun to Earth, to other planets, and beyond to the interstellar medium.

Objective 2.2.2: Improve understanding of how human society, technological systems, and the habitability of planets are affected by solar variability interacting with planetary magnetic fields and atmospheres.

Objective 2.2.3: Maximize the safety and productivity of human and robotic explorers by developing the capability to predict extreme and dynamic conditions in space.

Outcome 2.3: Ascertain the content, origin, and evolution of the solar system and the potential for life elsewhere.

Objective 2.3.1: Inventory solar system objects and identify the processes active in and among them.

Objective 2.3.2: Improve understanding of how the Sun's family of planets, satellites, and minor bodies originated and evolved.

Objective 2.3.3: Improve understanding of the processes that determine the history and future of habitability of environments on Mars and other solar system bodies.

Objective 2.3.4: Improve understanding of the origin and evolution of Earth's life and biosphere to determine if there is or ever has been life elsewhere in the universe.

Objective 2.3.5: Identify and characterize small bodies and the properties of planetary environments that pose a threat to terrestrial life or exploration or provide potentially exploitable resources.

Outcome 2.4: Discover how the universe works, explore how it began and evolved, and search for Earth-like planets.

Objective 2.4.1: Improve understanding of the origin and destiny of the universe, and the nature of black holes, dark energy, dark matter, and gravity.

Objective 2.4.2: Improve understanding of the many phenomena and processes associated with galaxy, stellar, and planetary system formation and evolution from the earliest epochs to today.

Objective 2.4.3: Generate a census of extra-solar planets and measure their properties.

Strategic Goal 3: Create the innovative new space technologies for our exploration, science, and economic future.

Outcome 3.1: Sponsor early-stage innovation in space technologies in order to improve the future capabilities of NASA, other government agencies, and the aerospace industry.

Objective 3.1.1: Create a pipeline of new low Technology Readiness Levels (TRL) innovative concepts and technologies for future NASA missions and national needs.

Outcome 3.2: Infuse game-changing and crosscutting technologies throughout the Nation's space enterprise to transform the Nation's space mission capabilities.

Objective 3.2.1: Prove the technical feasibility of potentially disruptive new space technologies for future missions.

Objective 3.2.2: Spur the development of routine, low-cost access to space through small payloads and satellites.

Objective 3.2.3: Demonstrate new space technologies and infuse them into future science and exploration small satellite missions and/or commercial use.

Objective 3.2.4: Demonstrate new space technologies and infuse them into missions.

Objective 3.2.5: Provide flight opportunities and relevant environments to demonstrate new space technologies.

Outcome 3.3: Develop and demonstrate the critical technologies that will make NASA's exploration, science, and discovery missions more affordable and more capable.

Objective 3.3.1: Demonstrate in-space operations of robotic assistants working with crew.

Objective 3.3.2: Develop and demonstrate critical technologies for safe and affordable cargo and human space exploration missions beyond low Earth orbit.

Outcome 3.4: Facilitate the transfer of NASA technology and engage in partnerships with other government agencies, industry, and international entities to generate U.S. commercial activity and other public benefits.

Objective 3.4.1: Promote and develop innovative technology partnerships among NASA, U.S. industry, and other sectors for the benefit of Agency programs and national interests.

Strategic Goal 4: Advance aeronautics research for societal benefit.

Outcome 4.1: Develop innovative solutions and advanced technologies through a balanced research portfolio to improve current and future air transportation.

Objective 4.1.1: Develop advanced technologies to improve the overall safety of the future air transportation system.

Objective 4.1.2: Develop innovative solutions and technologies to meet future capacity and mobility requirements of the Next Generation Air Transportation System (NextGen).

Objective 4.1.3: Develop tools, technologies, and knowledge that enable significantly improved performance and new capabilities for future air vehicles.

Outcome 4.2: Conduct systems-level research on innovative and promising aeronautics concepts and technologies to demonstrate integrated capabilities and benefits in a relevant flight and/or ground environment.

Objective 4.2.1: Develop advanced tools and technologies that reduce the technical risk associated with system-level integration of promising aeronautical concepts.

