NASA's new super material 10
Q&A: Boeing's safety chief 14
Rocket Lab's next step 38

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AEROSPACE AMERICA

The new space race

Why the competition is bigger than landing astronauts on the moon this decade. PAGE 32

AIAA

THE BIG QUESTION

What should be Jared Isaacman's top priority for NASA?

His time as NASA administrator promises to be an eventful one, from the race to land U.S. astronauts on the moon before China; preparing for the transition from the International Space Station to privately owned and operated stations; and the ongoing shift from traditional contracting to a shared-cost model with the increasingly capable commercial sector. He must also navigate this against the backdrop of a polarized political environment and volatile geopolitical landscape.

In the early days of Isaacman's tenure, I reached out to lawmakers, a former NASA center director and representatives of industry groups for their views about his priorities. — *Jon Kelvey*

Sen. Maria Cantwell (D-Wash.)

Ranking member of the Senate Committee on Commerce, Science, & Transportation.

Administrator Isaacman needs to prioritize three big technology transformations because NASA is the ultimate science agency that will enable America to inhabit and benefit from the space frontier.

First, NASA must return to the moon by 2028 ahead of China. A sustainable lunar presence is not about landing astronauts once; it is about building the infrastructure, systems and partnerships that will allow humanity to thrive beyond Earth. The moon is where we perfect the technology and establish the operating cadence that makes deep-space exploration possible. This includes life support, surface power, communications, navigation systems and lander vehicles that are robust and resilient enough to withstand the moon's two-week-long night, craters and other low-lying areas that experience almost permanent darkness. These areas are the proving ground that prepares us for the next big frontiers, including Mars.

Second, we must promote the space economy while protecting services critical for public safety and national security. More than half of all satellites launched into space were launched in the last five years. This provides new opportunities for communications, including high-speed broadband from space, as well as new challenges, including potential interference to essential systems for national security, weather forecasting, and aviation.

NASA must continue to shape the design standards and operating procedures needed to maintain safety and security in orbit, including protecting against collisions and orbital debris, avoiding radiofrequency spectrum interference with defense and weather forecasting satellites and ensuring astronomy can continue to unlock the wonders of our universe. This means continued investment in NASA's science portfolio that drives innovations integral to future economic growth in the United States.

Third, Mr. Isaacman must ensure America continues to lead on aerospace manufacturing. Building lunar and deep-space systems at scale means also supporting America's advanced manufacturing base and, specifically, perfecting advanced materials technology such as thermoplastic composites, and enabling the manufacturing of large-scale components for both commercial and military aircraft, space vehicles and structures. Thermoplastic composites are vital to reducing the structural weight of air vehicles by 20% to 50%, significantly improving fuel efficiency and performance, and can speed production volume.

For commercial aircraft, America will be able to capture more of the market for 40,000-plus aircraft over the next two decades. For space systems, thermoplastics mean building large structures with fewer joints and connections, potentially simplifying processes and certification requirements. These ambitious goals depend on advances in production capacity, resilient supply chains and continued training and education for the workers that make mission success possible.

The state of Washington shows how to do this. Washington has been supplying critical systems to NASA since the dawn of the space age, and 42 of our companies are Artemis suppliers. NASA selected Blue Origin in Kent to provide a human lunar lander for the Artemis program, and Washington now produces more than half of the satellites in low-Earth orbit. And my state is home of the Spokane Aerospace Tech Hub, aiming to meet the demand for advanced composite aerostructures to benefit NASA and commercial and defense aerospace markets.

Administrator Isaacman must drive these transformations. He can, and must, position NASA to lead not only in exploration, but in the scientific discovery and technology development that feeds the space economy and keeps the United States at the forefront of aerospace leadership for decades to come.

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Dave Cavossa

President of the Commercial Space Federation, a trade association representing 80-plus commercial space companies, air and spaceports, and universities.

NASA's biggest challenges over the next three years are within the human spaceflight programs. At the Commercial Space Federation, we believe that with his outside perspective, Administrator Isaacman is the right person, at the right time, to guide NASA through this period of change. We are urging the agency to face these challenges by seizing on new opportunities created by the increasing capabilities of commercial space operators.

First, with the ISS slated for retirement in 2030, how will NASA ensure the U.S. maintains a presence in LEO as the Chinese continue to build out their space station? Commercial companies are ready to compete for NASA's Commercial Low Earth Orbit Destinations [CLD] program; the industry needs to know what the plan is for when the agency will move forward with procurement activities for CLD.

And then there is Artemis. It's important, of course, to ensure the success of Artemis II and Artemis III, especially in the context of competing with China. But do we have the pieces in place to compete long term, to keep returning to the moon, to build moon bases and related infrastructure like lunar communications and surface power? China is not going to stop shooting for the moon just because we beat them there in 2028.

