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**“A Conversation with General John Hyten, Vice Chairman of
the Joint Chiefs of Staff”**

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FEATURING
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Vice Chairman of the Joint Chiefs of Staff

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KATHLEEN H. HICKS: (In progress) – alarm or something like that goes off, which was why I paused for a moment, there’s staff throughout the room and I will be here with you. We’ll direct you where to go.

Please join me in welcoming the vice chairman. (Applause.)

GEN. JOHN E. HYTEN: Well, good afternoon, everybody. It is good to be here. Secretary Donley, I didn’t see you. Good to see you, sir. It is – it is an honor to be here. Thanks very much to all of CSIS. Dr. Hamre, ma’am. Thank you.

It’s kind of interesting being the vice chairman. It’s kind of not – I don’t know how you’d describe it, but it’s – until you’ve experienced it, it’s really hard to imagine all the things that happen when you’re vice chairman. But there’s an interesting dynamic that happens because on the 18th of November I changed command at U.S. Strategic Command. When I changed command at U.S. Strategic Command, I was in command of 150,000 Americans that went to work every day to do the – (audio break) – and 150,000 Americans is an interesting element in command structure.

And then, on the 21st of November, I swore in as the vice chairman of the Joint Chiefs of Staff. And I went to a staff of five, because I’m actually not in command of anything anymore. (Laughter.) I have no command responsibilities. I – you know, I don’t command anything. (Laughter.) And when we – when we drove out of Omaha on the way over here, and we were in a little bit of a hurry because the chairman had been without a vice chairman for a little while, and he wanted me there quick. So we were moving pretty fast across the country.

And my wife looked over at me somewhere in Kentucky and said: You know, this feels quite different, doesn’t it? And I said, well, what do you mean? And she said, well, it’s like a huge burden is lifted off your shoulders. And even when you swear in as vice chairman, that burden’s not going to be there. Because as the commander of Strategic Command, I had the direct responsibility for not just 150,000 soldiers, sailors, airmen and Marines in that command, but also the nuclear weapons of the United States of America, each and every day. And the movement of every one of those weapons. And the readiness of every one of those weapons. And the – and when I started there, it was the space capabilities, and the cyber capabilities, and the missile defense capabilities, and all those pieces that came across.

And all of a sudden I’m there in the middle of Kentucky, and it’s all gone. And then I swear in as the vice chairman. And now I’m an advisor. That’s what my job is. I’m an advisor. The second-highest ranking person, as I was introduced, that’s true. But I’m just an advisor. And I’m actually not in the chain of command. The chain of command goes from the president, the secretary of defense, to the combatant commanders. So

I'm not in the chain of command anymore. But I am in a very critical position, where my advice is very important.

My advice on – as a member of the Joint Chiefs of Staff, a statutory responsibility there that I take very seriously – my advice on the force design of the future capabilities of the United States, my advice on our partnerships with our allies and how to reach out in our allies, and I'm about to take my first trip overseas into Europe here in a couple weeks. Actually, I went to Romania very briefly last week, was part of the USO. Got called back because some things were going on in the world, and the chairman said: Leave. And I got on a plane and came back right away.

I'm involved in almost everything, but it's a very different role. And so I'll meet with the Joint Chiefs of Staff. I'll meet with the secretary of defense. I meet with the president of the United States frequently. But it's a different function. So when I – when I think about my priorities – and I thought long and hard about the priorities I needed to have – they're very different than the priorities of a commander. So my priorities – I have three priorities. And it's a good way to start the discussion. And my three priorities are pretty straightforward.

Number one, as a member of the Joint Chiefs of Staff and as the vice chairman, the most important word in that duty title is “vice,” not “chairman.” I'm not the chairman of the Joint Chiefs of Staff. So my job is to make sure that I do my job as a member of the Joint Chiefs of Staff, that I support the chairman in being successful in his responsibility, and that I support the secretary of defense, and I give honest, best military advice to the president of the United States when asked. That's the number-one priority. And that – to be honest, that takes up most of my time. It has the, I guess, seven, eight weeks since I've been in the job, that's taken up most of my time because it's been a very busy world since the 21st of November.

