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An Examination of the U.S. National Security Space Strategy

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Speakers:

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Victoria Samson: ...everyone, thank you for coming in attendance to this event, which should be pretty interesting, and we appreciate your patience for the, despite the [inaudible 0:30] with the food.

Um, my name is Victoria Samson, I'm the Washington office director for the Secure World Foundation. The Secure World Foundation is a private operating foundation, [inaudible 0:40] the most cooperative solutions for space sustainability.

Our vision is a secure, and sustainable, and peaceful use of outer space that continues to global stability on Earth. We work with governments, industry and international organizations and civil society to develop and provide the [inaudible 0:54] for an international cooperation.

Um, t-, wa-, I'm...What we're going to do is have our speakers go down the line, and give a brief discussion, and we're going to go and have a moderated panel, and open up for Q and A, but I wanted to give just a little bit of an overview very quickly, and go on to the thing.

I feel like this is probably obvious, but the nature of the space domain has changed. Uh, there has been a shift in how we approach space that affects our possibility from space and security. Um, the goal is a stable, predictable space environment, that will allow us to get, um, enjoy continued benefits from use of, and access to space.

As more nations depend increasingly on space [inaudible 1:29] national security, and socioeconomic development, the loss of these space assets, whether real, or theoretical, and actions taken in response to these losses could spark, or escalate conflict on Earth.

Moreover, certain types of military actions in space could have long term negative impacts on the space environment. And there's a...In addition to change, is world commercial entities. Um, they're becoming much more prevalent. Space used to be largely [inaudible 1:54] , and now you have a lot of commercial actors as well, and then you have actors, um, getting involved in terms of different domain types.

You have small sat operators becoming a huge change, and we'll be going into more discussions of that later on. And then you have more countries having launch capabilities, and more just having access to satellites themselves.

Um, in terms of looking at resiliency, interference, even theor-, theoretical, with space assets, is perceived to be a huge disrupter, and many governments are focusing on how to maintain their ability to receive continued access to their space assets, no matter what happens, um, as space is a crucial part of national security infrastructure, economic, and daily lives. And the US national security community that's focused on the resiliency of space assets.

I think probably resilience is the key word everyone's heard a million times. You'll probably hear it a million times more today, but looking into the changing attitude toward space protection, that's really what we thought this panel would be going, digging into deep.

And one of the issues we're seeing internationally for these discussions is the concept of self-defense in space, looking at, "OK, what is it? Is it allowed? How do we deal with it? How do we do it in a way that's not going to be automatically, um, escalating crises or making things into a crisis that do not necessarily have to be these."

So identifying threats and what the first step can be. Um, in our community, you can do a lot to mitigate these threats, but the, but the first step is just kind of identifying what those threats are.

And I think, with that, I will stop, since we're, um, short on time, and go on to our first speaker. We're just going to go down the line. You should have bios of all the speakers in front of you. So, um, our first speaker will be my colleague Brian Weeden.

Brian Weeden: Thanks Victoria. Um, so I-I thought I would start by kind of setting the stage and, and focus more on, uh, w-, like what's changed in terms of national security space, why it's a, a big issue now, nowadays or, ah-ah, it's come back as an issue, um, and kind of try and

summarize some of the steps that have been taking and some of the unanswered questions that are still out there.

Uh, I mean for those who have been paying attention, I would say that, you know, space security is cool again. Uh, for, you know, for a while there, it seemed like no one was talking about things that had been talked about decades ago with military activities in space and military conflict in space.

Um, but there's been a, a significant change in the tone, uh, and language used by several of the, the top leadership across the United States government and the national security world. Um, you know, people are talking openly about the possibility of conflict in space, although usually following it with saying that, "Well, we need to avoid that."

Um, there's talk about space being more threatened than ever, uh, which I think is questionable. It depends how you kinda frame it. Um, and there's also been talked about the need to shift towards, uh, more of a war fighting culture within the military space operations world.

Which basically means thinking about, when you're conducting space activities and providing space capabilities, the war fighter, um, you need to be able to be actively thinking about, uh, who might be trying to interfere with that, uh, and what steps could be done to, to mitigate that, which again is not different than what other people, when their pilot's flying in a war zone or ships operating, uh, Navy ships that are operating, have to think about.

So what's driving this? Um, you know, a couple of big, big trends, uh, I would say that, you know, space itself, in the national security context, has gone from mainly being a, a, let's say a strategic contributor, to one that contributes at all levels of national security activities.

So for, throughout much of the Cold War, and in fact some of the early beginnings of national security space, its main focus was strategic in nature. It was providing intelligence to top-level decision-makers. It was verifying arms control treaties. It was nuclear warning, uh, and command and control.

People talk about the '93 Gulf Wa-, Gulf War as being kind of the first space war. I think it's more accurate to say it was more of an experiment and that is was kinda of the first time that space capabilities were used kind of in an operational and tactical context.

Uh, but really, it's been the last 15 years in Iraq and Afghanistan and elsewhere that you've really seen space capabilities be used down to the war fight on the on the ground and become integrated into everything the US military does. Um, it's very hard to think about how the US military can do the kinds of things it's been doing the last 15 years and project power on the world without having space capabilities.

Um, and there's a couple of, of, of, you know, results of that. One is that much more of the national security community now cares about space. It's not just the space people talking about space. You know have people up to the deputy secretary of defense, the secretary of defense now talking about space and space security, which I think is a, is a significant change.

Uh, but at the same time, you have these capabilities that were once kind of set aside and were limited to more of a strategic nature. They're now supporting conventional operations. They're now supporting conflict of people on the, on, in, in, in the battle. And that, in some ways, makes them a bit more of a target, you know, because they're being used to actively pursue conventional warfare.

So w-, what are some of the other trends? Um, well, there's been quite a lot of talk about how other countries, uh, primarily Russia and China, have been developing counter-space capabilities. Um, in some cases, these are basically bringing back capabilities that existed during the Cold War. Um, in other cases, there's hints that there may be something new that has not necessarily been done before in a military context -- may have been thought about, but not actually done before.

Um, it's hard to tell. You know, if somebody works in the, in the public, uh, open-source domain, it's kinda hard to tell sometimes what exactly is going on. Uh, but there is a decent amount of evidence, uh, of both Russia and China testing ground-based direct-descent anti-satellite systems that could be used against low Earth orbited objects.

Um, that is not hugely different from threats that existed in decades past. Uh, there's other evidence suggests there may be, uh, attempts to develop capabilities that could threaten satellites in higher orbits, maybe not the geo-stationary orbit. That, if true, would be something that is new, um, and I think maybe part of what's driving increased concern, particularly among the intelligence community.

Um, you've seen demonstration of capabilities, uh, particularly rendezvous and proximity operations that, while not necessary, eh, you, it's uncertain whether it is specifically an anti-satellite test, they certainly could lead to the development of co-orbital capabilities in the future. Um, and there's always been significant concern about that as a potential threat.

So, so what is it the US has done over the last few years? Um, well 2010, the Obama administration released its National Space Policy. Um, and shortly thereafter, in 2011, they released the National Security Space Strategy that was co-signed by both the director of national intelligence and the secretary of defense.

Um, and then that was followed by 2012, DoD Space Policy. Um, and all three of these documents kind of reinforced each other, uh, at basically successive levels of implementation. Um, and in general, they talked about the importance of norms of behavior in space, uh, building coalitions with allies in industry, increasing the resilience of US-based system, um, and being able to respond to attacks, and with space capabilities, perhaps in other domains.

So not necessarily responding to attack on space with attack on space. Perhaps responding in the air domain or the land domain or the sea domain.

Uh, and then it seems like there was a significant shift around 2013, 2014, um, which I f-, assessed was probably prompted by, uh, you know, Russian and Chinese counter-space testing or capabilities demonstrations. Um, and, and as a result, you saw kind of a, a, a rethink of some of these issues.

Um, in 2014, the government conducted what was known as the Space Strategies Portfolio Review, uh, which, uh, as far as we know, was finished in, towards the end of the summer, 2014.

The report's not been released, but unofficially, uh, it's been talked about as kind of the findings were that the US needs a better job identifying threats in space, being able to withstand aggressive counter-space programs, and countering adversaries' space capabilities.

Uh, Congress has also been gotten into the action on this. Uh, the FY '15 National Defense Authorization Act, um, called on the national security space community to present a plan to deter and defeat adversary attacks in US space system, including the role of offensive space operations and active defense. The 2016 budget requests reprogrammed between \$5 and \$8 billion, over five years, for space protection.

Uh, in 2015, the Obama administration created the Joint Space Doctrine and Tactics forum, which gave a way for the military community to work with the intelligence community, um, on how to respond to attacks on satellites.

Um, there was the creation of the Joint Interagency Combined Space Operation Center, or the JICSPOC, which, uh, has been explained as a way to experiment with tactics that might eventually be incorporated, and op-, uh, implemented at the JSpOC.

Um, and the shifting of the role of the sector of the Air Force from being executive agent for space, to being what's known as the Principle DoD Space Adviser, uh, and to have a stronger role in, uh, kind of having a, an opinion about the way national security in space should go.

Uh, and then also in 2015, the off secretary of defense released a white paper on a resilience taxonomy for space domain mission assurance, which tried to, uh, uh, I think put some more intellectual rigor behind terms like reconstitution, resilience, and protection, um, that had been thrown about, and discussed for a long time, and what role things like disaggregation, and distribution might have, um, in a space protection strategy.

Uh, and then most recently, in April 2016, uh, at the Space Symposium General Hyten unveiled the space enterprise vision, uh, although it's very hard to tell what's, what's part of that because as far as I know everything, everything about it has been classified, uh, but it seems to focus quite a bit on architectures for national security in space, and how to, how to update those to deal with all these threats.

So, I, I think it's ea-, it's, it's easy to say that there's probably been more interest in activity on this issue within the US government within the last few years, uh, than certainly I've seen within the last couple of decades, um, and al-, although most of it is going on internal in the US government, um, and it's hard for us on the outside to kind of get a real sense of everything that's going on.

And, um, honestly, you know, I think everyone I've talked to has kind of criticized the efforts of the Obama administration, but perhaps for different reasons. Um, you know, those on the conservative end of the spectrum have criticized the efforts as being too soft, or, or not strong enough, um, and are calling for things like, uh, more, uh, more, more deterrence through threats,

um, or even, you know, and congress calling for bringing back space based missile defense as a way to counter anti-satellite weapons in some way.

Um, on the other side of the spectrum people have, uh, you know...On the more liberal part of the spectrum there's been concern about, you know, maybe it's time to seri-, get, get serious about arms control, and about applying some of the governance mechanisms that were developed, the nuclear world of space, and there's been a lot of concern about what it is the military is doing, and is it really trying to deter war, or is it just kind of preparing for it.

