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Darrell M. West and Eric Lipton

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- Private companies in the space industry receive billions of dollars in federal funding from agencies like NASA and the Department of Defense, including Elon Musk's SpaceX.
- Some leaders from the private sector are now leaders in NASA and related agencies, further raising questions about private firms' role in space exploration and their influence.

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TechTank, a biweekly podcast from the Center for Technology Innovation at Brookings, explores today's most consequential technology issues. Moderators Nicol Turner Lee and Darrell West speak with experts and policymakers to share data, ideas, and policy solutions that address the challenges of our digital world.

As ambitious efforts to return humans to the moon advance, other developments in space exploration continue. This year has seen several landers make it onto the lunar surface and advancements in scientific knowledge through space-based telescopes.

At the same time, issues concerning the role of private firms in achieving such goals remain unresolved. NASA once had almost complete control on space launches, but now, it often relies on companies to help it get there. Some firms—like Elon Musk-owned SpaceX and Jeff Bezos' Blue Origin—receive billions of dollars for such projects from federal agencies, including NASA and the Department of Defense. Other private sector leaders have gained influence within the Trump administration, including an appointment to the top of NASA.

In this episode of the TechTank podcast, co-host Darrell West speaks with Eric Lipton, an investigative reporter at the New York Times, about the implications of these partnerships and what it means for space policy.

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**CO-HOST NICOL TURNER LEE** [00:00:00] You're listening to Tech Tank, a bi-weekly podcast from the Brookings Institution, exploring the most consequential technology issues of our time. From racial bias and algorithms to the future of work, Tech Tank takes big ideas and makes them accessible.

**CO-HOST DARRELL WEST** [00:00:28] Thanks for joining our Brookings Tech Tank podcast. I'm Darrell West, a senior fellow in the Center for Technology Innovation at the Brookings Institution. It is an exciting time in the history of space exploration. There have been advances in scientific knowledge through space-based telescopes. Some landers just made it to the moon, and there are ambitious plans to return humans to the Moon in the next several years. But at the same time, there are unresolved issues concerning the role of private firms in space exploration. NASA used to have a near monopoly on space launches, but now relies on commercial companies to send things into space. Firms such as SpaceX are getting billions of dollars in federal money from NASA, the Department of Defense, and other agencies. And leaders from the private sector are gaining new influence by taking positions at NASA and the Federal Aviation Administration. All these things raise interesting questions concerning the role of private firms in space policy. To discuss these issues, we are pleased to be joined by Eric Lipton of the New York Times. He is a distinguished investigative reporter who covers several areas, including space companies. He joined the Times in 1999 and is a three-time winner of the Pulitzer Prize. Eric, welcome to our Brookings Tech Tank podcast. Thanks for having me. So I know that you cover a number of different sectors, but in recent times you've several articles on the space area. What interests you about the space sector and the role of private companies there?

**GUEST ERIC LIPTON** [00:02:04] I started about two years ago now looking at the subject matter of the acquisitions around technology, artificial intelligence, and commercial services and the Defense Department. And it is, you know, the DOD, the Pentagon is one of the biggest buyers in the world. It's got a budget of almost a trillion dollars a year. And its purchases have just such enormous consequence to not only, you know, the economy, but obviously to the, you know, the effect of defense of the



United States interest globally. And so as I began to examine that, looking at how venture capital backed startups were transforming the world of defense contractors, the beltway bandits were becoming VC backed startups. I, one of the sectors within the defense procurement world that was going through this radical transformation. Was a space launch, moving from a kind of a Lockheed-Boeing-dominated, you know, built for DoD bespoke rockets under contract, cost plus, to a SpaceX model where the Pentagon is buying a service and it just grabs a ride on a sailboat that's headed to space.

**CO-HOST DARRELL WEST** [00:03:20] So I think that is an interesting new trend. And I know that you recently had an article entitled, SpaceX position to secure billions in new federal grants under Trump. What did you find in your reporting and what concerns you about SpaceX and Elon Musk?

