

Speaker 1 ([00:00:33](#)):

Okay. 1, 2, 3, 4, 5, 6. Test. Okay.

Speaker 2 ([00:00:39](#)):

Okay, cool. Thanks. No, we're good now. Check the quality though, because I changed the settings to 1080i. So I pretty much changed it from what it was last night. Is it still good? Do you want me to put it back the way it was from last night? Okay. All right. As long as it didn't sound squeezed, it looks okay. Nothing squeezed. [inaudible 00:01:36], not yet we're waiting. It was spot on.

Speaker 1 ([00:01:51](#)):

Cool. Jess I am speaking now. (silent)

Speaker 4 ([00:10:08](#)):

Ladies and gentlemen, please take your seats. The panel session is about to begin. Ladies and gentlemen, please take your seats, the panel session is about to begin. Ladies and gentlemen, please take your seats, the session is about to begin.

Speaker 5 ([00:11:23](#)):

Ladies and gentlemen, welcome to Panel 3, the Limitless Frontier: Space Force and the New Space Economy. Please welcome representative Jim Cooper, General David Thompson.

General David Thompson ([00:13:18](#)):

The past two years have been in incredibly exciting space. And I briefly with the broader sense of national security space, our great partner NASA has been back to Mars and they're flying helicopters on Mars now. We're now launching American astronauts from American soil on American rockets again, which I think is a huge return to capability. As well as in two weeks, about the time we celebrate our second birthday, they're going to launch hopefully perhaps the most significant space observatory since the Hubble telescope was launched decades ago. On the civil side and we deal with civil as well. Over the past two years, they have expanded rapidly. The number of active of satellites in orbit has basically doubled in two years, we're approaching 5,000 active satellites. Most of that is a result of commercial innovation and investment and the idea on satellites are increasing in number.

General David Thompson ([00:14:12](#)):

They're getting smaller, they're getting more capable. So that's a key element of national security as well. And then of course there's the Space Force and the creation of the Space Force and the impetus for that creation. You really see in the competition it's had over the last couple of years. In the fall of 2019, the Russians launched what they called an inspector satellite and in early 2020, that satellite maneuvered in dangerous and unprofessional manner next to one of our national security satellites, it then backed off and conducted a weapons test. It released a target and then shot a projectile.

General David Thompson ([00:14:49](#)):

And of course we all know what did on the 15th of November, incredibly irresponsible and dangerous anti-satellite missile test. And of course we've got the Chinese and the recent hypersonic test that they conducted here in July. And so that competition space has evolved rapidly as well. And really that's the impetus for the creation of the Space Force to deal with those issues, to create the professionals that we

need, guardians who understand the domain, understand the challenges, understand how to operate and deal with them. Create that professional environment, that professional set of organizations required to address those threats, but also to partner effectively with the commercial side and the civil side to really make space power for the nation, what it needs to be.

Kristin Fisher ([00:15:34](#)):

Another big change since the last time this forum met in person, a new Congress, a new administration and space has really proven to be one of those few areas where there has been some continuity between the Trump administration and the Biden administration. The Biden administration has of course, supported the Space Force and supported NASA's Artemis program. And it retained the national space council, which met for the first time, just this week. So Congressman Jim Cooper on the political side, how important is this continuity of purpose and policy in this domain? And were you surprised by it?

Jim Cooper ([00:16:11](#)):

It's extremely important. Anyone who's been briefed on the threat is aware of the risk of a space Pearl Harbor. So the first voting committee was 60 to one to set up the Space Force. And this was before president Trump had even paid any attention to this. His support helped, especially with certain Republican senators, but remember the armed services committees are about the last bastion of bipartisanship that's left in the entire Congress. So if we can't agree as Americans on the importance of national defense, then what sort of nation are we? We won't be a nation for long unless we can come together on these vital issues. So that bipartisanship is continuing, it's very strong with the space force. I'm delighted to see that, I'm delighted to see the hard work that General Thompson and General Raymond and others have put into standing up. As you say, the first new service since 1947, we're out of the habit of that. And we need new and innovative ways of thinking so we can meet and beat the threat. So good things are happening, but we got a long way to go.

Kristin Fisher ([00:17:17](#)):

Chris, the last time this forum happened, the L3Harris merger was only a few months old. You were not even the CEO yet. So over the last two years from industry's perspective, how would you say the Space Force is changing the game?

Chris Kubasik ([00:17:32](#)):

Yeah. Well, first of all, it's good to see you again and honored to be on stage with these gentlemen. When we formed L3Harris, we were trying to create a sixth prime, give alternatives to our customers and disrupt the market a little bit by bringing more competition. I'd say since then, in the last two years, it continues to be more and more consolidation and acquisition. I think we're all looking with great interest to see what gets approved, what doesn't get approved relative to the regulatory environment. And just two years ago when I was here, I was last night looking at that sponsor banner. And today there's so many new entrants.

Chris Kubasik ([00:18:10](#)):

There's all these Silicon valley companies, there's commercial companies. And there seem to be more and more new entrants coming into this domain. So I think that's exciting for everybody and for our customers, I'll say with the Space Force, being a relatively new organization, I got to give a call out to general Thompson and Raymond because they have been reaching out to industry. They recently hosted

a SWAC business fair to try to get industry involved, make us aware of the challenges and the problems and bring us in to help try to solve some of these problems. So I think it's working and I think it's going well. So thank you for that.