Um, and as Victoria mentioned, you know, kind of the wild card in all this is the changes in the commercial world. You know, the commercial space sector is now growing at a rate that we haven't really seen in the past, um, and has the potential to become, kind of the lion's share of space activities. Uh, and so how does that relate, or interact with what the militaries are doing, and the national security communities are doing in space?

Um, and I wonder, you know, with all the recent focus on the potential hostile threats, what about the environmental threats that haven't gone away? Uh, you know, issues of space weather, and space debris, um, you know, there's been quite a bit of talk about those in the last decade or so, um, but if you actually look through the budget, and you look for actual money allocated to dealing with them, uh, or changes to roles and responsibilities, uh, there's not a whole lot to go on.

Um, so I'll just close by just kind of some comments on, uh, personal comments on, on the current strategy. Um, I think, you know, what we know of the current strategy, and its focus on kind of this mix of norms of behavior, on increasing resilience of US space systems, uh, working more closely with the commercial sector, and the allies, I think in general those broad strokes are good. Uh, it's hard to kind of get a sense of the details because there's either not a lot of detail, or the details are not publicly known.

Um, I think my biggest concern is that it all seems to be focused almost entirely on what the military's doing, and the national security community, um, which I think is obviously part of the solution, uh, but you have to wonder what else is going to be there to support that.

Um, you know, in the academic world, and the military world we talk about strategy as having a, a diplomatic component, an informational component, a military component, and economic component, um. And I think we've seen, over the last 15 years, some of the limitations of a military centric strategy that does not have good support from political, or, or diplomatic initiatives, that can go in and reinforce, uh, what the military's doing.

Um, so my question is, you know, kind of in addition to what the DoD is doing, and they're certainly doing quite a bit, and they seem to be very focused on this. What else is the US government doing that's going to support those efforts, and kind of give a more well-rounded strategy? Um, so I'll stop there, and open any questions once we get to that part.

Victoria: Thank you.

[applause]

Peter Hays: Well, good afternoon. It's a great pleasure to be with you, uh, surface dwellers this afternoon...

[laughter]

Peter: ...and, uh, I'm very happy to be here, and see so many, uh, old friends. I'd like to explicitly thank Victoria, and Brian for this opportunity, and I very much, uh, look forward to our discussion about this important topic as we go forward. Of course I have to foot stomp my, uh, standard disclaimer that I'm not speaking on behalf of anybody. No organization would endorse these views. These are purely my personal views that I'm about to, uh, espouse.

So, um, I would like to, uh, just go back to a couple of things that Brian, and, um, Victoria mentioned because, uh, I think there's some really good stuff that the department of defense has put out recently. In particular, I would call your attention to that "Space Domain Mission Assurance, a Resilience Taxonomy Piece," that was, uh, published in September of last year by the officer of the security of defense.

So, as you may be aware, one of the, um, key implementation actions for the 2011 national security space strategy was to develop a more comprehensive, and robust definition of what this resilience thing is, and how one might accomplish it. So, uh, it took a while, but, uh, the Department of Defense now does have such a document, and I would commend that to you.

I think it's a very thoughtful piece, and I am hopeful that, um, the department will be using it, as will others, in their quest to improve the mission assurance of our space systems. So, uh, that's one. Uh, second, I'll just really, uh, emphasize, uh, a couple things that Brian said. I, I thought his introductory comments were brilliant, and, um, uh, I think you could find no better illustration of the fact that our senior leaders find this of great importance then, to consider that.

Deputy Secretary Work spent two days down at the [inaudible 18:07] War Games at, um, Maxwell Air Force Base. During that time, he met with senior leaders from all the participating states, so there's just no question that this is very high on the agenda, and in the minds of our senior leaders, and there's probably some pretty good reasons for that.

And the final thing I would just like to foot stomp again, based on what Brian, uh, mentioned, is that, um, while it is probably true that the Department of Defense have moved out finally on a lot of areas, the area that, uh, in my judgment is really lacking is the rest of those, uh, DIME components, so the diplomatic, information, and economic pieces that probably are at least as important as the military dimension of this problem.

And in my humble opinion, the United States government does not have a good, uh, process for integrating those things, and ensuring that they are, um, comprehensively, uh, considered as a part of the mix when trying to address any of these, um, mission assurance challenges that pose.

So, really there's just two things I'd like to, um, put stop, I mean, a, a, as you probably, um, gather I am a big fan of the NSSS. I think it's a, um, really significant document. I would not advocate that we need a new one at this juncture. I think it's striking the right tone and it is a permissive, general, comprehensive policy that or strategy that, um, enables a lot of other activity.

I would call your attention to though that, um, the difference between the 2010 National Space Policy and the 2011 National Security Space Strategy is significant. And the thing that I can't discuss...

Audience Member: [laughs]

Peter: ...that's even more disk -- significant is where the United States government has gone since the 2011 National Security Space Strategy. Um, but what I would in particular call your attention to is, if you think of where President Obama was when he came into office and what he was trying to do with his 2010 National Space Policy versus where we are today?

Well, think of it in terms of Secretary Carter. When Secretary Carter came into, uh, the government, working for the Office of Technology Assessment for Congress back in the 1980s, would've been very hard to find any military or strategic defense system that he was a big fan of.

Today, it's extremely hard to find any space system in particular that he isn't a big fan of. In fact, if you want to point to one individual that is really driving this train in the most significant fashion it is one each, Honorable Ashton B. Carter. So, I will just switch it on that for you.

Um, OK. My two things, uh, what, what do we need to do differently and better. We need more transparency. OK? I can't talk about this stuff. It's highly significant.

Audience Member: [laughs]

Peter: The United States government has done a lot of good stuff but for whatever reasons, it has chosen not to make those public. So, I understand, uh, sources and methods. I had the privilege of working at the Office of the Director of National Intelligence for three years. I think I understand that, uh, a lot. Um, we don't want to give away sources and methods of obtaining information.

I understand the concerns about not, um, uh, incentivizing other states to develop counter-space capabilities. So in particular, um, we don't want to give the Indians for example, any additional reasons to develop those kind of capabilities.

But folks let's face it. That ship has sailed about 20 or 30 years ago. OK. So we're kidding ourselves when we say, "Oh, we don't want to create incentives for them to do this." They've already done it. So the idea that we're somehow imposing constraint by what we say about it, is really kind of silly and, um, I'm not saying there's no utility to that. But let's think this through a little bit more carefully here, folks.

And in particular if the Obama administration and, and it is a settled policy on the part of the Obama administration that we're going to go forward with a significant shift in the way we approach space security. But if they want to make that an enduring and sustainable policy shift, guess what? They're going to talk about it more. Because playing this trust-me card over and over gets old, particularly with Congress and the American public or international publics.

So, um, that's my number one thing that the United States government needs to work on is transparency. Fortunately, that Secretary Carter I mentioned before, he has publicly said that he

believes much of what the United States does in space or what it talks about in space is over-classified.

So, there is an ongoing effort on the part of the Department of Defense and the intelligence community to review many of those classification restrictions, and to be up to talk about this more. As someone in the trench is trying to do that, I can tell you that it is extremely difficult because the default position of all government agencies with respect to those type of issues is that, it's going to stay the same and how dare you even bring that up and then they...

[laughter]

Peter: So it's very difficult but that really needs be done. That's my number one thing. Um, OK. So second thing, I just wrote briefly, um, how can we incentivize, how can the United States government incentivize, uh, all those commercial things that we, we would like to see more of.

So largely that evolves to an issue of, um, regulation and licensing of those activities, as well as the government's responsibilities on the outer space treaty to have a continuing supervision over those activities.

So in that regard, uh, I would suggest that the United States government needs to do a kind of zero-based review of its base-, basics, policies and strategies towards commercial activity in space. Uh, as you know the outer space treaty was written in 1967, commercial activities were not. Really been an afterthought in that, given the state of commercial activity at the time.

So if there's anything that needs to be advanced in, uh, respect to, uh, international space law and domestic, uh, legal, uh, regulation and, um, uh, continuing supervision it is these areas. So how does this manifest itself? Well, um, almost anything, commercial entities want to do in space, uh, is looked at skeptically from the position of the United States government because they don't really have well-developed and comprehensive policies to regulate it or license it.

So that's what I'm really suggesting is, the United States government needs to do a fundamental reevaluation of those, think through its, um, basic goals. Uh, one of which I would strongly recommend is to incentivize growth in this industry. Uh, the more of this that is done by the United States, the better it is for us in building that, uh, more resilient architecture that can ensure mission assurance.

So just one other specific thing I can raise with respect to that is, um, many things that commercial actors are interested in doing, uh, there just basically is no process for regulating or licensing that. And the bad news is the US is the world's leader in licensing and regulating things. So it's a difficult challenge.

And, um, again the US government needs to think more broadly and, uh, creatively about that. We can't keep treating everything like it's a remote sensing system. So if you want to do on-orbit servicing, that's remote sensing. If you want to do, um, rendezvous and proximity operations, remote sensing. Uh, may be debris removal, remote sensing.

[laughter]

Peter: Um, so you get the picture. So, um, again, the government needs to think more creatively and, uh, comprehensively about that and think through what it is that it's trying to accomplish and hopefully in the fullness of time create some policies that could actually incentivize growth and more consistency and predictability, uh, on the part of industry and them wanting to take on investments in this area.

So I very much look forward to our discussion here in a few minutes. Thank you.

[applause]

Todd Harrison: Todd Harrison, Senior Fellow at the Center for Strategic and International Studies. And I want to thank both Brian and Victoria for having us here today for this great discussion. Uh, so I'll start by disagreeing a little with, uh, what Peter said only on one point. Uh, I think it is time to update the national security space strategy probably in about a year when we've got a new administration in office.

And it's not that I think that there's anything so bad with the current, uh, NSSSs...

[laughter]

Todd: Too many Ss. Uh, it's not that anything that bad but I think it's actually pretty good, but I think we can make it even better and as times change we just need to update things. And so, uh, I've got three basic areas, that I think we could improve on the existing space strategy. Uh, number one, uh, is, I think we actually need to give NASA a greater role. Uh, maybe I should rephrase that. We need to give NASA a role.

[laughter]

Todd: Uh, if you look in the, in the current National Security Space Strategy, it never mentions NASA by name. Uh, why is that? Uh, now we don't normally think of NASA as being national security-related but I think NASA actually could be an important part of our space strategy because we can use NASA to engage with some nontraditional partners, nations that might even be military competitors.

Uh, why would we want to do this? Well, number one to increase transparency. Uh, so we can have a better idea of what they're doing if we're engaged with them. And you know what, transparency works both ways. They would also have a better idea of what our intentions are in space. Uh, and I think that can only be a good thing into our advantage.