**GUEST ERIC LIPTON** [00:03:37] So one of the kind of subsets of what I've been examining as part of that area of reporting is SpaceX because it is such a phenomenal story. It went you know from you know founded in 2002 first launch of a Falcon 1 rocket in 2006 it gets its first money from NASA in 2008 I'm sorry in 2006. I got a small amount the first sizeable amount in 2008. And then it worked its way, you know, by suing the Air Force, it eventually became a part of the National Security Launch Program. But what happened along the way is that while SpaceX entered the scene saying, you know, Lockheed and Boeing have a monopoly and you have to help us break up this monopoly, by, you, know, the end of the Biden administration, SpaceX effectively was the monopoly. And it got \$3.8 billion worth of federal contracts. In 2024, and it's NASA's largest private contractor. And it's DOD's currently until a couple of days ago when the United Launch Alliance, which is a consortium of Boeing and Lockheed got certification of its new rocket. It was the only way that DOD had to get to space for its most important launches. So, but what had happened is that SpaceX is now so dominant. Um, you know, it, it is, it effectively is a monopoly, but once Trump came in, it already was getting, you, know, \$3.8 billion worth of contracts in 2024, but it now looked like it was even going to see a bigger haul because a bunch of policy shifts have already taken place in four or five different parts of the federal government.

The department of commerce has decided it's going to open up a broadband internet to satellite based. Internet providers like SpaceX instead of relying on Fiverr for a \$42 billion program that's distributing broadband internet to rural America. The Federal Aviation Administration is considering using Starlink, the SpaceX communication systems to build out its air traffic control and weather data system, again in rural areas. And the Department of Defense is talking about using SpaceX to do... Cargo deliveries using instead of a c one thirty moving cargo rapidly across the world within a couple hours and using the the starship the new rocket the spacex is built and trump has also proposed this incredible thing he's calling golden dome which you know who knows how much money might be involved in that hundreds of billions of dollars that would build a space-based missile defense program and SpaceX is well positioned to get a large chunk of that and there was just stories yesterday about how the space force is considering shifting money from other contractors to SpaceX to help build that out rapidly. So it already had a dominant role, but with a friend in the White House, Musk, being in the white house and he's the CEO of SpaceX, it looks as if it's positioned to get an even bigger chunk of money from the federal government and to potentially dominate even more.

**CO-HOST DARRELL WEST** [00:06:48] And so Musk might say, well, we have the best technology, so that's the reason we're doing so well. How would you respond to that?

**GUEST ERIC LIPTON** [00:06:56] Yeah, it's true. I mean, there's no question SpaceX has transformed the commercial space industry, every aspect of it, both the satellite deployments at Starlink. It has more satellites in orbit, six thousand approximately, than any other nation or any other by far. I mean it completely dominates the number of satellites in Orbit. It is it is the prep puts like something nearly eighty or more than eighty percent of all. A mass in orbit in 2024 was delivered by SpaceX. Its reusable rocket has transformed the cost point of getting into orbit. So it has been transformational, and it has opened up the commercial space industry. It has allowed new businesses to emerge and flourish. That's true. The problem is that it's also vertically integrated. So they're both manufacturing the satellite busses. They're manufacturing the Starlink systems that or data communications. They're



manufacturing the rockets, and they're also providing for themselves and also for commercial launch. And they're so large that it's hard for any other players to get into the space. I mean, there are some signs of progress. I mean just in the last couple of days, Rocket Lab and Stokes Space, two other commercial space companies were certified, were added by the Department of Defense to one of the National Security Launch Programs. And, as I mentioned, the United Launch Alliance also got its Vulcan rocket certified. So there is more, because the business is so, has been booming for commercial space, there are new entrants that are maturing. But for the moment, it continues to be a commercial sector that is completely dominated by SpaceX and Trump appears to be taking steps that are going to make that even greater.