The second priority, that kind of gets into things I can control a little bit. And the things I can control a little bit is that one of my responsibilities is that I'm the head of the JROC, the Joint Requirements Oversight Council. And that Council sets the requirements for the future force capabilities of the United States of America. And I'm also on a number of different councils and committees in the Pentagon that look at budget, look at acquisition, look at force design and force development, all those kind of structures. And I work those issues very seriously. And the one thing I notice about all those processes, when I look at even the JROC, is that the one element that is not in those processes is speed. It is not a rapid process anywhere in the Department of Defense.

And I'll talk about some of our competitors here shortly. For when you look at our competitors, large and small, one of the things that you find that they have in common is they're moving very, very fast – very, very fast. And we are not.

So my second priority is to do everything I can to insert speed into the processes inside the Pentagon. And that's going to be a difficult challenge, because we have built processes over the years that, by design, are not built for speed. By design, they're built to remove risk. And if you have a process that's designed to remove all risk, it becomes very, very deliberate, very, very structured, very bureaucratic, step after step after step. And what you do is you basically remove authorities from the field and move them into the Pentagon so that you can make sure that we don't take risk. And that means we go slow.

Well, if you have an adversary, a competitor, that is going fast and you're going slow, it doesn't matter how far ahead you are. At some point that adversary will catch and pass you. That's the nature of any competition. And if we're in a competition in the United States – and I don't shy away from competition; I like competition – but the goal of a competition is to win, not to finish second. And in our business, finishing second is bad.

There's no such thing as second place in our business. We have to be in first place, which means that we have to put speed back in the process. We have to understand how to take risk, how to properly manage risk, how to delegate risk down to the people that can actually move fast, and move on from there. That's going to be a significant challenge. And while I'm the vice chairman, I'm going to work hard at every element of the Pentagon that I'm involved in to try to put speed back into that. We'll come back to that here in a second.

And my third priority – my third priority is to basically make sure that we don't forget that we're nothing without our people and our families. And when I looked at the structure of the joint staff – and I've testified in front of Congress many, many times – and I look at the structure, and when I look at all the people and family programs that we have and I look at the way we actually testify in front of Congress and the way we tell our stories, I realize that basically whoever's going to testify, the staff that is working that particular problem, whatever problem that happens is, comes running to you, says here's your talking point. Say this. You go over to the Hill. You say this, and then you move on and then you go back to the rest of your job.

But if you look at all the issues we have across our people programs and our family programs, I think you'll see that in many cases we're not succeeding. In many cases things are getting worse.

If you look at our housing problems, that housing problem is not an overnight sensation. Somehow the privatized-housing issue has come to the forefront over the last few months, the last year. But that issue has been around for a long time. I've lived in privatized housing. I've worked with privatized-housing contractors. I see good contracts and bad contracts. But I see the problems that are there. Somehow we just kept

going down that path and things kept getting worse and worse and worse, and then it became a crisis.

You look at the numbers for suicide prevention. You look at the numbers of suicides in the military. They're not getting better. And some people like to say, you know, that, well, it's a societal problem; the military numbers are no different than society. Well, from my perspective, that's hogwash and that's unacceptable.

When the mothers and fathers of our nation give their most precious item in the world, their sons and daughters, to the United States military, they expect a better environment, a better world. And they expect us, the leaders of the military, to take care of them, which means – and I've had to deal with it multiple times, suicides in the military, and I walk up and I look at the mother and the father in the eye, and we failed. We absolutely failed.

There cannot be a single suicide that's acceptable. It doesn't – now, we'll probably never get to zero, but that has to be the goal. And if you look at the numbers they're not going the right direction, which means that everything we've been doing – everything we've been doing is not working.

So we have to take a fresh look at that. You look at our health care and the military health care is actually quite good. Unless you have a very unique capability – a lot of those unique capabilities revolve around what we call (exceptional ?) family members, usually kids with very special needs, and it's very, very difficult to figure out how to get the special needs kids into the right treatment through our very bureaucratic health care system.