Uh, and the second reason is, we want to encourage norms of conduct, and norms in behavior in space, uh, and NASA is a perfect place to do that. Uh, the current space strategy says, we should lead by example. I think NASA is probably the best example we have, uh, for the world, uh, and how we intend to use space peacefully.

Um, and, you know, final point here on NASA. Um, we talked about the diplomatic component to our strategy. Uh, I think that we've to explicitly give that role to NASA, because NASA has a vast network of international partnerships. Uh, and it is a source of national power. Who doesn't want to work with NASA? NASA has a great brand image, uh, around the world, Uh, and so our space strategy should leverage that.

Um, second thing, I think it could be improved, uh, in current space strategy is, how, uh, it addresses commercial industry and how that's going to fit into our space strategy. Uh, so specifically, I think it ought to include a sourcing strategy, uh, as part of the overall space strategy.

So what I mean by that is thinking through, uh, what is it we need from industry, and what kind of US industry do we want to create, uh, that helps foster -- I shouldn't actually say create, because we're not in the business of creating this industry anymore.

Uh, what do we want to encourage and what do want to foster, uh, in the US space industry. Uh, and you know, a good example would be, uh, I think it's in our, our national security strategic, uh, interests to have more than one large vehicle for military launches from more than one company. Uh, why not say that? Why not be specific about that, that's part of our strategy. Um, and then, yeah.

[laughter]

Todd: And then follow through on it. Uh.

[laughter]

[crosstalk]

Audience Member: Light and crazy.

Todd: Yeah.

[laughter]

[crosstalk]

Todd: And we should also -- this gets a little more difficult but we should also address, when we want to buy things as a service and buy them as a product. And that is changing. Uh, I think it has changed since 2011. Uh, for things that are unique to the military, uh, for things where there is a roughly equivalent commercial market, uh, we are to be seriously looking more and more of buying things as a service. So we aren't thinking of launch.

Satcom, uh, you know, imagery -- some types of imagery, some types of Satcom not all, weather information. There are a lot of things that we could be buying as a service, rather than trying to build and launch and operate our own satellites for these things. I think we're already headed in that direction but I think that should be incorporated into our space strategy.

Final area, I think, uh, that needs some more improvement and I, uh, you know, we'll be the first to admit, I don't have the answers here -- is we need to address in more explicit detail, uh, how we think about escalation and deterrence in space. Specifically, how are we going to manage escalation. Uh, you know, we like to compare deterrence in space with input returns.

I think on one level that works really great, uh, in the sense that, just like nuclear weapons, we have to find a stable deterrence posture because u-, the use of nuclear weapons is just not

acceptable. We don't want to see that in the world ever. Uh, so we've got to, you know, have a stable deterrence posture there.

I think the same is true when it comes to kinetic ASAT weapons in space. It's just not acceptable to see them being used. We don't want to be in a position where they are used. Uh, I'm afraid though that we're at our current situation is not stable. We don't have a stable deterrence posture in space when it comes to kinetic weapons, uh, but we got to get there. I think anything less is, is just simply unacceptable.

Um, right now I think the space strategy, and part of this I'm sure is due to classification issues, uh, it doesn't say a lot in terms of specifics. It says that basically, uh, we want to work to discourage bad things, uh, and we want to encourage good behavior, uh, and we want to do that with our partners. Well, that's, that's great, but strategy's about ends, ways, and means.

Uh, we've got the ends. We know what we want in terms of the in-space here, uh, but we need more details on the ways, and the means. How are we going to do it? Um, what, what tradeoffs are we going to make? It needs to be in enough detail that DoD can craft clear, and unclassified rules of engagement for space. Now, there can also be a classified version. That's fine. Uh, but I say a clear, unclassified set of rules of engagement for space because it's a way of communicating to other people.

Uh, that's how we can set up a space deterrence posture, uh, that might actually work. Of course a, a key part of deterrence is making sure that potential adversaries will know what actions will trigger a response, what range of consequences there might be, uh, and those consequences actually have to be credible.

Uh, and so we've got to think through that, and again, I don't have the answers here, uh, but that's what we need to do, uh, if we want to get to that goal of a stable deterrence posture in space.

I think right now, uh, the way that we would respond, the things that would trigger a response, they're just not clear, uh, and it's leading to a situation where we've got a dangerous, kind of Wild West mentality in space, uh, where people are willing to try things just to see what will happen.

Uh, and, and that's not where we want to be. We need to move past that, and so I think, uh, an update to the space strategy, uh, will help get us to where we need to be. That's all I have.

Victoria: Thank you.

[applause]

John Sheldon: Uh, thank you. I'm John Sheldon. I'm the, uh, chairman of Thor Group, and also the publisher of "Space Watch Middle East." My disclaimer, uh, um, these are my views. They don't represent the views of my company, uh, nor their clients, past and, uh, uh, present.

Uh, but, uh, what I agree with, with my fellow panelists, and there's some actually that I will, uh, uh, stray away from, but, uh, I also...My, my remarks are going to include the debated fact that, as a documenter, we can live without a national security space strategy.

In fact, I will argue that it's not even really a strategy, as I at least understand it. Uh, so, at least as I understand it's not a strategy. I'm not saying it's a bad document. I'm not saying it's necessarily a harmful document. I'm just saying if it didn't exist it wouldn't necessarily matter, uh, in terms of how the current administration is approaching these things.

First off, on context I agree with pretty much everything that, uh, my, uh, uh, my, uh, fellow panelists have said, excepts to say also we should add to the context that the current, uh, uh, drive by the administration to develop a, a response to these perceived threats to space systems isn't necessarily just an institutional response.

It comes actually from the man at the top himself, the president. Uh, uh, the, uh, the understanding is, is that, uh, the president, uh, was, uh, uh, a pursuer of a certain amount of intelligence where it became clear that our space systems were increasingly under threat.

Um, he actually questioned the, uh, joint chiefs on this, uh, in person, uh, to the point whereby they hadn't really thought about it, and he encouraged them to think about it, and essentially what we're seeing now is, uh, at least from a n administrations point of view, the culmination of that personal interest.

And the president himself, it is my understanding, has taken an interest in the development of this policy. Why is that important? Well, it's important because -- and you may gather from my accent, I'm from central Alabama, and, you know, I don't really...

[laughter]

John: But, as, uh, as, uh, someone who is essentially politically useful here in the US, I'm a British conservative, so I'm not really sure these days what that makes me in the US.

[laughter]

John: Uh, but, uh, the, uh...I'm a small seat conservative at that, but, uh, probably an old blue dog democrat, I guess, I don't know.

[crosstalk]

John: But, uh, but the one thing I will say is this, as a student of American politics since, uh, I was in, uh, my late teens, having taught, may I add, US government in Alabama, hence the Alabama joke, where they thought I was from Vermont, that's not a joke. They really did.

[laughter]

John: I like to say I'm not an expert on, on, on the American government, and the constitution, but at least I like to think I understand it. Uh, but what I do understand about American politics are the third rails of American politics. Every country has their third rails in politics. I understand American third rails in politics. There are the culture wars, and all these sort of things.

But let's, let's be clear. Uh, when it comes to things to do with military space, it's traditionally been a republican domain, uh, and it's usually been locked together with family values, and all

these kind of things. In other words, uh, if you believe in the family values, you obviously believe in "Star Wars," death stars, and all these kind of...

[laughter]

John: I put it in broad terms. Uh, it's all nonsense of course. And if you're a democrat, uh, it was, you know, peace, and space, and never between shall meet. The reality of course was far much more complex, but, but that's always how it's been presented politically.

So the reason why it's important that president Obama himself has taken a personal interest in this, and has driven this policy through this personal interest is that here you have, in every other respect, a progressive democrat actually changing the status quo politically in that third rail aspect by actually pushing the, uh, uh, the US towards this much more, uh, engaged, uh, uh, uh, uh, approach to national security space.

It, it doesn't necessarily fall within the norm of what you might expect from a progressive democrat, and I think that's important. That's actually significant, and may I also add, it's also been noticed abroad. Uh, in other words, if a republican administration was to do this... Well, they wouldn't do that, wouldn't they? So for a democrat, like President Obama, to do that, that actually is quite significant.

Uh, and also, I think that, that's also part of this narrative that you're hearing from some quarters, primarily from the liberal quarters, which is, you know, it varies from [inaudible 38:06] being captured by the military industrial complex, or anything like that. I find those sort of arguments very old fashioned.

They're very minority arguments, but, you know, I think we, what we can take away from this is that President Obama's interest actually signifies that maybe there's something to this idea that there are threats out there.

Now, in some cases I believe some of the threats are taken out of context, or maybe even, uh, uh, uh over hyped, particularly the Russian threat, uh, which at the moment is primarily electronic. Uh, the China threat, I think is more substantial, uh, but we need to keep this context in mind. There are problems of course that a national security space strategy is experimentally constituted.

Uh, the diplomatic embassies, which is actually the very first point that the NSSS, uh, uh discusses is nowhere to be found right now, the, uh, the using the EU code of conduct, uh, as a means, or [inaudible 38:59] norms in space has collapsed, unfortunately. Uh, the, uh, there is no counter right now to the US...sorry, the Russian, and Chinese proposal for the prevention of placement of weapons in space, uh, treaty.

Uh, if you attend any kind of Track 2, or Track 1, or Track 1.5 international event on space security, you will find that the Russians and the Chinese have made great inroads with third party countries, in terms of their interest in a PPWT approach. Um, and we haven't necessarily been good. When I say we, not just the United States, but also our European partners, as well as Japan and Australia, in actually promoting...at least having a united front on promoting a code of conduct.

Uh, there's plenty of blame to go around, uh, but, uh, I think it's, uh, no secret now that the state department is, uh, walking away from a code of conduct. It basically exhausted itself, so the questions becomes, so what's next? And whoever wins the election in November, uh, they're going to have to address this one way, or another.

Uh, and I am not confident that one party will address it in an adequate manner, and that's not a criticism of the, of the candidates, uh, of that particular party, who I have plenty of criticism also on a personal point of view.

But that, that particular party has, for the past several decades, had the rather unfortunate view, a rather dim view, of how diplomacy works, and how it should be integrated with the military aspect as well. Um, and I'm not confident that, that party has moved to a position where it can recognize that.

And I agree with what Pete said, whereby there has been a disconnect between the diplomatic and the military. I come from a government culture. I used to work for the British Foreign Office where there was a very close liaison between the British Foreign Office, and the Ministry of Defense on a variety of issues, where it wasn't diplomacy versus military.

Both were on the same spectrum, yeah, uh, and I don't see much evidence of that happening here in the United States right now. And that's not a particular administration's point of view, uh, problem, uh, uh, or fault. That's unfortunately a cultural problem that's, uh, uh, arrived, that in the, uh...

