

The Future of NASA

Charting a Strategic Path Through a Commercially Driven Space Frontier

Introduction

This brief underscores the importance of clarity, efficiency, and strategic alignment within the National Aeronautics and Space Administration (NASA). As launch activity accelerates and private capabilities evolve, NASA must adapt, balancing scientific, exploration, and commercial goals while prioritizing safety as the bedrock of all endeavors.

NASA is the most successful and storied space program in the world. NASA's achievements in space travel are rivaled only by the innovations born from its endeavors, including memory foam, miniaturized camera technology used in smartphones, and advanced robotics. From the Apollo moon landings to the Hubble Space Telescope, NASA has been one of the defining symbols of American global leadership in science and technological progression.

Yet, the landscape of space exploration has shifted substantially in recent decades. Gone are the days of two rival superpowers dueling for technological and historical supremacy. Since Apollo, NASA has gradually stepped back from human space exploration, culminating with the cancellation of the Space Shuttle Program in 2011, leaving the nation without a crew-capable launch vehicle. More recent human spaceflight programs, such as Artemis, have faced cost overruns, delays, and shifting priorities. Today, the commercial space sector dominates spaceflight, outpacing government programs in efficiency, cost, and innovation. At the same time, geopolitical competition has reemerged, with China aggressively pursuing its own space ambitions. NASA, founded in 1958 after the Soviet Sputnik-1 launch, was built during the Cold War and is increasingly out of place in the modern space economy. The agency struggles under bureaucratic inertia, costly procurement practices, and an unclear mission.

The confirmation of a new NASA administrator provides the United States with an opportunity to reflect not only on the storied agency's history but also on its future. Space travel is the most dangerous and impressive undertaking humans have ever undertaken, and safety must remain the foundation of any space program. While NASA may be best positioned to maintain its core role as the overall facilitator of space exploration, should its core mission be refocused and redirected as companies rush to expand America's commercial space presence? The goal should not be to pave a predetermined path for NASA, but to prepare the agency to promote a fast-moving, rapidly innovating future in which agility and flexibility will be paramount.

NASA's Identity Crisis

The name NASA is synonymous with space exploration and moon landings for most people, but those no longer define the agency today. NASA's identity was shaped by an era when the government was the primary driver of research, technological innovation and spacecraft.

Although many innovations came from NASA's early years, the purpose of the Apollo program, like Mercury and Gemini before it, was not to generate profit, but to beat the Soviet Union in the Space Race. After the Cold War, the United States' launch cadence steadily declined, reaching a low point of just 16 orbital launches in 2004.¹

Just as interest and investment in space returned in the 2010s, NASA was in limbo, having dismantled the Shuttle Program in 2011 and relying solely on Russia to ferry astronauts to the International Space Station (ISS). As commercial space capabilities have expanded, NASA has once again failed to keep pace. In 2024, 138 of the 145 orbital launch attempts came from SpaceX, a private company.² NASA's culture has come to rely on SpaceX and other commercial ventures for orbital launches of crew, supplies, and scientific probes. Despite the commercial space industry being credited with almost exclusively returning America to space dominance, NASA remains committed to its extremely costly Space Launch System (SLS) program.³

The New Space Age

Today, NASA retains responsibilities rooted in its former role as both developer and operator of nearly all U.S. spaceflight systems. Yet, it relies almost entirely on commercial space companies. Spacecraft, launch vehicles, satellite constellations, and even lunar landers are increasingly produced and managed by private actors. Instead of being dragged into this new era of spaceflight, NASA must navigate it carefully and deliberately. The rise of commercial spaceflight raises significant questions for the agency.

Is the era of NASA as a hardware developer over?

Commercial launch providers currently operate under a patchwork of jurisdictions, licenses, and authorities across multiple federal agencies. Even as the Department of Commerce ramps up space traffic management, commercial companies like SpaceX and Blue Origin must navigate significant bureaucracy before any launch attempt. Currently, the entire government process acts as a massive speed bump to innovation, lacking any sense of urgency, as requirements are split between NASA and other agencies such as the FAA, FCC, NOAA, and the Department of Commerce.

Indeed, the FAA's Office of Commercial Spaceflight issues orbital licenses in an average of 93 days and a maximum of 180 days.⁴ However, that 180-day clock only begins once an application is deemed "complete." In this context, "complete" means when the FAA self-determines that all governmentally required pre-application work, as well as the separate and lengthy environmental review phase, are complete to its satisfaction.⁵

With commercial spaceflight looking like the model of the future, the need for reformed regulations and institutions is clear.

Renewed Geopolitical Competition

Space competition is once again intensifying, with China aiming to take its *taikonauts* to the lunar surface before 2030.⁶ However, unlike the 20th-century competition with the Soviet Union, this space race will be won not by government monoliths, but through the private sector. The United States cannot afford structural inefficiencies within NASA, and commercial spaceflight regulations slow progress. Rapid technological innovation will be key to countering China's growing space power.