**CO-HOST DARRELL WEST** [00:08:45] And of course, what a lot of people worry about is real or potential conflicts of interest here because as you point out, Musk has extraordinary access to President Trump. He's attended several cabinet meetings through the Department of Government Efficiency. His team is reviewing a bunch of the federal, his team is revealing a bunch of the Federal agencies that now either are supporting him or maybe supporting him in the future. So how should we think about those potential conflicts of interest.

**GUEST ERIC LIPTON** [00:09:17] I mean, there are real issues that demand constant examination, and unfortunately, there's extremely little transparency and accountability in this current administration. And so the only way that we're able to really get any visibility is through efforts of reporters for the most part because the inspector generals have been fired, the head of the office of government ethics has been fired. The head of the Office of Special Counsel has been fired, the Department of Justice is effectively neutered. And there is no congressional oversight. And so, you know, for example, you inside, I mean, NASA is about to be taken over once he's confirmed by Jared Isaacman, who was effectively, until recently, he owned a stake in SpaceX. He was an investor in SpaceX and he made, you now, tens of millions of dollars off of that investment. And he recently sold it off because he's been nominated to take over NASA. Uh, and, uh, he also was a business. He also bought, spent hundreds of millions of dollars to buy two flights to orbit. Um, he was in orbit twice, um, on a

SpaceX rocket. So he's a business, um client and a business partner with SpaceX and he's now taking over NASA. Uh, Trump also named, uh in January, they, uh the head of sales for human flights for SpaceX who spent 15 years there, a senior executive. As an advisor to the NASA administrator. So he's now helping make decisions about astronaut systems for NASA having just less SpaceX. I mean, a similar situation, even at the Air Force, the new Air Force secretary, Troy Mink, he gave a no-bid contract to SpaceX worth more than a billion dollars to build a new low Earth orbit spy network for the National Reconnaissance Office. And then Musk recommended him to become the new Air Force Secretary to Trump, and Trump then nominated, and Troy Mink is about to be confirmed. He just had his confirmation hearing as the new air force secretary. And this is the same agency that's going to largely be overseeing the construction of the Golden Dome, you know, hundreds of billions of dollars missile defense system. And Troy Minks was asked just at his confirmation, hearing about whether or not it looks as if the Space Force might be moving contracts that were already awarded to other companies to SpaceX and he said at his confirmation hearing that he would look into it. At the FAA, they've appointed several people who actually are employees at SpaceX to work on evaluating the FAA's air traffic control system and they were given ethics waivers that allow them to take positions that financially benefit SpaceX, even though they're still SpaceX employees and their own special assignments to the FAA. And what did they do? They went in there and recommended that the Starlink satellite system be installed on FAA's data collection system in certain areas of United States. And so that's now happened. So yeah, it is a concern about conflicts of interest. And the problem is that the only way that we're finding out about these things are the efforts of reporters, for the most part.

**CO-HOST DARRELL WEST** [00:12:26] Yeah, and some of your articles have been extraordinary, both this year as well as last year. So definitely encourage people to go to the New York Times website and check out these articles. And I think, you know, one of the angles that you wrote about last year was this whole competition policy area. And you know SpaceX does have a dominant market position already in the new administration that may even grow. I think it was in 2024, you wrote that some competitors have complained that the firm is using its dominant market position to either squeeze out other companies or somehow undercut them. What did you find when you looked into that particular issue?



**GUEST ERIC LIPTON** [00:13:06] Yeah, it's quite interesting because, of course, you know, when SpaceX kind of was first growing up, Elon Musk did not hesitate to accuse the Air Force of being, you know, helping a monopoly in the form of Boeing and Lockheed, and he sued the Air Force claiming that they were being, that Boeing and Lockheeds had this monopoly and that they were not letting SpaceX get into the fight and that it was good for the nation to have diversity. And so that was how SpaceX effectively was born, was that lawsuit that was filed in April 2014. But in fact, fast forward a decade later, and when I spoke with the CEOs of several of the kind of emerging commercial space companies that are effectively mini SpaceX's from a decade ago, these are companies that are just starting up. What they told me is that when they went, for example, to the venture capital market to raise money to help build out their business plans, suddenly executives and SpaceX were talking to VCs and saying, well, don't put up that money. You're our partner. Don't give money to this emerging space company. Or if there was a company that told me, and a CEO of another company told me that he was trying to find satellite companies that would launch on his new rocket that he was building. And the satellite companies were saying, well, you know, SpaceX is demanding that we exclusively that we give them, you, know, write a first refusal before we switch to another vendor. And, you're trying to box them in to prevent them from leaving, even though SpaceX had such incredible market share, was trying to keep its satellite companies from picking other launch providers. And so there was a number of allegations. And I even heard that late in the Biden administration, there was some discussion. About potentially looking at anti-competitive practices investigation relative to SpaceX that never materialized. But there was some discussion about it and obviously it's not gonna happen now.