[laughter]

[crosstalk]

Victoria: I think someone may have leaned against the light.

John: That's, uh, that, that's the effect my talking my talking has.

Audience Member: Yeah, that's right.

John: I'm actually a secret style of warfare.

[laughter]

Audience Member: Now we'll use space...space to turn it on.

John: I can't even read my own notes right now.

Audience Member: Ooh.

John: There we go. [inaudible 41:18] Thank you. Uh, so, so without this larger diplomatic strategy right now, uh, the US is left to basically do bilateral discussions, which are all very good.

Uh, in fact, uh, Frank Rose announced that, uh, he'll be doing discussions, for example, not just with our traditional European allies, Japan, Australia, discussions that have been ongoing for

quite some time, but also with, uh, our other friends as well around the world, including, for example, the GCC, primarily United Arab Emirates, and, uh, Saudi Arabia in the coming months. We've already signed an SSA agreement with the UAE as well.

Uh, this is all good stuff. Um, we're probably going to find that, uh, more of these friendly governments, uh, understand where we're coming from, especially as these, uh, governments like UAE become major space powers themselves, at least reach it.

Uh, also international partners, here's the other aspect. While we're doing good on the bilateral aspect of, uh, uh, discussing with partners, uh, as Doug Loverro and OSD has pointed out, we do have a slight policy problem whereby, yes, it's good to get international partners involved, and, uh, even trying to get some sort of interoperability between systems, especially in comms, and, uh, remote sensing, and so on.

But we have a particular problem, which is, uh, there is a fear that by cooperating with the United States you become entangled with fights that the United States, uh, gets involved with, that you, as a particular country, do not necessarily want become, uh, involved with.

So, for example, think of the current crisis we're seeing right now in the South China Sea. The US is doing freedom of navigation operations. All very good, I personally agree with that, but let's say we have agreements where we can use French, or German satellites in the event of an emergency.

How does France, and Germany feel about becoming embroiled in a naval standoff in the South China Sea, with China, and we're using French, or German remote sensing capabilities, uh, or even communications, maybe they're British, and they're operating Skynet in the region, for example.

Uh, when you look at, for examples, those countries' foreign policies towards China, it's not necessarily as hawkish as ours is, uh, or at least not necessarily as, uh, uh, uh, engaged as ours is, and, uh, there's also a much more, uh, uh, how should I put this politely? A much more nuanced approach to our position on freedom in navigation in the, in the region.

In other words, it's an argument that many people in Europe would rather stay out of, uh, and by using satellites from those countries in that particular situation -- I'm using that situation as an example -- could become problematic. Doug Loverro has quite rightly asked for, we need some sort of, not just policy clarification from the US side, but at least we need a much more discussion with potential partners about, OK, where would you not want us to use your satellites.

And all that, by the way, vice versa. These countries also use US satellites. Where is it we don't want them using US satellites as much as they, uh, don't, uh, uh, want us using their satellites. So we need to think more about that. Uh, deterrence. I have a slightly different take on this than Todd. Todd's right of course.

There needs to be a more clearer discussion, and at least understanding of what there is, uh, in terms of escalation, and, and so on, but, uh, I think also though, that in a wider sense, not just in terms of space, there's a deeper misunderstanding what deterrence is in the DoD these days.

Uh, there's a lot of talk about it, obviously. Uh, I'm not against deterrence, but in terms of how you achieve deterrence, or at least you create the, the, the fertile ground for deterrent success, uh, is a lot more complex than I think many, uh, of these senior officials [inaudible 44:45] within the DoD.

Um, this idea of a multi layered approach to deterrence, for example, as, uh, espoused in the National Security space strategy, um, I would argue is complete nonsense. Um, potentially adversaries read it, and they scratch their head. Maybe that's part of the plan.

[laughter]

John: I don't know, but, um, they read it, and...

Audience Member: That's brilliant.

John: Let me, let me give you an example, and it's not necessarily to say that what I used to do for a living is the same as trying to deter people from attacking our space systems, but I used to be a night club bouncer in Glasgow in Edinburgh.

[laughter]

John: And I used to use my bouncing stories all the time, and I haven't done it for a while, but I will in this sense. When I dealt with some bad guys, and believe me, I dealt with some pretty bad guys, there was one guy called Ivan Levine. He ran a protection racket in Edinburgh, and his way of dealing with anybody who didn't pay up was to basically attack them with a pick ax.

He was actually eventually arrested for attempted murder, uh, with a pick ax. He's a seriously bad dude, and I had some run-ins with this guy. What I...When I had run-ins with this guy, um, what I didn't say is, "Ivan, I'm going to deter you."

[laughter]

John: "I will find ways of deterring you from doing bad things." No, I basically, you know, not to use the salty language I used at the time, but basically said, "I'm going to find ways of messing you up," and I did, and I did it at great risk, and that's the problem. OK?

So when we're dealing with, for example, deterring attacks against space systems, there are two ways we're going to do that. We're going to do it whereby it's going to be a waste of effort for the adversary because we've achieved a certain amount of protection, and resiliency, which I think should be our priority for the time being, and then if that fails, we're going to mess you up, and we're going to win.

We're not going to go around, or at least I would argue we shouldn't go around saying, "We're going to deter you."

What does that mean? You're just telling me that, you know, "Well, we're going to do bad things to you. Show me. Where is the credibility." And this is going to be very controversial because that means, yes, there should be [inaudible 46:37], uh, an approach whereby, from a military

perspective, we can at least demonstrate capability whereby we can say, "If bad things happen, this is how we're going to achieve it."

That doesn't necessarily mean it's going to happen in space. [inaudible 46:49] space weapons, but have the means whereby we can achieve certain objectives militarily, and by the way, we can do so in an assured manner. Uh, that would eventually, hopefully deter an adversary. Here's the other thing, we could also do all these things, and still not deter an adversary. We talk about deterrence in the DoD as if somehow by merely saying it, the adversary is deterred.

It's a psychological relationship we're trying to enter here. We're trying to threaten somebody. That's what deterrence is, by the way. You know, it's become a euphemism in and of itself, like collateral damage. No, deterrence is about threatening violence. And, and if you're going to threaten violence, you at least have to be credible. I was bigger than Ivan Levine. I've got threatened violence. He walked away thinking, "Maybe he could mess me up, or worse that effect," and I'm not sure we're necessarily doing that.

So, I, I get the impression when I speak with officials that deterrence is, "Well, times are tight, in terms of the budget. We're talking about deterrence because that somehow is cheaper."

[laughter]

John: Literally, I've, I've heard this, uh, and I think...I suspect many of you have also heard this same thing, and I'm sorry, I don't understand that. And I'm not saying I'm the smartest guy in the room, but I worked hard for my PhD, and, and so on.

And, you know, again, it's like dealing with, uh, Air Force students who used to present their findings for their thesis in Power Point, and I would say to them, "Sorry, I have a PhD. I didn't understand a word of that. Please go back and do it again. You need to go back and do this again. You need to do more homework."

So it's not only defining where the escalation ladder is, and what we would prepare to do, and not do, but also we need to get a better understanding of what it means to deter. Um, and that's not just in space because as it's been pointed out, or at least intimated here, we're so integrated now in space, in terms of our conventional war fighting capabilities, land, sea, and air, and cyber, uh, that deterrence is going to be much more than what we do in, and from space.

It's going to be done in a much more holistic manner, and I don't think we necessarily have gotten a better handle on that right now, uh, than we should.

Uh, I would also argue that, uh, we're not necessarily prepared to deal with the greater transparency, the transparency regime that we're going to find happening in space, especially when we have one in the US government talking very openly about having a, a federal aviation authority approach to space traffic management, versus a military culture that still will not even acknowledge particular systems, for example, even though everybody knows they exist, and so on.

Uh, so we're not prepared for that transparency regime that is going to happen, uh, in the coming decade, and beyond.

Uh, national security culture, and Peter, uh, alluded to this, and I've come across it in my experience as well. Um, by the way, I used to work for the US Air Force.

I'm not sure that's, uh, been made clear, so I do have some knowledge of what I'm talking about here, uh, but we still have a national security culture where any, uh, uh, uh, approach to reform the classification system we have, which has been exposed horribly by people like Chelsea Manning, and, uh, uh, Edward Snowden, there's still resistance to that.

And also our culture, especially the National Security Space, uh, Establishment right now, uh, in the mil-, mid management level, that looks at commercial space as some sort of lesser than, uh. Whereas if you look at the, uh, current state of commercial space capabilities, they're every bit as reliable, and good as anything the National Security Establishment has, uh, in operation.

As KC has pointed out, uh, with Intel Sats, when I'm, uh, broadcasting the, uh, the Super Bowl, uh, and everything's riding on my satellites being able to broadcast that Super Bowl, uh, you're telling my systems aren't reliable as anything the US military as? Because they are. Uh, so we still come across that, uh, uh, that problem.

And then, lastly, uh, there still has to be this debate. It's happening in automatic way, but not necessarily in a, in an, uh, uh, an expressi-, or at least explicit way, which is, what role must the government -- and by that, I also include, uh, uh, the military and NASA -- what role must the government absolutely play in spaced?

What is it they absolutely have to do that no one else can, or should do? So for example, from a military perspective, I personally believe only the US Air Force can provide ballistic missile early warning satellites. Uh, it's a, a, a fundamental responsibility of the US Air Force, and so on. But, uh, let's have a debate here. Does the Air Force really need its own weather satellites?

[laughter]

John: Really. I mean, I've heard the arguments for why, but I'm still not convinced we need to spend, actually blow, the money that we've been blowing on it, uh, for what can only be a marginal capability at best. So we're still not having that explicit debate. What is it that the US government must absolutely do, and then what can be left to the commercial sector beyond that? So we're still not having those debates.

Why is it not a strategy? Well my definition of strategy, strategy is the art, and science of basically taking policy intent done by the politicians, and then making it into something that is technically militarily feasible. It's not expressed in a document. If it's a document, it's a snapshot of a particular situation at the time. All the instruments you have at your disposal, from a strategic point of view, change every day. It's a dynamic, uh, uh, uh, approach.

So for example, uh, the NSSS, uh, articulates that diplomacy is a very important aspect towards this, and yet let's see what, we don't have to look at what's happening on the diplomatic side. Not necessarily through the fault of the US, but the diplomatic side is found wanting. Uh, what you really need, uh, basically a much more coordinated approach to how we do strategy.

Strategy is an action, it's not a document, uh, and, uh, uh, we need to much more...find a much more coordinated approach to do this, uh, but of course the US system as it's currently constituted, uh, is not necessarily congenial to that kind of approach. Uh, it never really has been unless there's a dire national security emergency, so I'm afraid in the end we're just going to do what we, the British, do, which is to muddle through, keep calm, carry on. Well maybe not keep calm, but we'll carry on.