Kristin Fisher ([00:18:47](#)):

I actually would like to spend quite a bit of time talking about acquisitions and I know it doesn't sound like the most exciting thing that we're going to be talking about here today, but it really is so important. And so central to the reason of why the Space Force was created. So bear with me here. We're going to do a round of questions on this. General, I'd like to touch a little bit more on what Chris was just talking about for those that don't know in October, the Space Force held SWAC, the Space War-fighting Analysis Center held a first of its kind business fair, an effort to really bring in the defense industry very early on and try to really give them a chance to help shape the future of the Space Force. And as you just heard Chris say folks in the industry by and large really like that. And so I'm curious General, did you think that that business fair was a success and can industry expect more of those kinds of things in the future?

General David Thompson ([00:19:43](#)):

Absolutely. Let me talk just a bit more about that industry if I can. Well I'll tell you in an engineering and very specific systems design sense, obviously the space sector, our industry partners and the government for years have had very sophisticated capabilities. However, when it comes to performance modeling, threat modeling, survivability modeling, and cost modeling, and the ability to do that on a very large scale of broad scale, with a large set of concepts, we've never really developed that capability inside what I'll call the space community. And a lot of that is because we haven't had been driven by the need to do campaign modeling analysis that the other domains have done to assess the effectiveness of their systems and forces. And we're really able to do that for the first time.

General David Thompson ([00:20:30](#)):

And this industry fair, the leadership of our space war fighting analysis center, Mr. Andrew Cox and others provided digital models for threats, provided the requirements we had, the performance expectations, their elements of cost analysis and assessment said, "Here are the models, here's the digital models that we're using." Gave them the industry as noted over a hundred participants and said, "Here's what we're thinking. Here's the work we've done so far. Go off, do some analysis of your own, do some innovation and design thinking of your own, and come back and show you how you would provide us solutions to our problems and solutions to our needs and challenges." Rather than what's also been typical in the past of the government we think we know what we need and we want, and here's how we're going to do it. And so that element of here's what we're thinking, here's the models we're using go out and do your own thought and come back is a little bit new and different.

General David Thompson ([00:21:24](#)):

And the second element of that really is in fact, it's our new service sector who's famous for having said, "In God we trust, all others must bring data." We finally have the kind of data that we need to do that mission analysis. And we've already done a prototype of that with a new missile warning, missile tracking, missile defense architecture that we need to shift to as a result of among other of things, the hypersonic challenges we face. So we've already prototyped that approach. And we expect to do this for missionary after missionary, after missionary here in the future.

Kristin Fisher ([00:21:59](#)):

And so all of this of course correct me if I'm wrong, but this is all part of the Space Force's effort to really speed up the development and acquisition of cutting edge technology to keep the US ahead of adversaries in space. But Congressman, you were one of the first, you were a very early advocate for the Space Force and yet you've also simultaneously been quite critical of it recently. Back in October, you said that the Space Force is not moving fast enough. You said that it needs to step up its game. That was in October. Do you still feel that way now?

Jim Cooper ([00:22:34](#)):

Well, General Thompson has said that I'm the Space Force's biggest supporter along with my friend Mike Rogers, but also we're sometimes the biggest critics because we can't afford to fail here and think about it. It's great that the private sector is so much more innovative than our Air Force was. And we need to get the Space Force to be much more innovative and try to keep up with the private sector. But is it enough to shop from a catalog and put things that are commercially available out there? Will that meet and beat the threat?

Jim Cooper ([00:23:09](#)):

And some other areas are our national defense, we pride ourselves on being 10 or 20 years ahead of anything that's in any catalog and to really be superior, we've got to go beyond Elon Musk's imagination. Jeff Bezos imagination, beyond their pocket books. Budget right now is \$17 billion and that's a lot of money, but considering how crucial space is, are we doing enough? I'm excited because we're able to attract a lot of exciting talent to the Space Force, it's got a lot of buzz, but are the best minds in America, leaving investment banking to go into the Space Force? Probably not. This is already a half a trillion dollar industry, there are almost 2000 companies. It's an amazingly exciting area and we've got to make sure that our Space Force and space command are as you say at the cutting edge. And that means beyond what is commercially available. And I just hope we're getting there fast enough.

Kristin Fisher ([00:24:13](#)):

And so Congressman just how specifically would you want the Space Force and space command to do that? What specifically would you like to see them do to be moving faster, bold, bigger in your words?

Jim Cooper ([00:24:26](#)):

The simplest way to put it is. And I think Mike Rogers and I felt this way for a long time, the NRO has actually done a pretty amazing job. They're not as well known as some other agencies, the National Reconnaissance Office, but I had a recent side by side briefing with the NRO and Space Force. My conclusion after that briefing was thank God for the NRO, I anxiously await the day that I can say the same about the Space Force.

Kristin Fisher ([00:24:55](#)):

General, I'd like to give you an opportunity to respond to the congressman's comments.

General David Thompson ([00:25:01](#)):

As a Congressman Cooper noted, every time we meet Congressman Cooper asks what he can continue to do to help. And my request of him is always the same, continue to be our strongest supporter and our toughest critic. And I can say this morning, he continues to perform effectively in both of those roles.