**CO-HOST DARRELL WEST** [00:15:06] So in 2024 in a Times article, you noted that government agencies had encountered environmental and worker safety issues with the firm and imposed various fines and penalties. What were the problems that you found there? And then now that Musk is so closely integrated with the new administration, how are they dealing with these past complaints.



**GUEST ERIC LIPTON** [00:15:30] Yeah, another topic that I spent a lot of time on last year was the look at how SpaceX approached its project in South Texas near the Mexican border in an area close to Brownsville, Texas. It's a little village called Boca Chica that I spend a lot a time in last year. And they built a truly extraordinary complex there in Boca chica and it was a tiny little village was, you know, homes that did not have. You know, water tapped into the main, they've got, they had tanks that provided the water supply. They're not even on the water system. It's a pretty remote area. There's no hotels. There's not a single, you know, gas station. There's know, you convenience stores. There's nothing in this area and really close to the Mexican border at the Southern point of Texas. And the reason that SpaceX picked it, it was, they described it as a donut hole. They picked, they bought up about 40 acres of land. In the middle of a national wildlife refuge and state parks, because they could just buy that tiny piece of land and then have all of this other federally protected property nearby and then launch their rockets and repeatedly blow up their rockets, and send debris from those explosions into the state parklands and the federal parklands, cause fires. Um cause you know damage to wildlife and just keep going um because that's the way that elon musk builds his rockets as he he innovates he blows them up and then he revises them and then blows them up again and then revises and blows them again um just more recently as everyone has seen they blew up twice over the caribbean and sent tons of debris falling down and forcing the uh relocation of air traffic in the region because of the debris. So that's the way he does it, and it's one of the reasons he's innovated so quickly is that he's willing to blow rockets up instead of testing them endlessly on the ground or in laboratories. And so, but what I found was that Musk likes to do it his own way, and that means that he doesn't necessarily honor the environmental regulations or even the agreements that He's me! To limit the environmental impact of this massive operation that he's built in the middle of a national wildlife refuge. So, he was causing repeated harm to the wildlife refuge areas, and it was causing distress among Fish and Wildlife Agency at the Department of Interior, and the emails that we got through open records requests showed their distress over the damage that was occurring to the refuge that they're supposed to protect. And this disregard that was coming from SpaceX. And basically, they just bulldozed their way through whatever they need to in order to get what they want. And that's the approach that Musk has taken. And it's part of the reason he's been so successful, but the environmental consequences did not seem that important. And so that was what we examined there. And the issue then is that this resulted in the EPA finding SpaceX for discharging wastewater without a permit or fish and wildlife looking at damage that was occurring to nesting birds and the eggs when the rockets lift off and destroying these threatened species of birds and other consequences to the area.

And so the issue now is that with Musk is effectively one of the most powerful bureaucrats in the United States federal government. Able to decide, you know, how many employees and what the spending can be of federal agencies across the enterprise. All of these investigations, he has huge clout over the agencies that are supposedly investigating him. And another story that we did was examining how many of those investigations are now being stalled or rolled back or, you, know, and there's the FAA, for example, is reconsidering a fine that it proposed against SpaceX for ignoring safety regulations in Florida on two launches. So it's a very unusual situation to have an individual who's one of the biggest federal contractors on the one hand, and also one of the most powerful bureaucrats in the federal government. On the other hand, and to be simultaneously doing both of those things, it creates unavoidable conflicts of interest that are having, you know, that are very evidence and that we are examining in a series of stories that we're doing.