So I hate to be the, the buzz kill, but, uh, I'm, I'm, I'm not, I'm not terrible uh, uh, uh, convinced that having a national security space strategy, no matter how good it is at the time, is going to be of any real benefit in the long term. It's a question of what we do on a day to day basis. I'll leave it there. Thank you.

Victoria: Thank you.

[applause]

Victoria: OK, before I open it up for questions, I have a few, um, I want to get the thoughts of the panelists of some issues that are raised during the, the talk. First I'd like to call on something that John brought up at the beginning, where he talked about how the current response of the US government is largely from the top, um, the POTUS. Um, whether or not you agree with that, that brings up an issue.

Of course there's election coming up. What do you guys think is going to be happening in terms of...Where are we going from here? Will there be a big change, or is this is a shift that does not turn on a dime, and it's moving ahead, and [inaudible 53:45] not going to be slowed down? Um, I ask because we're having interim discussions, which Brian will probably bring up. We don't know, uh, I'm curious to hear what you guys think about that.

Brian: So am I to go first? All right.

John: I'm sorry. What...I was pouring water at the time, [inaudible 54:00] ...

[crosstalk]

Victoria: Next administration. Yeah.

Peter: Yeah, so I, I have a copy of the Trump, uh, space strategy if anyone...Just kidding.

[laughter]

John: Legally. This could be great.

Brian: It'll make your head spin.

Peter: We're going to win in space.

John: It's going to be the best space strategy ever.

Peter: But beyond platitudes, uh, you know, we're not...This isn't going to be an election issue, really. Unless something, you know, unthinkable were to happen between now and November, um, it's probably not going to be discussed at all.

Uh, there'll probably be some thought put to it during the transition, uh, but I imagine it will be this time next year before, uh, the new team really gets any kind of strat-, any kind of traction, uh, going, uh, and thinking about space strategy, and it's always pretty safe to say, uh, in these things that we will see more continuity than change, uh, regardless of who wins.

Um, you know, that, that has been the tradition when it comes to defense strategy, is, you know, even when people campaign, uh, on vastly different, uh, defense strategies, uh, when it comes to governing, uh, there is often much more continuity than change. So, uh, you know, without being able to say anything specific because no one's really saying anything about it in the campaign, I wouldn't expect any kind of huge, abrupt changes, uh, with the next administration.

John: Uh, I agree. Um, the, uh, I think that it's going to be more likely to be continuity than change, even if Mr. Trump were to win, due, you know, with all the wombats that he has produced. Uh, although I would add that, uh, word on the street is if you are a part of the Trump team, you're having a very hard time right now recruiting any kind of defense, or foreign policy expert on to your platform to...and that includes space experts.

Uh, so, um, you know, it depends on who that transition team is, and who they're made up of. So, um, but certainly, my gut tells me whether it's Hillary or, uh, or, or Donald, uh, there needs to be more continuity in change.

The only great unknown is, and it's very unlikely, of course, that he's going to win...

Victoria: [clears throat] Hm.

John: If Bernie Sanders were to somehow find a way of, uh, defeating Hillary Clinton and actually getting the, uh, democratic nom-, nomination, I think we're going to see a much more, uh, different kinda space policy that, there's nothing on his campaign that's assured that can...

Victoria: [coughs] Hm.

John: ...point to where he's thinking.

Todd: Um, I can't really add anything with respect to the likely, uh, candidates, but what I can say is, um, it's amazing to me that this administration has, at some level, chosen to make space security a legacy issue for their time. And, uh, that thing I can't talk about, is extremely detailed and specific. So, it's a decade-long program to get well in space.

And, um, uh, if it's implemented, uh, it will certainly, uh, be a major turn, in American, uh, space security, uh, policy. So, uh, uh, to me, that's really the big news. I, I don't know whether the next administration will implement it, but certainly the Obama administration's trying to set in place, mechanisms that'll make it less likely that you can, uh, derail it.

Brian: So, I'm, uh, uh, I'll agree with the theme of, you know, more continuity than, than change. I, I will just, just add that I would, I would hope to see the renewed focus on something that came up a couple times, which is kind of, uh, a broader look at space policy in general.

Um, there's, you know, a lot of the stuff we're talking about now is kind of focused on national security side. And there's certainly been much more focus on national security policy. And, there's usually a little bit of focus on what NASA does. Um, but I, I would hope that, whoever the next administration is, i-, it kind of takes a step back and does what a couple have talked about.

And kinda look more holistically at space policy across the board. Uh, which I don't think has really been done a lot. A-, and I would like to see that, because I...It's, you know, we, we all use it much more now than ever before. The military uses it more, the commercial sector is getting a lot more involved into it.

Society relies on it much more. Um, I, I think it deserves a more holistic attention, uh, from a public policy standpoint than what most administrations have given to it in the past, um, but I'm not sure if that'll actually happen or not.

Victoria: And then, I c-, everyone brought up the idea of bringing in commercial players. Um, my question is, how? Uh, I know we said we don't want to drive industry, but is there a way in which, when you say, "OK, we're gonna make, we're gonna provide, so that RPO can basically be done in a non-threatening manner," or, h-, how exactly are we going to go about doing this?

Brian: [coughs] So, um, I'll say two things, uh, that I could think, good place to start. On, a-, and, a-, and, Pete hinted at that, is that, there's not a lot of certainty right now. If you are a commercial company or looking to become a commercial company, and you wanna do something that is, doesn't fit easily into a pre-existing box. All right?

If you're going to go build a satellite to take visible imagery, there's a pretty nice box you can then go get all you licenses and go do. But if you're doing something that doesn't fit nicely in that spot, the box, like you're going to imagery outside of the visual spectrum. Or you're going to do other kinds of remote sensing.

Um, or you're going to do something that's not remote sensing. Uh, there's not a well-defined process. Uh, that is in my mind a, a big disincentive, and it's a, it is a cost of business and it is, it's deterring some of the innovation that I think could be happening.

I think having a more clear process for how a wide range of commercial activities could be...

Audience Member: [clears throat]

Brian: ...done is a big part. The other one I'll mention is, the default right now, you know, somebody characterized as basically, you know, say no slowly.

[laughter]

Brian: And, and that's like the worst of all worlds, right? [laughs] I, I, the, the, the instinct is if it's something new, particularly if it's something that the DoD likes to call its own. Or likes to do

it self, the default is no. Um, and I would prefer just in the kind of changes that around. The default is yes, uh, with certain exceptions. There's always going to be exceptions.

I would just say those are the two words I would say to address them.

Todd: The part you left out, Brian is it's no but we can't tell you why...

[laughter]

Brian: No slowly and we can't tell you...

Todd: Right, right. OK. So, um, you know what I would really, uh, recommend, uh, all along the lines, um, of what...

Audience Member: [coughs]

Peter: ...the panels have said is, um, you know, if the US government could just come up with a list of what it thinks it has to do in space. Uh, there's really, uh, no commercial market, or it's some inherently governmental activity that must be done by only the United States government for our national security.

If we can come up with a great list like that, I think a lot of these other things are going to sort out. I don't recommend it, um, the business of the United States government, um, to kind of pick winners and losers in terms of, um, what is and isn't going to be commercially viable.

But, if we can just say, "These things are going to be done for the, um, foreseeable future by the United States government because it has to be done by the government and it's important to our security." Then everything else, really, could be opened up to commercial, uh, activity, and some of those things will be commercially viable, some won't.

But again, if the US creates a predictable, stable environment with respect to that it creates, um, better prospects for those things becoming commercially viable and, um, enduring things that can enhance our, um, mission assurance.

Peter: Me, I think one thing DoD could do to help industry is provide a little, [laughs] a better forecast, and, uh, be more reliable in terms of demand of what it will want in the future. Uh, it can't just say, "Geez, I wish we could lease more commercial transponders for Satcom in the frequency bands that we already use."

Um, then a company like, I think it was XTAR comes along, with X-band satellite, and then they don't buy it. That, that reverberates throughout the market, um, then now everyone else is going to say, "Geez, even if they said they wanted, I'm not sure that they really will follow through on it."

And it's not just in Satcom, it's in things like imagery, weather, um, there are a lot of things that if, you know. If people say, "If you could put together the list of here are the things that the military is going to do itself," for whatever reasons, and then, "Here are the other things we are willing to go out and contract with other people to do, and the terms in which we are willing to do it, long term leases, buying things as a service, you know, FAR part 12 versus part 15."

You know, put it out there and then follow through on it in the future. You don't necessari-, you can't necessarily control how much how money you're going to have, but you can control your acquisition strategy. So, uh, I think DoD can be a better customer, uh, in that respect.

[pause]

John: And, and just to pull up on that, we, we've seen for example that Secretary Carter's, has sit up offices in Silicon Valley and another one in, uh, Cambridge, Massachusetts where is about to [inaudible 63:18] one up there. To try and get these small minimum innovative companies to start working with the DoD.

Um, and that's basically the experience, of course, where, uh, if you are a small company, uh, I speak from experience here, you want to help, you want to, you know, help your country. Well, America is my adoptive country.

Uh, and then you go to, you know, contracting with the DoD...

Audience Member: [laughs]

John: ...and you think, you know, this, there is no seven ring of hell, there's actually eight.

[laughter]

John: We are in the eighth ring of hell. Um, and, you know, so, I know there's an intent to reform that, but It's, it's largely a cultural problem, uh, within the DoD. So we can, we can enact all these great initiatives, which are all very well intentioned and I agree with, but in the end, you, again, you've got these fiefdoms within your bureaucracy and people who, you know, whose careers depend on maintaining that fiefdom. And "no change here." You know?

And, uh, so, you know, it's going to be a long time before we actually see, uh, these great, uh, initiatives come to fruition, uh, unless you're going to see someone like Secretary Carter, who's willing to expend his limited political capital by reading out, uh, these obstructions, individuals and fiefdoms. Uh, and he could do that all day every day for the rest of his, uh, term and, and probably still not make a real dent in it.

So, uh, we, we have some intractable problems here as well. Maybe I'm being the only European, you know, raining on the American optimism here, but, uh, that's how I see it.

Peter: Can I add, can I add one thing to that?

Victoria: Of course.

Peter: That made me think of it. And, and I completely agree. Um, there's another aspect of this outreach to Silicon Valley, and let's just expand it more generally to, you know, innovative, uh, sectors, uh, that have traditionally not participated in defense. Um, in that you got to be concerned about something.