Kristin Fisher ([00:25:26](#)):

Chris let's bring you into the conversations.

Chris Kubasik ([00:25:29](#)):

I think we're doing fine without me.

Kristin Fisher ([00:25:31](#)):

Well, yeah. Should we just keep this going? You're good down there. There's been more than a hundred acquisition reform panels over the year. You sat on a very notable one back in 2009, but that was 12 years ago. And the US is still having the same conversations. Space Force is new, but we're still having the same conversations. So from industry's perspective, how can we move faster to outpace our adversaries and what needs to happen for something to finally really change?

Chris Kubasik ([00:26:05](#)):

Okay, well clearly you've done your research here, but it was actually the Ron Kadish panel, which General Kadish was the first head of the MDA. So it's kind of interesting that we bring his name up here 12 years later. Like all the acquisition reform studies, which has been a hundred, I think we came up with the same exact recommendations that Jeff Gansler did in '07. So the last thing we need is another acquisition study. I think there's been hundreds. So, as someone I respect once told me, you take a big problem and you break it into small problems. So I thought I'd start at the beginning here, which is the funding process. And this might get an interesting reaction, but I think if we all agree, there's a legitimate threat out there, which we do.

Chris Kubasik ([00:26:43](#)):

We have to go faster. We have to have more flexibility. I would suggest potentially we look at funding missions versus funding programs. So if I take missile tracking as an example, when I was looking through some data, there's 3, 4, 5 siloed programs, depending how you count them call it 6, 7 billion in the FY22 budget. So I would propose, let's get Congress to fund this mission, say it's 7 billion, give it to General Raymond, General Thompson, give them the ability to be flexible as the threat evolves, as development evolves, maybe they want more satellites of a certain constellation. Maybe they want a truncate another program, add capability. It's all about speed and I think that's a way to potentially speed the process. So I'll throw that out for consideration.

General David Thompson ([00:27:31](#)):

And actually to add a little bit more to both what Congressman Cooper and Chris said is, as Congressman Cooper said, we were 17 billion, that's 2.4% of the budget. And we think about what is required and how we underpin every aspect of the joint force. Perhaps there is a discussion of whether that's in balance efficient, but Congressman Cooper mentioned, there are areas where we shouldn't be relying on commercial services and he's exactly right. There's areas we need to move where we cannot depend on commercial services. They are the area of expertise and requirement for military operations.

General David Thompson ([00:28:09](#)):

But a lot of what we have done in the past and some of what we do today, we did because nobody else in the world could, and we had to do it for ourself and increasing with the commercial sector. And I'm thinking transportation and logistics and perhaps some of the more basic services, we should be and are

looking at relying on that evolving commercial sector to provide some of those, what I will call routine and basic services and capabilities we can use so that we can focus on as Congressman Cooper noted some of the very sophisticated advanced requirements and activities and missionaries that we need to do as a Space Force to deal with the competition and the threats that we face.

Kristin Fisher ([00:28:52](#)):

At this point, I'd really like to get into two of the most aggressive acts that we have seen recently in space China's test of a hypersonic vehicle and Russia's test of an anti-satellite weapon. But first, I want to just remind all of you in the audience and anybody watching from your computer or phone, or however you're viewing it these days that you can ask all of our panelists questions via the app, the Reagan National Defense Forum app, or on Twitter with the hashtag RNDF. And with that, let's start with China's test of a hypersonic weapon. In October General Hyten said that hypersonic technology is a perfect example of America's acquisitions, problems, which obviously is what we've just spent the first part of this panel talking about. And he said that China has performed hundreds of tests on hypersonic weapons, while the US has only conducted five so General, why is that? And can the US catch up?

General David Thompson ([00:29:55](#)):

So at first I'd say, absolutely we can, we've been faced with challenges in crises and pass, and we've dealt with them. On the hypersonic side, what I will say is it's the United States Air Force and the United States Navy and the army that are pursuing hypersonic capabilities for the nation. On the Space Force side, our requirement and our challenges is to deal with it on the other side. Hypersonic weapons, especially at Intercontinental ranges, greatly complicate the strategic warning problem. While the techniques and the technology are sophisticated for missile warning, the principles are actually fundamentally pretty easy to understand just like throwing a baseball or a football. Once that ball leaves your hand, we all sense very quickly where it's going.

General David Thompson ([00:30:42](#)):

That's in essence, the same thing that works with ballistic missiles. However, with hypersonics, you no longer have confidence. Once a missile launched hypersonic weapon has been delivered on a trajectory. Now the ability to maneuver means you no longer know with confidence where it's going and cannot be prepared to deal with it unless you keep track of it throughout its flight, throughout its trajectory and understand what's happening. And that's the sophisticated or the challenge associated with the Space Force and Space Base aspects of hypersonic weapons. And so we have to deal with that challenge for warning, for tracking, for defense, while the other services deal with developing hypersonic technology for our use.

Kristin Fisher ([00:31:26](#)):

General, do you think the US is losing an arms race space with China?

General David Thompson ([00:31:33](#)):

As I said before, I think we've got a competition here that we've had in the past. I think we've faced competitions like this in the past. And I have no question that we're fully capable of succeeding in this competition like we have in others.