Is the current iteration of NASA well-positioned for a Space Race renewal?

The next administrator will inherit the immense responsibility of guiding the agency through a new period of geopolitical competition in space. NASA's mission and leadership must be strong and decisive to meet this challenge.

Strategic Considerations and Reform

NASA's current structure may be inefficient, but it still anchors the United States' human spaceflight strategy. Abrupt, poorly planned changes could severely disrupt progress at a time when international leadership and innovation are critical. Rather than calling for specific reforms, this brief raises questions for policymakers to resolve about the future of NASA:

- ◆ How should NASA's role be defined in a space economy led by the private sector?
- ◆ What structural changes are necessary to improve NASA's agility and adaptability?
- ◆ How will legacy programs like SLS be managed without compromising progress?
- ◆ How can regulations evolve to accelerate innovation while safeguarding public and crew safety?
- ◆ How can the federal bureaucracy best work to ensure the United States prospers in space?
- ◆ What principles should govern long-term strategy for crewed spaceflight?
- ◆ Should NASA remain an independent federal agency overseeing vast swaths of facilities and research, or is the private sector better positioned to lead in innovation?

These questions reflect the emerging realities of modern spaceflight. They also highlight the need for an administrator capable of steering a complex institution through rapid technological and geopolitical change.

Conclusion

Reforming NASA into a more effective organization is not about lowering the nation's astronomical ambitions; it is about ensuring that America capitalizes on recent commercial space successes to fuel the next era of discovery. A modernized structure is vital not only for efficiency but also for preserving the United States' edge in space as China races toward its own crewed lunar landing. NASA's legacy should be celebrated, but relying on the past is not a recipe for future success. Today's landscape is shaped by commercial launch providers, rapid development cycles, and resurgent geopolitical competition focused on innovation rather than mere strength. Maintaining global leadership requires an agency built for flexibility and efficiency.

Citations

¹ Launch Log (2004-2008). Spaceflight Now. (2008). <https://spaceflightnow.com/launch-log-2004-2008/>.

² Kuhr, J. (2025, January 3). 2024 Orbital Launch Attempts by Country. Payload. <https://payloadspace.com/2024-orbital-launch-attempts-by-country/>.

³ Waters, R., & Haslett, B. (2022, August 29). *NASA's new rocket is the last hurrah for US Space Agency's old ways*. Subscribe to read. <https://www.ft.com/content/4ef1a4c0-ce0d-4f9c-811a-1d28e0049c69>.

⁴ Federal Aviation Administration. (2025, September 9). The Facts About FAA Commercial Space Oversight. <https://www.faa.gov/blog/clearedfortakeoff/facts-about-faa-commercial-space-oversight>.

⁵ U.S. Government Accountability Office. (2024, April). Commercial space transportation: How FAA considers environmental and airspace effects (GAO-24-106193). <https://www.gao.gov/assets/gao-24-106193.pdf>.

⁶ Zhao, Q. (2025, October 31). *China launches Shenzhou 21 mission, carrying 3 taikonauts - and 4 mice - to replace space station crew*. CBS News. <https://www.cbsnews.com/news/china-space-station-launch-shenzhou-21-mission-youngest-taikonaut-live-mice/>.



Author

Benjamin Dierker, JD, MPA

Executive Director, Alliance for Innovation and Infrastructure

Owen Rogers

Public Policy Associate, Alliance for Innovation and Infrastructure

For more information or inquiries on this report, please contact the Aii Media Coordinator at info@aii.org

Recommended Citation for this report

Dierker, B. & Rogers, O. (December, 2025). *The Future of NASA: Charting a Strategic Path Through a Commercially Driven Space Frontier*. Alliance for Innovation and Infrastructure. [Aii.org](https://www.aii.org).

About Aii

The Alliance for Innovation and Infrastructure (Aii) is an independent, national research and educational organization working to advance innovation across industry and public policy. The only nationwide public policy think tank dedicated to infrastructure, Aii explores the intersection of economics, law, and public policy in the areas of climate, damage prevention, eminent domain, energy, infrastructure, innovation, technology, and transportation.

Aii is a think tank consisting of two non-profits: the National Infrastructure Safety Foundation (NISF), a 501(c)(4) social welfare organization, and the Public Institute for Facility Safety (PIFS), a 501(c)(3) educational organization. Both non-profits are legally governed by volunteer boards of directors. These work in conjunction with Aii's own volunteer Advisory Council.

Board of Directors

Timothy Butters, Director

Surya Gunasekara, Director

Chris Kilgore, Director

Brigham McCown, Founder, Chairman

Jack Reape, Director

David Venable, Director, Senior Cybersecurity Fellow