Strategic Goal 5: Enable program and institutional capabilities to conduct NASA's aeronautics and space activities.

Outcome 5.1: Identify, cultivate, and sustain a diverse workforce and inclusive work environment that is needed to conduct NASA missions.

Objective 5.1.1: Establish and maintain a workforce that possesses state-of-the-art technical and business management competencies.

Objective 5.1.2: Provide opportunities and support systems that recruit, retain, and develop undergraduate and graduate students in STEM-related disciplines.

Outcome 5.2: Ensure vital assets are ready, available, and appropriately sized to conduct NASA's missions.

Objective 5.2.1: Achieve mission success by factoring safety, quality, risk, reliability, and maintainability as integral features of programs, projects, technologies, operations, and facilities.

Objective 5.2.2: Provide information technology that advances NASA space and research program results and promotes open dissemination through efficient, innovative, reliable, and responsive services that are appropriately secure and valued by stakeholders and the public.

Objective 5.2.3: Develop and implement long-range infrastructure plans that address institutional capabilities and critical assets, directly link to mission needs, ensure the leveraging of external capabilities, and provide a framework for Agency infrastructure decision-making.

Outcome 5.3: Ensure the availability to the Nation of NASA-owned, strategically important test capabilities.

Objective 5.3.1: Work with the National Rocket Propulsion Test Alliance to identify NASA, Department of Defense, and commercial capabilities and requirements.

Objective 5.3.2: Ensure that NASA's Aeronautics Test Program (ATP) facilities are available and capable of supporting research, development, test, and evaluation goals and objectives for NASA and national aerospace programs.

Outcome 5.4: Implement and provide space communications and launch capabilities responsive to existing and future science and space exploration missions.

Objective 5.4.1: Ensure reliable and cost-effective access to space for missions critical to achieving the National Space Policy of the United States of America.

Objective 5.4.2: Transform the Florida launch and range complex to provide a robust launch and range infrastructure for future users.

Objective 5.4.3: Build and maintain a scalable, integrated, mission support infrastructure that can readily evolve to accommodate new and changing technologies, while providing integrated, comprehensive, robust, and cost-effective space communications services at order-of-magnitude higher data rates to enable NASA's science and exploration missions.

Outcome 5.5: Establish partnerships, including innovative arrangements, with commercial, international, and other government entities to maximize mission success.

Objective 5.5.1: Facilitate the use of the ISS as a National Laboratory for cooperative research, technology development, and education.

Objective 5.5.2: Enhance international and interagency partnerships through increased use of international and interagency coordination mechanisms.

Strategic Goal 6: Share NASA with the public, educators, and students to provide opportunities to participate in our Mission, foster innovation, and contribute to a strong national economy.

Outcome 6.1: Improve retention of students in STEM disciplines by providing opportunities and activities along the full length of the education pipeline.

Objective 6.1.1: Provide quality STEM curricular support resources and materials.

Objective 6.1.2: Provide NASA experiences that inspire student interest and achievement in STEM disciplines.

Objective 6.1.3: Assess grant recipient institutions throughout the education pipeline to ensure that grant recipients demonstrate a consistent commitment to civil rights compliance.

Outcome 6.2: Promote STEM literacy through strategic partnerships with formal and informal organizations.

Objective 6.2.1: Develop NASA's leadership role in national STEM improvement efforts, as demonstrated by provision of meaningful educator professional development and student experiences, adoption of education technologies, and contributions to STEM education policies and strategies.

Outcome 6.3: Engage the public in NASA's missions by providing new pathways for participation.

Objective 6.3.1: Extend the reach of participatory engagement across NASA.

Outcome 6.4: Inform, engage, and inspire the public by sharing NASA's missions, challenges, and results.

Objective 6.4.1: Use strategic partnerships with formal and informal educational organizations to provide NASA content to promote interest in STEM.

Objective 6.4.2: Provide clear, accurate, timely, and consistent information that is readily available and suitable for a diverse audience.

Objective 6.4.3: Provide the communications infrastructure to enable NASA's commitment to make government more open, transparent, and participatory.