And in the defense industry, there's a common saying that, you know, over time, you start to mirror your customer. And that is true. And many of our big defense primes, if you look at the

way they're structured, you look at the way they're managed, you look at the way they operate, it mirrors the...what they're seeing on the acquisition side of the US military. Uh, and that's not good.

Uh, and that's what has led us at this point where we don't see a lot of innovation coming out of industry, because we don't have it within our own, uh, you know, structure, within the military. Uh, the danger here is if we're successful at actually reaching out to these small startups in Silicon Valley, we could ruin them.

[laughter]

Peter: Because they could start mirroring us again. So before we do that...

[laughter]

Peter: ...we need to get our own house in order. And we need to reform, you know, the personnel system within the military. Uh, I'm talking military personnel system and the civil service system. We need to reform that so it is a culture that actually fosters and welcomes innovation.

Uh, that is a hard task, but I think we've got the...that, you know, our house, our internal house in order before we go out and expect to, you know, engage effectively with these smaller innovative startup firms.

John: Could I just add one more thing? For all the bitching and moaning you've been hearing from this panel, if you think it's bad here, you should see the other guys.

[laughter]

John: They're even worse, so actually we're OK.

[laughter]

Audience Member: Absolutely. Yeah.

Victoria: On that note, maybe I should open this up to questions from the audience since we're getting, oh, unless we have...Um, sorry. [inaudible 66:47] . If you guys can just, A, wait for the mic, B, please identify yourself and your affiliation. Thank you.

Theresa Hitchens: Hi, I'm Theresa Hitchens, and I'm a senior research scholar at the Center for International Security Studies at the University of Maryland.

And I have a, a, a, a macro question in a way. One of the serious problems that seems to have affected, um, national space, national security space policy and strategy for many years is the disconnect, and that is putting it politely, between the black community and the white community in space.

And this, if you follow, you know, reform measures, the creation of NSSO, the un-creation of NSSO, the [inaudible 67:31] , things are together with Stratcom. They're not together with Strat-...there have been recently this new, you know, assignment of the Air Force secretary.

Um, we've seen all these permutations in structure that seem to be designed to somehow overcome these barriers, and they never seem to do so. The JSpOC is the latest one. But, you know, that disconnect is...if you follow this stuff, a lot of what happens in policy is actually what happens in process. And if the process is broken, then we have a problem in implementing the policy.

So I would like to ask the panel, do you think that there have been changes or that the culture is starting to change? Or is that there's hope for this, because I don't see a strategy that includes engagement, for example, with commercial partners and ally partners.

Right now, SSA is a big question. I don't see that engagement strategy working if you can't get over the, the problems that you have there.

Todd: Um, so I'll, I'll start. Uh, I wouldn't necessarily characterize it a problem between unclassified white and classified black. I would say that there are long standing, uh, differences between the military space community and intelligence space community. And that's not just in the space world. And that happens kind of more broadly in general.

Theresa: Right.

[crosstalk]

Todd: Um, I think, I think you have seen...I think I have seen a fundamental change in the last couple of years towards starting to close that gap.

Um, I mean I, I personally lived through the creation of the JSpOC. And, and, you know, frankly, the intel community didn't come play, right? It ended up being just the military doing its military command and control.

Uh, but that has changed. And with the joint tactics forum that I mentioned in the JSpOC, I think you've, uh, we've seen at least externally more evidence that the intel community is suddenly concerned or more concerned about these issues, and is trying to engage more with the military community, um, which may then lead to a more coherent cooperation between the two.

But there are still challenges. One of them might be, for example, legal challenges, right? They operate under different authorities within the US Code. There are things the intel community can do that the military can't do and vice versa. And, and so that's a real difficult issue to work through. Um, and I'm not sure how to resolve that.

But I think at least, as, as institutions, there is more, at least more willingness to kind of work together and collaborate than I've seen in the past.

Peter: Well, I appreciate your question. It's certainly near and dear to my heart, um, so I'm. I'm definitely biased on this, but, um, I believe the PDSA structure has as good a chance to be successful as any other, um, structure that we've tried. Um, and, it's interesting because right before I came here, I received the, um, draft copy of a GAO report that, um, kind of takes the opposite position.

So, um, you know, this is a continuing churn in the government. And there is no optimal way to organize these things, so, uh, in my opinion, however the United States government chooses to, um, structure things, it needs to be given an adequate amount of time to either show progress or, or lack thereof.

And you can't just continuously cycle through these, um, you know, in some cases pretty significant changes without giving them any opportunity to, um, make a difference.

Um, having said that, um, those of you who know, know me also know that I'm a big fan of the, um, 2001 Rumsfeld Space Commission Report. I think that the organizational structure recommended there is the best one that has ever been laid out, which quite tragic is that, uh, Donald Rumsfeld as Secretary of Defense didn't mention his own report or implement it, but, um, many important parts of it at least.

[crosstalk]

Peter: So, in particular, the part that, um, I think, was most important and left undone was creating an undersecretary of defense for space information and intelligence. As you know, all they created was an undersecretary of defense for intelligence. And Steve Cambone was always Donald Rumsfeld's go to person for space. So that was not an enduring organizational structure when those people left office.

So, um, and actually the structure they, um, recommend was a bit more specific than that because it was not just an undersecretary of defense, but it was a principle deputy director of national intelligence for space information, and intelligence.

So if you had, at that level, complete control over acquisition, and policy for national security space, I think you would have the best prospects for having unity of effort. Having said that, again, um, and living through what, um, DoD has done, in terms of organization, I do think the principle DoD space adviser is a very good approach because it focuses on the most important things, and I think it has very good prospects, um, for success. But time will tell, and the next administration will let us know the error of our ways.

[laughter]

Peter: And Senator McCain will as well, I'm sure.

[laughter]

Brian: Speaking of Senator McCain, um, it, you know, one of the, the big pushes this year by Senator McCain, and the Senate Armed Services Committee has been on a reorganization in DoD. Um, they're talking...They're calling it Goldwater Nichols Reform 2.0, um, and you know, looking at the draft proposals that have come out, I mean, space is largely left out of it.

Um, and so, yeah, this, this would've been a good opportunity, but I'm afraid it's a missed opportunity, uh, for doing something like creating an undersecretary position, uh, or re-elevating space command, uh, to be its own unified com-, command, um, but, you know, right now I don't think the policy community on the, you know, hill, I don't think they're focused that much on, uh, you know, organi-, the organization for the space enterprise, National Security Space Enterprise.

Uh, and, you know, I think it's a shame because it, this was a chance, uh, to do that. I would im-, there's some logical, sensible reforms, like Pete outlined from the 2001 Space Commission Report, uh, that could've been implemented, um, you know, and would've satisfied a lot of the hunger for Goldwater Nichols Reform, uh, but instead they're, they're going off, and breaking up ATNL, and doing all kinds of other things.

John: Um, again, I agree with my fellow panelists on many issues, but I revert back to also my point about the cultural aspects, and while a lot of the cultural aspects we have to deal with right now in the National Security Space Establishment, uh, are problematic, there are some that actually can be useful. So in the end, we have to remember the military and the intelligence community are two very different cultures, for two very, you know, very good reasons.

Um, well what I have noticed, and I noticed this, uh, vicariously through the students I've taught at the US Air Force, uh, field grade officers, who are now entering into a senior command, uh, as in they're now colonels and above, uh, is that when they were deployed in places like Iraq, and Afghanistan, uh, they were told before they went, "Don't talk to this three letter agency, or anything like that," and of course they found that the contingency that they were involved in was, "Well, we have to."

So they would ignore the boss's advice back home, they'd walk across the compound to the NSA tent, or whatever, and say, "Hey, we have a problem, we need to work together."

So you ha-, you had this form of entrepreneurialism that was happening among these field grade officers, and also these intelligence, uh, officers as well, where they were actually working together on the ground, even though back home at headquarters, that would've been frowned upon, if not, uh, uh, punished, uh, and that entrepreneurialism has basically worn through now, uh, as they get into command. So I think we're seeing a much more healthier relationship between, uh, the military, and the intelligence community writ large.

I'm not saying there aren't problems, but it's a much healthier relationships. Uh, but there's also a problem though in the intelligence community right now, and this applies to space as much as anything else, where for the past 15, 16 years our intelligence community's been largely focused on covert action, rather than actual strategic intelligence collection, and analysis.

Um, and I think that's where if we're going to see any tension, that's where it's going to be, um, as the intelligence community goes back to that, uh, role, um, as covert action becomes more and more, or at least less and less of a, a policy priority.

Victoria: Next question, uh, Pilar.

Pilar: Hi, Pilar [inaudible 76:15] with the UAE embassy's, uh, trading commercial office. I also direct the QSUE space affairs, so thank you for, uh, putting the panel together, and the, uh, great discussion.

Uh, a two-part question, not necessarily both related, but, um, I'm interested in the perspective you have on a country like the UAE, which as, you know, like you rightly said, signed an SSA agreement, uh, can play, um, the role that we can play in insuring, uh, space security, uh, with, um, uh, partner countries, like the US.

And, um, you know, it's not every day you find a country that has the luxury of starting from scratch, in terms of a policy we're putting together, etc., and, uh, and, and that causes, you know, a lot of challenges, but it, uh, a-, a-, as well as a lot of opportunities to start by, by, um, learning from others who have gone through the experience of establishing things from scratch in the past.

Um, and then the second part to the, uh, question is on the, um, uh ramifications of the deal with Iran right now, and the potential aspirations they might have space wise, and the, um, ability for them to then start procuring, uh, particular space assets to help, uh, uh, build on those aspirations, and what type of, uh, you know, facilities within the US government will be in place from an expert control perspective?

Will we see something similar to what we've seen with, uh, qualitative military edge, um, requirements on, uh, on the defense side, where friendly, uh, uh, allies, or allies who have been, uh, uh, partners with the US for a much longer period get certain preferential, uh, uh, treatment, and capabilities in that, in that sense?

And, um, I think related to both those questions, when you look at the context overall of the joint operations that the UAE has taken part in, uh, with our Air Force, and our military, uh, from Afghanistan, to Kosovo, to, uh, um, Syria right now, and obviously the operation in Yemen, we are very dependent on space assets.

And any type of, um, impact on either our commercial assets, with the telecommunication satellites that we have, or the GPS, uh, uh, satellites we depend on for precision guidance ammunition, uh, to minimize collateral damage are extremely of importance to us. So, uh, I'm interested in your thoughts on, on, both, on both the thoughts.

John: Uh, so this is a topic I know nothing about, being a publisher of "Space Watch Middle East."

[laughter]

John: Uh, so, uh, to answer your, your, your, your, your questions, uh, there is a lot the UAE can do, and I, I think they're already doing it, even if it's not necessarily intentional right now. So for example, the UAE armed forces rely on our sats. They have a hosted payload, uh, so, if you will, that's, that's a, a very innovative, and cost effective way of providing MILCOM through essentially a commercial, uh, capability.