**CO-HOST DARRELL WEST** [00:19:57] Now, that is a troubling set of interests that are converging there, so I'm glad you're paying attention to this. And speaking more generally, kind of about the space industry itself, I have been undertaking research on space policy more generally. And one of the things I've discovered is space law is actually rather sparse. You know, some of the international agreements on space date back 50 years and don't really specify the rules for things that... Now either we're on the cusp of doing or actually are doing space mining and space tourism, private companies sending people to the moon and perhaps beyond. I personally think we need to clarify the rights and the responsibilities of private firms as they launch new initiatives, but we don't seem to have much clarity right now. I'm just curious, how are private firms navigating a world. When there seem to be relatively few guardrails in place in terms of what they can do.

**GUEST ERIC LIPTON** [00:20:57] Yeah, I mean, I think that I mean one thing that I need to make entirely clear is that I mean SpaceX and Elon Musk have done incredible things that are benefiting, you know, not all Americans and much of the world, in fact, and it is transformational what he has done and through the kind of the brute force and determination to persist. And it has been so transformational that the United States is



now such a dominant player in the space, space defense and commercial space that it is far outpaced the bureaucratic capacity of the federal government to manage this incredible transformation. And billions and billions of dollars of venture capital are now pouring into this space because it is now so much cheaper to get to orbit that all of a sudden... It's opened up all of these business opportunities that just were not even, you know, conceivable because the cost points were so outrageous. So you can, you know, for so the net result is you're right that the the infrastructure around it is way immature. So, you have at the Federal Communications Commission, they're rapidly moving to try they've created a new office that that focuses on because they they control the bandwidth of, you know, and the use of communications bandwidth, which satellites need, obviously, to connect. And then the FAA controls space launch, and its primary mission is around safety. But it also is supposed to be promoting the commercial space industry. So there's a tension there where it's both promoting and regulating something. And the FAA is working on modernizing its commercial space regulations and The Commerce Department and NOAA also has a role because in terms of coordinating satellites in orbit because there's all these weather satellites and other NOAA satellites. So the entire federal infrastructure is working to try to modernize and rapidly, but it's because this transformation in the industry has happened so much faster than anyone thought was ever possible. And the federal government moves relatively slowly when it comes to writing new rules. And the old rules just aren't really relevant. We had just a few players that were largely working in a geosynchronous orbit, which was so far out that they were a great distance from each other. And now you're talking about, SpaceX already has more than 6,000 satellites and Amazon's Kuiper is about to start launching its own huge constellation in low earth orbit. I mean, it's getting pretty busy up there and complicated and there's all kinds of fights going on over spectrum and bandwidth on the spectrum and you have terrestrial cell phone companies that are fighting with SpaceX and over who should get the bandwidth in the radio frequencies for communications purposes and so it's a very complicated world and And the government has to figure it out fast, because these companies are going faster than the regulatory system that manages them.

**CO-HOST DARRELL WEST [00:24:17]** It is impressive how fast the innovation has taken place and the transformation that you've been describing has unfolded. And one of my favorite examples about the relative lack of policy and legal guardrails in this sector is there's some businesses now that sell a service by which people can send

the ashes of loved ones into space. And when outsiders complained about this service on grounds that we should not be treating space as a cemetery, A NASA program officer was quoted responding by saying his agency had no control over commercial payloads and noted that firms, quote, don't have to clear those payloads with us. These are truly commercial missions and it's up to them to sell what they can sell, end Now, I'm personally appalled by that NASA attitude that it is financing many of the the firms what to do or impose any conditions. Like in other public-private partnerships, government agencies often attach conditions to the public funding and say, the company can do this, it can't do these other things. So I'm just curious, do private firms need greater guidance now on their rights and responsibilities in space?