Kristin Fisher ([00:31:46](#)):

Congressman, do you think the US is losing an arms race in space with China?

Jim Cooper ([00:31:51](#)):

I would encourage everyone in the audience to read the new novel called 2034 by retired Admiral James Stavridis and Elliot Ackerman. And then ask yourself the question, do they have to wait until 2034? It lays out pretty clearly, for example, on hypersonics, we led the world with that in the seventies and then took our eye off the ball. So it's not just a question of acquisition, it's also a question of national will and intent.

Jim Cooper ([00:32:24](#)):

Now we don't get credit with peaceful nations for having not pursued this lethal threat and other nations are picking up on it. We had the first Asat test, but we tried to do it responsibly. This Chinese test years ago was completely irresponsible. I was told recently on the scale of space debris, our test was like a one and you want to be low. The Chinese test was 10,000 and the recent Russian test was like a 30, so a little bit better, but still hopelessly irresponsible, because space debris, space junk. It's one of the greatest threats we face. We can't track this stuff. A paint fleck can destroy you at 17,000 miles an hour. A paint fleck is a bullet. So we've got to be able to harness this space and not so pollute key orbits that they are no longer effectively usable. We just had to move the space station after the Russian test. And I know you with two Astronaut parents, that's a pretty sensitive matter when you can't conduct your peaceful activities in space due to the irresponsibility of a nation like Russia.

Kristin Fisher ([00:33:33](#)):

Well, so everybody agrees that what Russia did is irresponsible, but what can the US actually do about it? How do you think the US should respond?

Jim Cooper ([00:33:43](#)):

Well, everyone agrees but Russia who did and Putin relished it. These nations get away with their wrongdoing and we've allowed them more and more leeway.

Kristin Fisher ([00:33:54](#)):

So what's the end.

Jim Cooper ([00:33:55](#)):

First element is tracking and we have some very exciting private companies that are doing great job of tracking. The Air Force is still the most trusted voice in the world of the Space Force, on alerting other nations to threats to their satellites. But right now there's like what a multi kilometer bubble around each satellite, because we don't really know how close it's going to be and this isn't easy stuff. And thank God, especially in low orbit things, gradually degraded. But this is a monster problem to solve, it's computerization. Very few people are actually up there in person. It's got to be done remotely by computers and that's why we need America's best and brightest to join the Space Force, to join space command and help us solve these rocket science problems.

Kristin Fisher ([00:34:43](#)):

I want to ask Chris something about what you were just talking about, how the US was at one point ahead on hypersonics. Part of the reason that SpaceX has become so successful is because they have a

very, how should I put this, a very high pain tolerance for failure. They're not afraid to fail. And General Hyten said in October that a fear of failure in terms of testing new technologies really dominates the US military. And so I'm curious, Chris, does L3Harris, do you feel comfortable failing in this climate?

Chris Kubasik ([00:35:21](#)):

Yeah, that's a great question. No, and I think the culture in this industry has changed over time where you want to have a hundred percent perfection, but where we are now, I think we have to take more risks. We have to do more demos and you have to fail fast and learn fast. And I think that's the key in the mindset that we're all adopting. Running a company, you have to get a culture where people feel free to take those risks, speak up, ask for help and be transparent with some of the challenges they have, which is easier said than done. But clearly I think that's something that we all need to do.

Chris Kubasik ([00:35:50](#)):

Now when you get into the actual production of some of these systems, I think all the men and women in the audience here understand how complicated and challenging, some of these technologies are, and you contrast that with the commercial market, it has to work a hundred percent of the time. And I think that is the difference. So I was reading about some of these great constellations going up there, like Starlink and Kiper. And they build in like a 10% death rate and assumption on their constellations, which is fine for that purpose. I think the General would be quite upset if industry had a 10% failure rate. Once we went into full production and tried to operationalize these constellations.

Kristin Fisher ([00:36:29](#)):

I'd like to just talk a little bit General now about something that you said in the Washington Post, you said that the Space Force is dealing with reversible attacks on US government satellites every single day from China and Russia. I mean, that's just an extraordinary frequency, every single day. Is it becoming difficult to keep up?

General David Thompson ([00:36:54](#)):

So let me clarify what I said.

Kristin Fisher ([00:36:57](#)):

Sure, please.

General David Thompson ([00:36:59](#)):

What I said was we deal with reversible attacks every single day and it's not just the Space Force, it's this entire sector and industry, it's us, it's our allies and partners, it's commercial companies as well. And by that, I mean, whether it's jamming or harmful interference in the RF spectrum, laser dazzling, cyber attacks, cyber probing and cyber attacks. That's just a fact of life in many cases in dealing in space every day. And some of it's deliberate, some of it's purposeful, some of it's focus, but we do deal with those sorts of things every day. And we're not just talking about Russia and China, these are not particularly sophisticated technologies or capabilities beyond what you can find in the state of the world. And so we do deal with it every day in our operations. In many ways, it's not different than the types of things that our forces and others deal with every single day.