We've got to figure out how to do better because a family that comes in that has a special needs child has to be taken care of and has to be worked because we want the member to know that their family is being taken care of. And then you look at sexual assault. The numbers there are going the wrong way as well. They're not good.

We have to make sure we take a look across the board and we've had many, many programs in that area to look after it and it's not getting better. So what I'm going to do is I'm going to hire a special assistant to, basically, look at our people and our families and she's going to start work next Tuesday. She'll report directly to me, report to the chairman when required, and we're going to get after all these people and family programs to make sure that we are taking care of our most precious resource.

So those are my three priorities. Make sure I support the chairman, support the sec def, support the president, act as a member of the Joint Chiefs. Insert speed into everything we do and take care of our people

and our families. Three priorities. Pretty straightforward, but very hard to do, given the challenge we have.

So I'm going to spend a little time now talking about our competitors and relating it into the priorities. I'm not going to come back to the people and family issues because this'll be more in priority number one and number two. But I just want you to take a step back and think about a couple of things that have been going on in the world over the last few decades and the last few years, and I'm going to use China and North Korea as examples of what consistent, coherent strategies mean and what the ability to go fast means.

So let's look at China. Just take a look at China. I'm looking around and I see different ages of people in this room and different audiences. Some of you are under 40. Some of you are over 40. Some of you are way over 40. (Laughter.) I didn't point fingers anywhere. (Laughter.) But a little over 40 years ago – 1979 – China came up with a new strategy, the strategy of allowing foreign investment, the strategy of free market. That was 1979. When they did that, their country, if you look at the numbers, 88 percent of the Chinese population lived poverty in 1979. Eighty-eight percent.

Today, 6 percent of the nation lives in poverty. That's in 40 years. That's an unbelievable transformation, an amazing transformation. It shows you the power of a free market, the power of foreign investment, and the power of integrating into the world economy. At the same time, they also realized that they needed a different security strategy and they started going down a different path. And it's interesting to me that when we look at China, in many of the readings that you do, China was our friend until just a few years ago. China was not a major-power competitor like the National Defense Strategy talked about. They were a friend until a few years ago.

But if you look at their strategy, their strategy – their military strategy dates back to the mid-1990s and their military strategy in the mid-1990s, and you can go read it because it's in public documentation, was focused on countering the United States of America and our allies. That's what it was and it started in the 1990s.

And the interesting thing about their economic power and their economic structure that came from that decision in 1979 is it's tied very, very tightly to the military because everything that happens in China, every technology in China, is available for the military use. There's not this separation like you see in the West, like the separation that you see in the United States. It's very, very tied together.

So every – all of their economic power can be brought to bear for military use at the same time. And so when that happens, you end up with this competition going on. So this is not an overnight thing. When I – when I

look at what China's done in space, they announced those initiatives back in the 1990s, and I read them in the 1990s. But it wasn't until a few years ago that people started looking and saying, wow, this is new. No, it's not. They have an economic strategy that dates back to 1979. They have a military strategy that dates back to the mid-1990s. And they have been going on a consistent approach to dealing with both of those pieces, and if we don't wake up the world is going to be different. In many cases that's not good. Some cases it is good, but in many cases it's not. And we have to deal with that. So that consistent strategy is hugely powerful in terms of achieving the objectives that they stated way back as long as 41 years ago.

So China is a powerful economy. Let's look at another "powerful economy" – I put that in big quotes – North Korea. North Korea is the 115th most powerful economy in the world, 115 out of 192, one of the poorest countries in the world. But somehow over the last few years North Korea has developed a ballistic missile program that can threaten its neighbors and threaten the United States, and a nuclear program that can threaten its neighbors and the United States, and they've done that and they've changed the entire structure of the world with the 115th most powerful economy in the world.

So what's been different about North Korea? You want to know what's different about North Korea? They learned how to go fast. If you look back at, you look at Kim Jong-un, but then you look at his father and his grandfather, there are some significant differences. When – his father and his grandfather, they launched missiles. His grandfather launched, I think, nine; his father, I think, launched 22 during their entire tenure. Kim Jong-un has launched 67. He's launched over a dozen in 2016, 2017, and 2019; didn't launch anything in 2018.