A sustainable presence on the moon requires multiple missions each year, not just touching the ground and coming back to Earth after a week. We'd like to see NASA begin including commercial capabilities in Artemis to build a truly robust program. Administrator Isaacman hinted at such during his confirmation hearing, and we hope he'll release an acquisition strategy that shows how NASA can leverage public-private partnerships to achieve the goals of Artemis. NASA will benefit from commercial capabilities and competition; however, the industry needs to understand what NASA's requirements will be for transporting humans to the moon.

Putting these human spaceflight programs on a solid footing for the future will not be easy. Many of these programs stalled in 2025 as NASA waited for a permanent administrator, and three years goes by quickly when you're talking about government procurements. Add to that the fact that the agency lost 4,000 staff over the past year. But while it may not be possible to get every piece in place, Administrator Isaacman can put the agency on the right path by continuing to fully utilize ISS, starting the competition for CLD, and initiating agreements to broaden capabilities and programs needed for a sustainable lunar program.

Isaacman is uniquely suited for this task. We've seen how he used media and Netflix to publicize his own private space missions, effectively communicating to the American public why these missions are important. *[Netflix released a documentary about Inspiration4, the free-flying mission to LEO that Isaacman and three others conducted in 2021. — JK]* That can help ensure NASA continues receiving the resources it needs to succeed. And with his outsider perspective, we hope he can lead the agency to new, creative solutions, and help NASA show the world what a 21st-century civil space agency looks like.

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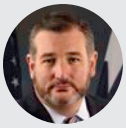
Sen. Ted Cruz, (R-Tex.)

Chairman of the Senate Committee on Commerce, Science, & Transportation.



NASA is at the forefront of American leadership in science and technology. It is critical to our national security amid what I have called the second "space race" that we prioritize beating China back to the moon.

Mr. Isaacman is taking the helm just as NASA is set to launch Artemis II — the agency's first crewed use of the Space Launch System rocket and the first crewed mission on the Orion spacecraft, which will bring American astronauts closer to the lunar surface than at any point since 1972.

I know Mr. Isaacman will be a strong leader who sees that Artemis II launches safely, successfully and without delay. He must then turn to Artemis IV, landing Americans on the moon before China, which is aiming to send its own taikonauts there by 2030. NASA cannot take its eye off the ball.

Fortunately, Congress has given clear direction and substantial funding to achieve this goal. In the Working Families Tax Cut Act *[The formal name of the sprawling tax and spending package that President Donald Trump signed into law last year. — JK]*, President Trump and a Republican Congress committed nearly $10 billion to specific parts of the space program, including the Space Launch System and future lunar missions Artemis IV and V; the Gateway space station at the moon; and the International Space Station. The vision for NASA enshrined in the Working Families Tax Cut Act is unambiguous, and it must be executed faithfully to beat China back to the moon and bolster U.S. leadership in space.

But investments in hardware alone won't guarantee mission success. Equally indispensable is NASA's workforce. Houston's Johnson Space Center is home to one of the most capable, experienced and mission-driven workforces in the world. JSC is home to our astronaut corps — America's spacefaring heroes — who represent the best of our nation. Preserving that talent is essential, and I trust that JSC will continue to thrive under Mr. Isaacman's leadership.

Mr. Isaacman will need to prioritize stability, accountability and respect for the men and women who make the agency's missions possible. As the commander of Inspiration4, the first all-civilian spaceflight, and the first private citizen to walk in space, he knows that every successful mission depends on the skills and dedication of its crew, as well as the countless professionals supporting them from the ground. He brings a unique perspective to NASA at a critical moment.

Mr. Isaacman is as committed as I am to American supremacy in the final frontier. He is laser focused on astronauts returning to the lunar surface and developing the capacity to reach Mars. The United States must remain the unquestioned leader in space exploration.

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Casey Dreier

Chief of space policy at the Planetary Society, a nonprofit with a global community of some 2 million members advocating for funding NASA, planetary science and astronomy.

In his stewardship of NASA over the next three years, the most important priority for Administrator Jared Isaacman is ensuring the agency remains a bastion of nonpartisanship, to protect NASA as a unifying symbol, with its successes perceived as the successes of all Americans. That is not to say that Isaacman should ignore politics by any means, but to act as a bulwark against the ever increasing intrusions of partisanship into the nation's space program, whether from the left or right side of the political spectrum. His challenge, ultimately, is to act as a consensus builder within a political system that abhors consensus the way space does a vacuum.

But it's only by maintaining NASA as a unifying symbol that the agency can pursue grand missions of exploration that take years or decades to complete. Every initiative begun under his tenure will, by necessity, be implemented by a subsequent administration and NASA administrator. Projects begun under highly partisan framing, or that consumed the budgets and activities of other popular programs, could face significant headwinds under future Congresses or presidents. Managing NASA is like taking part in a relay race, but your team member will choose whether or not to accept the baton.