General David Thompson ([00:37:54](#)):

But as we understand them today, we have the ability to deal with them. We have the ability to understand them, the question and the concern really becomes as they occur at scale. If you find yourself in conflict and go to conflict, understanding what these attacks would look like at scale, how to deal with them, how to ensure we can continue to be effective and add on top of that potentially irreversible and destructive attacks. And so I would say, can we deal with them every day? Do we manage them every day? Absolutely. What we have to be able to do is learn and grow and design and build and field and operate including tactics, the systems will ensure that we'll ensure we can continue to do that in the face of no kidding, high end, large scale conflict.

Kristin Fisher ([00:38:39](#)):

And so Congressman at what point do these kinds of attacks happening every single day. At what point do those cross the line and become an act of war?

Jim Cooper ([00:38:49](#)):

We face the same problem in the cyber world, because the pentagons hacked every day. Thousands of times, no one is safe. And by the way, it's not so much our prime contractors, but our subcontractors in the defense field have to really worry about being permeable. Because we want to have a US RND budget. I'm not here to fund the Chinese or the Russian RND budget. But so often because we are porous, they get some of our good stuff. So no one really knows what these new technologies, exactly what the limits are. But we do know that deterrence works, strength matters. And the ability to be ahead is the great American genius and we have been ahead and we are ahead in so many ways, we just have to continue that streak. But that means US born young people, getting engineering degrees and not just majoring in political science or sports management or something.

Jim Cooper ([00:39:55](#)):

And many of our graduate schools, 80% of the students are foreign born. And I'm not against that. But like where are our kids? Why aren't we good at math? We think we do well in math, but actually we're one of the worst performing nations in the country. And I have a large and rigorous intern program. We have increasing trouble getting US kids who know how to write the English language much less to have the foreign language fluency, that's pretty much taken for granted in every other country in the world. And the first rule of war is to understand the nature of the enemy. You have a big advantage in doing that, if you speak their language, like they can hack us and they know our memes, well, we don't know how to find the bathroom in Russian or Chinese. So we are unilaterally disarming when it comes to our intellectual skills, but we're so comfortable and coddled that 80% of Americans, something like don't have a passport, don't want a passport.

Jim Cooper ([00:41:00](#)):

How can you be a world power if you refuse to look at and understand and learn about the world. We've been cushioned for so long, we take that for granted and no politician wants to be critical. We have to be complimentary of every audience and like give me a break. If you want to win, you got to have the skills like in sports and Olympics to win. You got to be the best in the world, not the best in your state, not the best in your country, but the best in the world. And there are people who are pursuing that more rigorously than we are.

Kristin Fisher ([00:41:37](#)):

To win and you bring up a sports analogy. It takes offense as well as defense. And we sit up here on this stage and you all talk quite a bit about the defensive capabilities that we have in the space domain, but you never hear anything about the offensive capabilities. And I understand that it's classified almost all of it, but General, do you think we'll ever come to a point, ever be sitting at one of these forums when we can talk about what the United States is offensive weapons capabilities are in space and if so, what sort of timeframe do you see on that horizon?

General David Thompson ([00:42:15](#)):

Yeah, I'm not going to talk about capabilities or things like that, but I will tell you both in law that created the Space Force and in the direction for what we're supposed to do through the president's unified command plan. Our job is in addition to providing the capabilities we provide today and provide so effectively for the joint force, for the nation, for the world, is to protect American interests and defend and protect our capabilities, which includes the things that are necessary to protect them through any host of ways, any host of domain, techniques, tools that are necessary to do that. And that means defending and protecting our space capabilities and looking at ways to deny a potential adversary conflict, the way to use their capabilities across a multitude of fronts.

General David Thompson ([00:43:10](#)):

It's our job, not just a Space Force, but all members of the military to develop those concepts, to develop those ideas, to present potential capabilities to our national leaders in the administration and Congress as to the capabilities we should pursue and then take their direction in terms of what we field, what we use and how we do so. It's no different in space and that's the approach that we're taking today.

Kristin Fisher ([00:43:34](#)):

Chris, I don't think you want to talk about any offensive systems in space, but on the defensive side, what does industry need to do to make US satellites and what can industry do better to make US satellites more resilient to non-kinetic attacks things like lasers and whatnot?

Chris Kubasik ([00:43:53](#)):

Yeah, I think I would say we have a lot of those capabilities and we're working on them in a variety of different constellations. Most of which, as you would imagine are classified. I think one of the nice things about this industry, we kind of refer to ourselves as competencies right. So I think just being open to bringing on new entrants commercial companies and taking the best of the best. And as I mentioned in the beginning, we've been successful and honored to have several of these prime positions on some new constellations. And part of it is just building a great team and not trying to completely vertically integrate all the time and get those new ideas and bring them forward. So that's the approach we've been taking and I think it's working well.

Kristin Fisher ([00:44:36](#)):

One more question that I have on both China's recent hypersonics test and the Russian ASAT test, there's been a lot reported about what the US knew, what it didn't know, the level of surprise within the US military and the US government. Could we just kind of go down the line and Chris, you can sit this one out if you don't want to pipe in, but for the Congressman and the General, can I just get you both to kind of state on the record, what you can say about what the US government did know, did you have a

sense that these kinds of tests were coming and what really was the level of surprise, please set the record straight Congressman and then General.