His father and his grandfather, when there were failures in the missile program, let's just say the engineers and scientists that failed were not treated well. Kim Jong-un realized that, that was not the way to go fast. The way to go fast in the missile program – and I've been around rockets and missiles my entire life. My dad worked on the Saturn V. I've been around rockets and missiles my entire life. I know how they work. I know how they test. I've been working that business since the beginning of time. If you want to go fast in the missile business, you need to test fast, fly fast, learn fast.

Look at SpaceX in this country. There were some pretty spectacular failures. Did they stop? No. They had instrumented the heck out of their capabilities. They learned from the failures. They launched rapidly again. They changed systems. They changed subsystems. They'd go in a completely different direction. That is what North Korea has been doing, and North Korea has been building new missiles, new capabilities, new weapons as fast as anybody on the planet, with the 115th most powerful economy in the world.

Speed itself is efficiency. Speed builds capability and savings into your programs. But you have to be able to accept failure. And if the dictator of North Korea has learned how to accept failure, why can't the United States learn how to accept failure? We need to understand what failure is and learn from those failures, learn from the mistakes that we make, move quickly from those mistakes.

I look back at hypersonics, and in hypersonics we're now in a significant competition with a number of competitors around the world. We were ahead in hypersonics a decade ago. We had two programs, two flights, the HTV-1 and HTV-2 under DARPA. They didn't quite work. What did we do after they failed? We instituted multiyear studies into the failure process and then canceled the programs. That's not how you go fast.

Every time we have a failure in the launch business, I've been in there – and oh, by the way, it's not a good thing – we've stopped for years at a time to recover. Now, if there's human life involved that's essential, like if you have the tragedy of a Challenger or Columbia. You have to, because you can't risk human life. But if you don't have human life involved, you have to figure out how to go fast – how to adjust, how to – how to learn, how to launch quickly, how to move fast. So we have to do that across our entire enterprise, and we're not doing that.

That's why we need speed back in our processes. That's why we have to learn how to take risk. When you look at our nation today, and you look at our stature in the world in terms of a competitive environment, there are so many places where our country is the leading technology engine of the world. In the information technology area, in the information application area, we're the leading. Why is that? Because we go faster than everybody. We turn faster than others can get started. In the defense sector, that's not the case. Perhaps it'll be the case, which means we have to do something.

Back in the 1980s, when I started in the space business – and I'm a – that's kind of my background – the space business was really a government-only business. There was really no commercial sector to leverage. In the late 1990s, there was going to be this commercial explosion. And so we decided we'd leverage everything into the commercial side, and everything would be good. And it didn't happen. And so we said, oh, we have to do everything ourselves. And we went back, and we put everything back on ourselves, and we went back into these long, structured, risk-averse programs of this is how we're going to do.

And while that was going on, the commercial sector actually did develop. And the commercial sector now is starting to lead the world in many, many areas. And we're starting to embrace that, but we haven't fully

embraced it yet. We've got to embrace the elements of this country that are going fast, that know how to do things. Have you watched how the United States of America builds software? It's just amazing. When you go into the commercial sector and watch how we build software, it is so fast. You look at Google, or Facebook, or Amazon Web Services, or any of the small startups in Cambridge, and Silicon Valley, and Seattle, and here in Washington. It's just amazing.

Have you ever walked into a defense contractor and watched us build software? Well, it's just a nightmare. And if you look at every one of our programs, it's a nightmare across the board. Why, because the United States doesn't know how to build software? We're the leading software nation in the world. We just haven't translated that into the Department of Defense. We have to do that. And oh, by the way, there's a JROC, a requirements process, that has to be changed in order to allow that kind of thing. And there are statutory requirements that drive the JROC.

But the JROC is an industrial-age model, not an information-age model. We have to change it. We have to change the structure. We have to change how we're going to do business across those lines. That will translate into the acquisition business. That will translate. And the biggest thing we have to do in the acquisition business is real simple. We have to allow people to take risk and delegate the responsibilities to people that are executing programs. We don't train people how to buy things anymore. We train people how to get programs through the Pentagon and through the Congress.