You're also acquiring Falcon Eye. Uh, uh, much more controversial in terms of the acquisition itself, but the capability, uh, should be something that, uh, through the auspice of our NATO partnership that UAE is developing, or through, directly through its financial relationship with the US is something you could possible offer as a capability that could be exchanged, or in some form of, probably some sort of inter-operable mechanism whereby the data could be shared through Falcon Eye to allies.

And then in return the UAE can garner data that it doesn't necessarily have, or it would find more difficult to, uh, to provide.

I, it's my understanding the UAE, and the US are discussing [inaudible 79:38] issues, um, and hopefully those discussions are becoming more productive. Uh, so, certainly in things like, for example, uh, uh, anti-jamming capabilities, those kind of things, uh, they're going to be much more important.

The Irania-, we talk about Russia, and China as being very big in antisatellite capabilities, uh, the Iranians aren't necessarily as advanced as the Chinese, and the Russians, but certainly when it comes to jamming, they're very interested in those sort of things, and you could argue they even done it.

I mean, there is one theory going around that the US, uh, sailors that were captured by the, uh, the, uh, the, the, uh, the Iranians in January did so because their GPS were spoofed by the Iranians, basically leading them into Iranian waters unintentionally, so they can be captured for, uh, political purposes.

Uh, that, that theory has not been disproven, nor proven, but it's certainly an active theory, and it's an active theory, by the way, within the US Navy, so it is a problem. Uh, and, uh...So the UAE, I argue is doing a lot of things on a number of fronts, not just in space, to make it a very useful partner, as well as also to make it maybe a much more, uh, uh, uh, uh, modern, uh, armed force within the region, um, and has become a respected one we well.

So, uh, the UAE's approach to these things, in terms of how can you learn lessons from others, I would offer from what I've understood about things, is because there is very little inter-agency process within the UAE governments, except at the very top, so for example, at the crown Prince's level, for example, uh, it's very hard for middle managers to talk to each other across, uh, ministerial, uh, or agency, uh, uh, uh, divides, uh, and that could become a problem.

Uh, for example, I don't know what the extent is, but what's the extent of the relationship, say, between the UAE's space agency, uh, the UAE's ministry of defense, uh, the communications industry, the foreign ministry, all these kind of things to come up with coherent approaches to things like international cooperation.

And so I note today that UAE's space agency, signed a, or yesterday, signed a corporation deal with Kazakhstan, which is great, uh, but, uh, to what purpose? To what end? And who were, who else were involved but the foreign ministry, and all these kind of things?

So, I don't know the answer to that, and I think, in terms of what lessons can be learned, will depend on what that answer is. Uh, if there is no coherent inter-agency process, then I fear that the UAE may end up making the same mistakes as others, whereas if there's an attempt at least of at some sort of inter-agency process, you'll be in a much better place to avoid those mistakes, um, by integrating a lot of policy, uh, across the board.

So, I hope that answers your question. Oh, Iran. Uh, depends on how Iran goes about its economic reforms, and at the moment they look to be rather stalled because there's obviously major internal political, uh, uh, problems in Iran, in terms of the hard liners aren't giving up power as easily as many people perhaps over optimistically expected, uh, and so on.

And, uh, the economic reforms, if they were to happen, I think would spur demand for, uh, uh, much more sophisticated space systems than the ones they're using now, which are largely domestically made, and rather unsophisticated, or they're dependent upon the likes of Russia. Uh, to which I would reply, there are some things the Russians do very well in space. Satellites aren't among them.

[laughter]

John: The watch is pretty good, but satellites...So which I would say to the Iranians, who seem to be looking to establish all kinds of relationships with the Russian space industry, good luck to you. So I think in that respect, UAE probably would be fine.

Peter: I, I would say that, um, you know, I, I think in general a good way for nations to begin cooperating, and especially in military space activities, uh, is actually through the use of hosted payloads. I'm a big fan of hosted payloads, and so I could envision, uh, a scenario where the UAE, uh, makes space available, uh, on some of their satellites, uh, for the US military to put some hosted payloads.

And the hosted payloads I think would be of common interest, uh, would be things like infrared payloads, looking at, uh, you know missile warning, um, you know, perhaps a GPS M code hosted payload, uh, which would provide more jam resistant GPS coverage in our constellation. Um, you know, there are a number of things. Protected comms could be another hosted payload, uh, idea, uh, where we could partner with the UAE.

Um, that would help, you know, build out both of our capabilities. Uh, it benefits the US by making our systems that much more resilient, uh, in space, just having more payloads up there in different places. Uh, it also ties us together, uh, more closely. That's good and bad, but if they're our ally, they should be our ally. And so, you know, having co use of these space systems, uh, I think in the long run would benefit the relationships.

And it's, you know, not that expensive of a way, uh, to get involved. Uh, but also, you know, beyond military, uh, looking at a closer involvement, uh, on civil space exploration as well, uh, and getting UAE, uh, you know, more into the, the club of responsible nations using space, and so partnering with NASA could be a way of doing that as well.

Uh, particularly for building out the space infrastructure that we'll need to go to Mars one day, which I think it's, you know, a shared vision. Uh, and so, you know, I think there are a lot of opportunities there, uh, to start to collaborate, and start to deepen our collaboration.

Todd: Um, I don't have anything to add on Iran, but, um, the advice I'd offer UAE is the same I'd offer to any country in your position. It, it would just be, "Think about where your long term comparative advantages might lie, and pursue your own interest." Because, as you've heard, the US is kinda mercurial on several of these issues.

[laughter]

Todd: So if you do things that are in your long term, uh, competitive advantage interest, then, um, you'll be well served. And, you know, space systems from the time you conceptualize until

the end of life is at least 30 years. So, only that kinda of long term perspective is really going to serve you very well.

Second thing I'll just bring up is, um, you know, I talked about the need for lower classification levels, and declassification of things. So, internationally, United States has the Five Eyes arrangement with Australia, Canada, New Zealand, and the United Kingdom.

So one of the things as, um, the United States Government thinks about ways to broaden that out is, "I wish you guys could get into that club." That, um, expansion in my humble opinion is solely needed.

Um, and it's very interesting dynamics within the current Five Eyes, with respect to that. So that's another very specific challenge, with respect to that, um, declassification issue.

Brian: Just to reinforce two things. Um, I actually agree with, uh, John's comments about the inter-agency. Um, I mean, the inter-agency process is both a blessing and a curse, uh, but in my experience, many countries suffer because they don't have that process the US has.

To bring together the different agencies, and at least talk through different perspectives, and, and try and coordinate, sounds like the government's position, um, even though it's very difficult to do so. Um, so that I think would be something that I would, I would recommend. Um, I think you mentioned [inaudible 76:59] reinforced too.

Todd: The constitution?

Brian: No.

[crosstalk]

Brian: Oh, competitive advantage.

Todd: OK.

Brian: Um, absolutely. Figure out what it is that the UAE can or wants to do better than everyone else. And then, uh, your, your competitive advantage may be geographic position, it may be the relationships you have, it may be a certain sector, a certain technology.

Whatever that happens to be, do that, do it well, and, and the US will want to work with you. Um, and, and don't try and come up with something you think the US might want to do, because, as, as, others mentioned, will kind of fickle. So...

Todd: President Trump will fire you.

Victoria: Yeah.

[crosstalk]

Victoria: Yeah, Daniel.

Brian: [laughs]

Daniel Forrest: Hi, Daniel Forrest, attorney for [inaudible 87:45] Advisers. There was some discussion about developing responses for, uh, kinetic, uh, anti-satellite capability technology use. I'm wondering, do you have any ideas on what some of those responses should be, and what would the response be if there's a test from ally, say like India?

[laughter]

Todd: Yeah, uh, you know, my basic point, I, I preface this. I would point out by saying I didn't have the answers. Um, but we need to have some sort of formulation. Some sort of rules of engagement. That if you do this, here are the range of responses that it could draw from the US, and they need to be actual, credible responses.

Not just, "We can't do it." but we actually would do it. And it doesn't have to be in space. Uh, and so, you know, it, it could be everything, low ended response, it could be, "We would levy some economic sanctions, uh, if you, you know, do a, a kinetic test in space."

And we need to be able...we need to be willing to follow through on it, even with, you know, a, a country like India. Say, "We are serious about this. We are not going to do it, we expect you not to do it either." Uh, and so, you know, there could be a whole range of responses.

If it's actual war fighting, and someone takes it to space, then you need to step up the consequences. Uh, and that, it could be everything from striking something of theirs in space, which I would not recommend, uh, kinetically, because then we are just adding to the debris. Uh, but it could striking a target on the ground.

Uh, you know, if we clearly communicate the, "If you, if you knock something of ours out, uh, in space, uh, then we reserve the right to knock something of yours out on the ground." Uh, and today, we really haven't been effective in communicating that.

And so I think that has lead, o-, other countries to at least be confused. That there could be some ambiguity here. That there might be able to do something to us in space without any consequences. And we don't want to be in that situation.

John: Beyond the war fighting consequences, which I think should be self-evident. During peace time, uh, there is a problem, and, and, you know, I've actually heard people of the NSE say to me that, you know, "We have two, we have two options as currently, you know, we think about these things."

We either send a very strongly worded [inaudible 89:50] , or we [inaudible 89:51] through. There's...It doesn't seem to be any option in between, so to speak. And, at the time, this sort of thing goes through, and I think that rest of the community has let them down, but I'm not thinking through anyway. So Todd's point is actually very valid.

You know, there needs to be a serious discussion about what those options are, especially in peace time. But on top of that, before we actually had that discussion what those options are, we need to understand how well, and to what extent our space capabilities at least created with our terrestrial conventional capabilities.

Because that in itself can actually bring a deterrent value in itself. Uh, so at the moment, the way we talk about it is, "Well, we have our army, navy, air force and marines, uh, and of course, you know, if there's body bags coming back to Denver Air Force Base, that's it."

Uh, and then, bu-, but satellites are certainly completely separate. There are no sons and daughters to write letters home to, and all these sorts of things. Whereas if we make it very clear, "This satellite enable this UAV, which enables this particular battalion, all these kind of things. You know, by the way, we take the whole things as one system."

Um, then, you know, tha-, that might actually provide a bit of clarity to potential adversaries, whereby, "OK. Hold on a minute. If we actually attack that satellite, then at the least they're going to view it as, a-, a-, an additional case."

It's going to be, "Well, we've actually impacted the ability of that particular battalion, and there are lives involved, and so on, that actually might induce, uh, an actual, credible, response."

Peter: It gets even trickier, if you start thinking about non-kinetic attacks, right?