Jim Cooper ([00:45:19](#)):

Well, Russia had tried and failed a couple of times to do this and this time they succeeded, but we kind of knew this is part of a pattern and we have very good information. Thank goodness about things. Our telemetry is very good, so we got to keep it that way. And we have to be prepared to be blinded or jammed or hacked or spoofed or all these nefarious techniques that we are not necessarily as good at, or we haven't proliferated the devices the way some of our partner nations have.

General David Thompson ([00:45:53](#)):

So first of all, let me say, I'm proud to say the United Space Forces has recently become the 18th member of the intelligence community. I am not an intelligence officer, nor am I speaking for the intelligence community, but these advances and capabilities are concerning, they are not surprising.

Kristin Fisher ([00:46:17](#)):

As we look forward over the next few years comment that you had recently General, I believe you said, and if you want to correct the record here, you can, but do you believe that it is possible that within the next 10 years, if the US doesn't make some changes now, that China could overtake the United States to become the dominant space power by the end of the decade?

General David Thompson ([00:46:41](#)):

No correction of the record necessary. We continue to be absolutely the best in the world in space today, the sophistication and the quality and the capabilities that we provide from space. That's true on a national security front, both for the intelligence community, the military side, it's true on the civil front. It's increasingly true on the commercial side, but the challenge we face and we talked about this just briefly earlier, is we do this on too long of a cycle time. The Chinese are not as good, but they are close. And the fact that in essence, on average, they are building and fielding and updating their space capabilities at twice the rate we are, means that very soon, if we don't start accelerating our development and delivery capabilities, they will exceed us. And 2030 is not an unreasonable estimate as the point at which that could occur if we don't adjust our approach.

Kristin Fisher ([00:47:33](#)):

And do you feel confident that everybody on this panel, in this room at this forum this weekend, I mean, that's a pretty dire prediction in the sense that to the best of my understanding space superiority is everything, whoever has that upper hand, wins.

General David Thompson ([00:47:53](#)):

And I would say confidently on this stage and probably in this room in a larger national security space enterprise, I think everybody agrees on the problem, the challenges we continue to discuss and debate and don't agree on the best solution. That's how they get after it. I think that's typically what the [inaudible 00:48:10].

Kristin Fisher ([00:48:11](#)):

Go for it.

Jim Cooper ([00:48:11](#)):

Let me foot stomp this if I could.

Kristin Fisher ([00:48:13](#)):

Please.

Jim Cooper ([00:48:14](#)):

General Hyten, one of our great generals just left the Pentagon terribly frustrated that he didn't have the influence as vice chairman of joint chiefs to change our space architecture, oh my God and he's the ultimate insider. And see, we've gotten so accustomed to accepting delays and problems and stuff. And let's be realistic, China is the largest country in the world until India overtakes them. We congratulate ourselves when we have a successful interagency process. And then when we really work hard, it's whole of government and the Chinese are able to do whole of society. Now it's authoritarian, it's wrong, they have a million Uighurs and concentration camps, but to some extent it kind of works. And when it comes to repeating testing and sometimes failures, they're able to push through that. The playwright, Samuel Beckett said, "Fail again, fail better." That's the most succinct forward summary that I'm aware of, what basically every entrepreneur has to do.

Jim Cooper ([00:49:30](#)):

But so many people who are in the bureaucracy don't want any failures at all. So they're too risk averse. We're not willing to push through and make great things happen. So we should never lose our confidence, but we are facing a much dire threat than we faced with terrorism. In this near period, great powers, should get our heads back in the game. And remember, we were good at this. We had a space calm until Donald Rumsfeld got rid of it in 2002. So he could get focused on the war on terror.

Jim Cooper ([00:50:06](#)):

We can do both. We should have done both, but there's so many areas of big science and big defense that we have neglected. So we've got to get our game on. And that means look at the panel this morning, all the polling stuff. Do you think President Xi looks at any polls. See, we handicap ourselves from the start. And Karl Rove correctly pointed out foreign affairs are the issues in which Americans, thank goodness, realize they know the least about. So they're willing to give policymaker some leeway. So particularly in these areas, we should be more willing to have a long term strategy that strengthens America, not look election by election.

Kristin Fisher ([00:50:53](#)):

So how does a democracy compete with this? Right? And not just a democracy, but you look at what happens when you have robust competition in the private sector, when you're dealing with a government doling out awards and then companies issue protests, which delay that process even further. I think Chris, you can probably talk a little bit about that in terms of just sort of these logistical issues that come with trying to be a democracy, but competing with a country like China.

Chris Kubasik ([00:51:29](#)):

Yeah, I'll get to that. Let me just pick up on the prior conversation. And I agree with taking risk and I think we have to change our thinking from being more linear, to parallel. I'm all for modeling and sims, I'm all for demos. We got to do these things in parallel and get more and more stats up in my opinion,

quicker and quicker, demo their capabilities. In that process, I think will help form the space architecture. We can't sit here and just sketch it out for years on end, we got to get assets in space, see how they perform and evolve would be... Yeah relative to protest, I mean, that's just part of the acquisition process, and I know all the acquisition leaders for decades and they're hardworking, honorable people. And guys like me sit up here and say, I never protest.

Chris Kubasik ([00:52:15](#)):

And my colleagues in the audience would say that, but somehow there's like 1500 a year. So someone is protesting. So, my solution to this, since we're talking sports up here is you give every CEO three red flags and you throw them over a 12 month period when you want them. If it's sustained, you get your flag back, if not, you don't. And when you lose a little contract in January, you think twice about protesting, because it was 11 months to go. So that would be my suggestion, pass out the red flags.