**GUEST ERIC LIPTON** [00:25:32] Yeah, I mean, for example, really, the FAA, to some extent, is the lead regulator. So the question is whether or not does that launch of these ashes create a safety risk to people on Earth, perhaps because it's put in some type of an urn that could come back in and land and hurt somebody. I mean it's the F.A.A.'s responsibility to focus on safety. NASA. I mean, NASA's, you know, that's not really, NASA is launching its own programs. And the FAA, you now, for example, in looking at South Texas, the F.A.A had to consult with Fish and Wildlife relative to the consequences on the National Wildlife Refuge. But its primary mandate was to evaluate whether or not the launch of SpaceX rocket was to be a safety threat to people in the area on the ground nearby. Or to people that would be under the rocket as it was on its way to orbit. And that is its primary mission was to prevent that launch from hurting people. But it was not a core charge of the FAA, even though it has sole jurisdiction over that launch, to make sure that it does not damage the environment in consequential ways. Because the F.A.A is not an environmental agency, it does have to consult with other environmental agencies when it approves them and get their input. The whole process is just not built for the industry as it has matured because it is now you have SpaceX building effectively one of the world's largest private space launch facilities in South Texas and Bezos has his own launch facility. I mean normally launches are done out of Cape Canaveral and our Kennedy Space Center, or Vandenberg. And these are federal facilities that have thousands or even tens of thousands of acres around them. And now we're talking about private, you know, billionaires setting up their own rocket launch facilities in the United States. And all they effectively need to do is to go to the FAA and say, are we going to kill people or



hurt people or damage property? And if not, then you can largely get a permit. So is that the right system? I don't know. But that's a system that we have.

**CO-HOST DARRELL WEST** [00:27:57] I mean, personally, I would say that's not the right system in the sense there's just too many gaps. And when you look at other areas, finance, education, healthcare, and so on, like we've developed a much more robust oversight system just to make sure companies are engaging the kind of behaviors that we want. I think in the space area, we have not yet done that.

**GUEST ERIC LIPTON** [00:28:16] You know, Elon Musk strongly, strongly disagrees, and when the FAA was trying to challenge what he was doing in Brownsville around the Starship, that's when he called for the resignation and the firing of the F.A.A administrator. And that's, in fact, when he first started to move to get involved in politics. He was so angry at what he considered to be delays in his launch licenses for Starship that he kept saying on social media that humans are never going to get to Mars and there's a single thing that drives Elon Musk, it is just this fundamental fixation on getting to Mars, and getting humans to Mars. And when the FAA was kind of in some way slowing down progress of Starship. I mean, it was that that and when the FAA then moved to, you know, to consider fines and to, you know, and the Fish and Wildlife was asking questions about potential environmental consequences. It was July of 2024, the day that Trump was nearly assassinated, that for the first time, Elon Musk endorsed Trump. And that came only after incredible anger on his part about regulatory slowdowns for his Starship project and him saying, we've got to change this. And so when Elon Musk decides he wants to change something, this is the guy that goes all in. And that's what he's done. And he spent \$300 million to get Trump elected. And then he got himself appointed as the head of this government efficiency project. And now he's basically walking through agencies and ripping apart their regulatory systems.

**CO-HOST DARRELL WEST** [00:29:52] Yeah, and that certainly raises many issues, which I know you have been drawing attention. So Eric, I want to thank you very much for sharing your thoughts on this important topic. People can read his articles at the New York Times website. He's done extraordinary reporting on this as well as other issues. And at Brookings, we write regularly about space exploration and digital technology. And you can find more information on our Brookings Tech Tank blog located at [Brooking.edu](http://Brooking.edu). Thank you very much for tuning in.

**CO-HOST NICOL TURNER LEE** [00:30:30] Thank you for listening to Tech Tank, a series of roundtable discussions and interviews with technology experts and policymakers. For more conversations like this, subscribe to the podcast and sign up to receive the Tech Tank newsletter for more research and analysis from the Center for Technology Innovation at Brookings.

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