John: Mm-hmm.

Peter: Where it wouldn't necessarily be visible, an attribution wouldn't necessarily be clear. What if it's a cyber-attack? What if another country, uh, uses a laser to dazzle or blind an imaging satellite? Um, then, you know, they know they tried to do it, we would know if it was effective.

If we say something about it, then we've given them battle damage assessment. So now, now they know it was effective, uh, but they may just assume it's effective, but no one else would know at all. Uh, you know, no other countries would know this even took place.

That's a bad situation to be in. We got to think through, "OK, what are the responses, uh, that we're going to have, um, you know, that will deescalate that situation, uh, and contribute to stability and deterrence?"

John: And the, the other aspect also is in terms of, "Yes, the reaction may not be through space, but, uh, you know, if it's an attack against one of our satellites, we decide we're going to target something of value to them." Uh, you know, for us, most of the contingencies we're looking at are going to be unlimited war. You know.

Todd: Yeah.

John: Um, so let's say we find ourselves, God forbid, in an unlimited war with China, or let's say Taiwan, in the South China Sea, they attack one of our satellites, and then someone gets a bright idea, "Let's take out their launch sites on Hainan Island."

Or straightaway, we have struck the mainland of China, uh, and maybe needlessly have escalates the, uh, the conflict. So, uh, but then it becomes, "Oh, OK. Then we, we deny them the use of their, uh, uh, satellite tracking facilities in Namibia, to which the Chinese would say, 'Great. So what?'"

So, uh, you know, the, the, the, the actual permutations we have to go through are going to be mu-, much more complex, and, and continuously driven. But we haven't really gone that extra...

At least as far as I'm aware, on the use of classified, uh, processes that have been through, but I won't be surprised if anybody has seen levels even aware of them. So, you know, there's been a much more comprehensive approach to this.

Todd: Well, th-, the panel is raising a lot of key challenges. I mean, these are hard issues. They're very difficult. I mean, if it was easy, I think we would have done this. Um, in my personal opinion, a good place to start is in two areas.

Um, a ban on debris creating in a satellite test, seems like a pretty big no-brainer to me. The only issue really, or, you know, among the many issues is the fact that, you know, it's kind of locking the barn door after the cow has left the barn. So, uh, you know, who is that really affecting now. But at least it would help with the debris issue, and...

Audience Member: Kinetic to satellites.

Todd: ...kinetic in high satellite debris creating test. Sorry. And then you can talk about what altitude and, you know, there's, there's all kinds of permutations to that. Uh, a second thing is, um, the code of conduct was a pretty lame document. OK.

[laughter]

Todd: But the one thing about it that I actually like, and I think would be useful, is having some standing body, whose job it is to interpret what it is that we're signing up to do. To promote responsible behavior in space.

So if you don't have some standing body, whose charge would that responsibility? I don't know that you're ever going to get there. I mean, we can't do this unilaterally. We can't share everything. We've demonstrated this huge unwillingness to do that over decades about what we know.

So, it's going to have to be a part of the mix, in terms of how does the international community know what's going on in space. What can they attribute what's right and wrong? So, um, again, the code itself is almost meaningless, it, it, um, you know, makes voluntary things that are already, um, obligations in international law. So that's really interesting.

But people don't go back to that, and there is no standing body, no mechanism within the Outer Space Treaty to, uh, bring those things into complete, um, compliance and fulfillment, and, and, um, um, finalize, and, and settle on the interpretation of them. So, um, I, I would, uh, try and advance in those two areas, to, um, get at the issues you bring up.

Brian: So, just to add one more, uh, complication to the mix. Um, the one subtended area of the code that ha-, that really met challenges was the issues of self-defense in space, all right? Um, most, most of the parts of the code, there was no challenge of the substance. It was mostly how it was done, or who was involved.

Um, but that was a one [inaudible 95:25] area that had a lot of challenges. Uh, and, and it basically came down to there were some countries who felt important to have that included, even though it's already part of the UN Charter.

Um, there were, a, a, a range of countries that basically felt it should not be included, because ideologically they're opposed to any military activity in space, so therefore there's no need to talk about self-defense, uh, which ignores the fact that military has always been a part of space.

But then there was a much broader part of the countries that were uncertain what that meant, right? There are other domains. We, we, you know, there's a better idea, I think, of what self-defense means in a context of air operations, or ground operations, or sea operations.

There's still debates, obviously, but there's a much, a, a strong discussion about it. Um, and but there's been virtually no discussion of what that means in the context of space. And can you really trade a satellite for a ground center, uh, or, or is it really the moral-, moral option to take out a satellite versus taking out something that's full of people.

John: And, and, and that's something by the way that the community in large, tries to avoid, is this discussion. Because there are some, some, circu-, circumstances you can see where the actual least bad option is actually taking out the satellite for usually a low run conflict, uh, perspective.

Brian: Yeah. So, so, I think there needs to be a broader discussion both within the US Government on the law of on-conflict issue, but also internally. Like we do in all these domains that to date has not existed in space.

Victoria: Well, we're just out of time. I think we could have one last question. Um...

[crosstalk]

Guy Thomas: Actually, my question was more [inaudible 96:57] . Guy Thomas. I, uh, have been working in the electronic warfare intelligence business since 1968. And from 2003 until 2012, I was the science adviser for maritime surveillance. And, from September of 2009 until June of 2010, I worked on the National Space Policy and ended up 15 percent of my words.

Todd: [laughs]

Guy: Uh, we did make that list, John, that you, you mentioned. We made that list when you started out with what, what capabilities were military and what could be civilian.

And Rob Emmanuel gave us a tasking memo that basically said, "I want you to do three things. One, protect our, our technical means of intelligence, our space systems and, and make sure that they stay [inaudible 97:46] , make sure that they were safe." That was a, a subcomponent.

"Two, strengthen our industry, and three, figure out a way that we can use space to have all, everybody in the world join hands and sing kumbayah."

[laughter]

Guy: And that...

[crosstalk]

Guy: ...interesting, but I worked, uh, uh, I worked on that because I, I, people were saying, "Uh, if we all got together and working in maritime to solve the maritime's latest problems, which is a global problem, uh, it would be, uh, a good thing." Uh, we're still working on that [inaudible 98:21] .

Peter: [laughs]

Audience Member: ...collaboration in space [inaudible 98:24] global maritime awareness. Uh, have you guys seen evidence that we have ever gotten action three done? It appears to me, we have focused on the, uh, on space security aspect of not the other two.

Brian: Um, no.

[laughter]

Audience Member: Yeah, I, I was wondering.

Brian: The, uh, I think part of the, uh, the, uh, the [inaudible 98:48] certainly in this actual, uh, remarks, uh, which as, you know, we need to find a role for NASA. Uh, you know, there's a lot of distrust in the, the National Security Council that NASA, NASA seems a bit of, uh, roaring elephant.

[laughter]

Brian: Uh, you know, they go to China without sending anybody to talk to the Chinese.

[laughter]

Brian: You know, and all that kinds of things. And, uh, so it certainly may be a little bit discipline on that front, but, uh, but, you know, that's largely a presidential problem. And, i-, i-, it's not necessarily specific to Obama. There's always been a presidential problem as I understand the history. Maybe John Watson can, uh, enlighten us all in that regard.

But I think, i-, it's, uh, it's reflection on how much the president is able to express an interest in that kind of thing, as much as also with, uh, the president, personally, has an interest in that, uh, uh, in terms of the coherence of the approach.

Uh, so if the president is engaged, then you're more likely to see a much more coherent approach, and a much more multifaceted approach. If the president is unable to engage, because either the president is too busy doing other things, like the economy, or just isn't interested, then you are likely to see that much more disjointed approach and so on.

So, and I think in the end, the problem is structural. Um, you know, from what I understand, presidential and it's involvement in the space program, the worst thing that could have happened to the space program is presidential direct involvement.

[laughter]

Brian: John may disagree with that, but, uh, but, you know, my conclusion is that actually it's a curse rather than, uh, than, uh, a benefit to have the president so personally invested in, in, in, in national space policy. Their interest is great, but that's a [inaudible 100:22] . Uh, and, uh, if they're not, then, you know, it's going to be the space 'cause we see it right now.

Uh, th-, there are other reasons why NASA isn't necessarily doing what we hope it would do, but, uh, I think that's a large part of the answer. Uh, and then it also how we go about doing that. Uh, and it's not just the president himself, it could be Congress. Congress has more of its share of the blame, as much as anything else, you know.

So, the president wants to do one thing, and then Congress comes and say, "No, no, no. Pull out your funding. You're going to do this." Uh, but I think that's just part of the way that, you know, talking again as the, you know, the frame from outside observing on my friend -- the Americans.

Uh, you know, you, you deliberately created a system that is not really congenial to cohesive and coherent strategy making unfortunately.

Peter: So, if your point was about, you know, space situation awareness and broader, you know, space domain awareness and international corporation. I think, I think it's gotten better, but I'm not sure that it was anything the US Government did.

Um, uh, uh, uh, you know, for the, for the first few years of that effort, I mean, my sense is that international community resisted that effort, right? Because the-, the-, you know, there was, there was an, an attempt. We wanted it to go through rocks. There we control the data, and so forth. Um, but I think despite those efforts, you have seen much more interest internationally in SSA...

[crosstalk]

Peter: ...right, from a wide range of companies. And the, un-, un-, what the unknown thing that happened was the commercial sector. You know, there is now a private sector activities in SSA in...

Guy: It's huge.

Peter: Right. Capabilities that are being developed, um, that rival within my opinion, in some cases, surpass what the US Government can do. And then the big question becomes, "How does your government take advantage of that? Uh, wi-, and, and, or does it just kind of stifle."

Guy: That was the point I worked on, sir, and, and I feel it has been ignored. A little frustrating actually. I spent a lot of time working on that, and it appears to me that we are ignoring that huge expansion.

John: And so, so that's a certain tool that we have neglected, but there are, yeah, just like there's a lot of corporations in SSO, we're seeing also, uh, signs of interest in, in global, uh, maritime -- The Marine Awareness Corporation...

[crosstalk]

Guy: ...concept.

John: Right. OK. So you know then what's going on right now between US and Japan, for example. Uh, so, I mean, it's a long, slow process, but, but nonetheless, there's been, you know, progress has been made, and, uh, you know, there's actually been, uh, it's not even, uh, an irregular dialogue.

It's a constant dialogue between the relevant agencies here in the US and, and in Japan, and it's a very fruitful one. And that can, that, that model can be expanded to other friends and allies.

Victoria: Well, it sounds like this conversation could keep on going.

[laughter]

Victoria: However, I think probably people's schedules require they return, um, from this discussion. So, please, join me in thanking this panel for what has been a very...

[applause]