Kristin Fisher ([00:52:44](#)):

The re-red flag policy. Congressman what do you think about that?

Jim Cooper ([00:52:51](#)):

Oh, he's right. We need due process, but we need-

Chris Kubasik ([00:52:54](#)):

Did you get that on film?

Kristin Fisher ([00:52:56](#)):

We're making changes here today on this panel.

Jim Cooper ([00:52:59](#)):

We need due process, but let's not forget success. Things have to work and they have to work fast and other nations are moving very quickly. So I want to respect all our companies, all our people, but we are an over lawyered nation. And I went to Harvard law school. Some of the best lawyers in America go to places like that. And their job is to gum up the works. Their job is to say no. And there are lots of interesting reasons to say no, but you have to... We have a phrase in the country, "Any jackass can kick a barn down, it takes a carpenter to build one." We all got to be in the carpentry business. And increasingly few of us are, they're not the engineers, they're not the scientists. They're the folks who can say no from their nice white collar perch. That's not good enough. So getting that can do, get her done, Larry, the cable attitude works. Let's have more of that.

Kristin Fisher ([00:54:05](#)):

General, do you want to weigh in on this? Or you want to sit this one out?

General David Thompson ([00:54:08](#)):

I'm going to look to my left and right. And say, thank you.

Kristin Fisher ([00:54:15](#)):

Okay. We've got about 10 minutes left in this panel. So I'd like to do two or three more questions and then bring some in from all of you, who've been watching this. I know the phrase space race elicits some groans and eye rolls. It's been overused over the years. But I think the US is at the point with China, where the question needs to be asked of all of these panelists. So I would just like to go down the line and just hear it from all of you straight. Do you think that the US is now in a space race with China? Congressman?

Jim Cooper ([00:54:57](#)):

Hell yes. But put it in perspective. We gave the world probably the greatest gift in all of human history. When we gave the world GPS. A Milsat system, we didn't even think of opening up to the world until the Korean airliner, they didn't know where they were, so we made it free. Let's say trillion dollar a year, minimum benefit to the whole planet. And we didn't think of charging. That's greater than a thousand built in roads. But see our messaging is so poor, everybody takes it for granted. Like this is a gift to humanity and see that was from our defense department. So if you put things in perspective, there needs to be a race for benevolence and a race for defense and also a race to be able to save your country, if defense doesn't work. And some of these other races, we're not even envisioning the competition.

Jim Cooper ([00:55:55](#)):

And it's a little late now to collect on the GPS thing. But that was amazing. And it's completely transform society and every country, but today other nations are building competitive systems. So that, that gives them a possible incentive to take out our GPS. And sometimes we don't repair a GPS like we should, like we had an M code problem for years and our ground stations were 15 years behind the satellites that were already launched. We look like idiots. You saw the slide there, competency of leaders. We have a problem with that in this country. Because sometimes voters aren't seeking competence, they prefer amusement. And sometimes legislators themselves, don't focus on competence. It's more on demagoguery and vote getting.

Kristin Fisher ([00:56:49](#)):

General. Is the US in the space race with China?

Jim Cooper ([00:56:51](#)):

Absolutely. In strategic competition with China in many, many, many areas in space as well. Absolutely.

Kristin Fisher ([00:56:57](#)):

Chris?

Chris Kubasik ([00:56:58](#)):

I would say I hope so. Because last time we had the space race, go back to the Apollo era, got everybody excited. We got a lot more people interested in engineering and it really boosted the workforce. I think we all could use more and more engineers and more and more talent. So I'm thinking we do a better job with the messaging. People get excited, they want to come join the military. They want to come join companies like mine and those represented in the audience today. And I think that's good. I want people to wake up and say, I don't want to go to Facebook. I mean, those guys aren't what they used to be. I want to come work for a defense contractor, a space company, commercial company. And I agree with

the Congressman on GPS, we got to continue with the next generations more resiliency and make sure that we talk about space as being the next war fighting domain. I think the economy is the next war fighting domain and it is in space. So the two are clearly linked.

Kristin Fisher ([00:57:53](#)):

Chris, you bring up the Apollo program. And I know this is a defense forum, but I would like to get in one question about the civil side of things, especially given the fact that recently Russia's space agency has announced plans to team up with China to build a lunar base. And obviously this would compete with NASA and the United States' plans to build a base on the moon as well. And in the midst of all this, we're still teaming up with Roscosmos, with the international space station and whatnot. So Congressman Cooper, what do you think about this plan for Russia to team up with the Chinese to build a base on the moon? Can the US continue to work with them if they go forward with that?

Jim Cooper ([00:58:42](#)):

Well, remember every forum we've ever had in America's says one of our strategic strengths are our alliances. And we think the other side isn't going to try to copy that and who's going to align with them, maybe a Vasil state, maybe another authoritarian state. So we shouldn't be surprised that they try to mimic our behavior. With the first Iraq war, we taught the rest of the world more about war fighting than we knew. We maybe shouldn't have used all those fancy weapons or helped people understand missiles going down smokestacks, because that dazzled them. But then they copied us as human beings do.