Artemis presents an excellent example. Started under the first Trump administration, Artemis was adopted wholesale by the subsequent Biden administration — the only lunar return effort in history to survive a presidential transition. This was not an accident. Artemis was intentionally designed to engage a broad coalition of partners. Then-NASA Administrator Jim Bridenstine and members of the National Space Council, among others, put in the legwork to secure buy-in from members of Congress in both parties. By ensuring that Artemis was perceived as a benefit for the nation, and not any one particular presidential administration, it could more easily survive the transition to the Biden administration. You could count the number of other major policies that made that political leap on one hand.

Science missions must endure similar political time scales. The Europa Clipper mission began under the Obama administration, was built and funded largely by the first Trump administration, and launched under the Biden administration. It will spend the entirety of the second Trump administration en route to Europa. Its mission begins in 2030 under the next president. There is no way to shortcut such missions given their complexity and extreme distance from Earth. They must be broadly popular and nonpartisan in nature.

Space science is a major area of opportunity for long-lasting new initiatives. Multiple high-quality polls going back to 2018 repeatedly find that NASA's scientific activities commanded far broader public support than any other agency priority, with near-equal enthusiasm from Republicans and Democrats. This was made clear last year when large congressional majorities outright rejected the extinction-level cuts proposed for NASA science (cuts announced before Isaacman was administrator). Programs with such broad, bipartisan support are what carry NASA across administrations and Congresses.

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Every NASA administrator is a steward of the most respected and legendary brand that the United States has, a reputation that extends around the world. This reputation took decades to build. It is easy to take it for granted. I do not think for a minute that Isaacman is someone who takes this for granted. Everything we have seen so far shows that he understands how important NASA is as an idea. But none of us gets to choose the moment in which we live, and his is one that demands a steady hand. Such will be Isaacman's challenge in the years ahead.

"This moment calls for a deliberate reinvention of NASA's operating model — one that systematically enables what commercial, academic and nonprofit partners can contribute to accelerate discovery and exploration at lower cost to the taxpayer."

Laurie Leshin

Professor of space futures at Arizona State University and former director of NASA's Jet Propulsion Laboratory.

To use a term the administrator favors, Jared Isaacman's top priority should be to make NASA a true "force multiplier" for science, exploration and humanity's future as an interplanetary species. His task is to position NASA to fully unleash the broader space ecosystem — enabling partners to move faster, bring capital and creativity, take appropriate risks and deliver innovations that unlock human potential, transformative discovery and enduring American leadership.

Based on many years of NASA leadership experience, I know how easy it is to become consumed by the urgent. Operational challenges demand immediate attention, and addressing them can be both necessary and exhilarating. Beginning a tenure with an ISS medical emergency *[The early return of Crew-11 in January — JK]* and preparing for Artemis II makes this pull unavoidable. Yet, I would urge Jared to trust the teams who have spent years preparing for these moments and instead devote the majority of his time to decisions with decades-long consequences — those that shape what NASA becomes, not just what it manages.

The nation's space enterprise stands at an inflection point. Capabilities now exist that were unimaginable just a few decades ago, along with both successful and less successful efforts to integrate them. This moment calls for a deliberate reinvention of NASA's operating model — one that systematically enables what commercial, academic and nonprofit partners can contribute to accelerate discovery and exploration at lower cost to the taxpayer.

There are proven examples to build upon. The Human Landing System model — where NASA funds partners to deliver essential services while also resourcing NASA expertise to help navigate inevitable challenges — offers a template worth expanding. Had similar structures existed for CLPS, early mission outcomes might have been stronger. *[Of the four commercial lunar landers funded and launched to date under NASA's Commercial Lunar Payload Services program, only one landed upright and operated for the duration of its planned mission. — JK]* Just as importantly, such models engage the full agency, not only headquarters, in supporting new partnership approaches.

NASA's science programs should undergo a similar evolution. NASA should fly many more small, focused missions — like SPARCS [Star-Planet Activity Research CubeSat] and Pandora — leveraging experienced universities, innovative companies, and low-cost launch, while allowing these efforts to succeed without excessive oversight. *[These small satellites were launched in January to study low-mass stars and exoplanet atmospheres. — JK]* Expanding this model would accelerate discovery, train the next-generation workforce, and broaden participation. Increased commitment to data buys would further stimulate private investment while advancing NASA's scientific objectives.

The difficult year NASA has just endured could lead the agency to retreat into caution and bureaucracy. Instead, Jared should seize this moment to remake NASA into a bold, disciplined force multiplier for exploration and discovery. Only by doing so will the agency fully enable humanity's reach beyond Earth — and truly help us reach for the stars. ★