Jim Cooper ([00:59:26](#)):

So we've got to understand there's action reaction. So I hope their moon station is for peaceful purposes. I'm worried that Chinese already have something on the other side of the moon that we can't even see or detect, but see we gave up on the moon about 30 years ago. We stopped caring about big science, it was too expensive, we didn't want to do the NASA budget or whatever excuse was. And a few casualties in the Apollo program shouldn't have stopped us from doing that, but we get so risk averse. So we've got to be bold and pursue these things. We have a huge advantage, a huge head start if we're just smart enough to keep it.

Kristin Fisher ([01:00:09](#)):

I'd like to ask one question that was submitted by somebody who's watching. So thank you for all these questions. And the question is one of the greatest challenges for space activity, both domestically and internationally is how we deal with space traffic management. So what is the right answer to how we manage space traffic? Who would like to field that?

General David Thompson ([01:00:31](#)):

Go ahead.

Kristin Fisher ([01:00:32](#)):

General.

Jim Cooper ([01:00:33](#)):

We need to offload the civilian aspect of it to a neutral or at least civilian agency. And that's been a very slow process. Of course we need to keep the best capability for our own military, but there's got to be a FAA for the world so that we can guide others to safety.

Kristin Fisher ([01:00:51](#)):

Go ahead.

General David Thompson ([01:00:52](#)):

Absolutely. The Space Force does this because nobody else in the world today can and will, but absolutely agree. This is an area of regulation and we need a regulatory agency to do it. At the same time, the broader sense of debris and the issues caused and the proliferation even of active satellites requires some adjustments to behavior that talk to things like, let's not produce additional debris, especially not in an incredibly irresponsible manner. Let's talk about how these incredibly capable and proliferating systems on the commercial side and others don't just operate effectively. But how we over the long term are stewards to let them in essence clean up after themselves, when they're done a whole host of regulatory aspects that need to be done in space traffic management in other areas, we really do need civil agencies and regulatory agencies to weigh in so that we can get about the business that we need to be able to do.

Kristin Fisher ([01:01:51](#)):

Well and also in establishing rules and norms in space. You look back the outer space treaty 1967. I mean, I think everybody can agree that it's well past time that new rules and norms are discussed and adopted, but we can talk all we want, but General what is that going to take?

General David Thompson ([01:02:11](#)):

Absolutely. And the secretary of defense just recently published, outline what we called the principles of tenants of responsible behavior for our activities and space. And there are five of them limiting the generation of long lived debris, avoiding harmful interference, operate safely and maneuver safely in other spaces, be transparent in what you do, be professional in space. He's identified those, he's established those. We have followed them for a long time and will continue to it's now incumbent the space state department is working with other nations through the UN to really, really drive that forward. It's time to establish those no kidding norms and practices and standards of behavior and space.

Kristin Fisher ([01:02:52](#)):

Congressman really quickly. Chris, do want to?

Chris Kubasik ([01:02:54](#)):

Just real quick. I would just say, I see some people in the audience that are investing a lot in space tourism. So I think that's a new and evolving market. So I think that just adds to the complexity. People are going to go into space and unlike your parents actually pay money and go there and have a tour, we got to make sure that it's safe and the traffic is controlled. I'm sorry.

Kristin Fisher ([01:03:15](#)):

Oh no, now you're getting into a real debate. Who qualifies to be an astronaut. We only have less than three minute left, so we're not going to get into that one on this panel. I'd like to finish the panel by

playing a really fun game that I like to call what keeps you up at night. So if we could just kind of go down the line and before we go, I'd love to hear from each of you about what keeps you up at night, other than a dog snoring, that doesn't count. Congressman what keeps you up at night?

Jim Cooper ([01:03:42](#)):

Because adversaries and would be adversaries are inevitable. What keeps me up at night is our bureaucracy and our slowness in responding to those threats, because we have control over our bureaucracy and yet we're not making it much better.

Kristin Fisher ([01:04:00](#)):

General.

General David Thompson ([01:04:03](#)):

The nation has given us a tremendous challenge and an opportunity they've told us to create what this nation needs to avoid a crisis or be able to respond to a crisis in the future. We've gotten support from both houses of Congress, both sides of the aisle, multiple administrations now. We've been adequately resourced, we can always talk about what else we need. We've been adequately resourced to do this. What keeps me up at night is ensuring that we do not fail in the responsibility that we've been given and the support we've been given to do.

Kristin Fisher ([01:04:37](#)):

Chris, what keeps you up at night?

Chris Kubasik ([01:04:38](#)):

I'm an optimistic guy. So what keeps me up at night is I'm excited about the future. I can't wait to wake up and get back to work, because I think we have so much potential as a nation. I feel like we're coming together against a common cause and I think that's exciting. And that keeps me up on the positive side.

Kristin Fisher ([01:04:54](#)):

Well with that, I think we'd like to end on a high note. Thank you Chris for always being an optimist, General Thompson for coming in at the last minute and filling in for General Raymond, we hope he's doing all right with that potential COVID exposure and Congressman Cooper, thank you so much for all of your insights and thanks all of you for listening and watching and I hope you enjoy the rest of your day.

Speaker 4 ([01:05:27](#)):

Ladies and gentlemen-