What we're really doing is buying stuff. Buying stuff from many people who are in this room. But we don't know how to buy stuff anymore. We have to reengineer how we buy stuff. And Secretary Lord and Dr. Griffin in the Department of Defense are starting to do that. We've pushed things down back into the services, and it's good. Now we have to align the rest of the department to those initiatives and make sure we take advantage of it. I tell you I could go on and on about that structure.

But I also just think back for a second on where China has been in the last 40 years, and the constancy of purpose, and the ability to move fast. You think about North Korea and what they've done in the last few years. And then you think about the potential of the United States of America. We should be able to defend ourselves against any threat. We should be able to deter any adversary from taking action against us. With a \$700 billion defense budget we should be able to create the environment of peace in the world across the board. In order to do that, we're going to have to look at the world, compete in the world. And that means we have to go fast again.

So I'm going to stop there and open it up for questions. But I thank you for your attention. I thank you for your time. And I look forward to the questions and answers as we go forward. (Applause.)

MS. HICKS: So thank you, General Hyten. As I said to you in the green room, I knew in advance the major themes you were going to touch on, this is music to my ears. I will do – much as you did, I will talk a bit about – ask you a few questions on the first and third points, but really focus on the speed piece, which is one I really want to dig into. So let's talk about the advice piece. Just with the most recent example of Iran, there is sort of this discussion out in the public sphere about how the military is doing in terms of generating clear options for the president, being forthright about sharing risks. And I want to get you, as the main adviser – the deputy, if you will – the vice to the chairman, can you help us understand the quality of the advice that you think the military is giving today and the thoroughness of the process it's using to do it?

GEN. HYTEN: So I guess that's about a two-hour answer.

MS. HICKS: Well, you can do it much shorter.

GEN. HYTEN: I'll do it shorter.

So the – if you think about that structure, I think the first thing you need to know is that – and I can tell you, one of the differences of being the vice chairman, even over command of STRATCOM, is the level of intelligence I get every morning. At STRATCOM I got pretty good intelligence. Now I see all the intelligence. And I can tell you, the intelligence is remarkable. It's amazing. But it's also, in many cases, fragile.

And that's why we don't talk about intelligence in public. That's why military people don't talk about the intelligence, because the sources that we use save lives. The sources that we use are critical to our defense. And talking about intelligence – but I'll tell you what, I see exquisite intelligence. It's just amazing.

And with that intelligence, we've put together very, very good courses of action to brief the secretary of defense. And it's the job of the secretary of defense and the chairman to bring those options to the president of the United States. That's the way the process works. It goes from the secretary of defense and the chairman to the president of the United States.

Now, as a member of the joint staffs – joint chiefs – I get to give my independent military advice when asked. And I do that. And we've had very interesting conversations in the Pentagon and very interesting conversations in the Oval Office. But I can tell you, from my experience with the president of the United States, he gets the detailed options. We have those arguments. They are arguments and discussions, as you would, I hope, expect them to be, because these are very, very difficult decisions, the most important decisions we make as a nation and our

security. And the discussions are open, thorough, and I'll say, well-supported by the information that we have.

And once we're done, we get through those pieces and the president of the United States makes a decision as the commander in chief. We execute where the chairman – where the president wants to go. And it works. It really does work. And I've been very impressed in my, less than two months in the job about how well the interaction with the president of the United States is. And it's frequent. It's more frequent than I thought it would be, to be honest with you. I didn't understand how much time I would spend in those discussions.

When the chairman is out of town, my schedule changes a little bit. But that's OK. The president very much wants to hear from his advisers. The principal, because we have civilian control of the military, is the secretary of defense. But by the Constitution, we're asked to give independent military advice, and we do. And it is listened to. And sometimes it's counter to the mainstream, and we have those discussions back and forth and we end up – and since I've been here, I feel like we've made very good decisions.

MS. HICKS:

So let's talk a little bit about the people piece. There are sort of two questions that come to mind. The first is, this is, of course, what all leaders rightfully say is the priority is people. And you pointed out that you're setting up a special assistant, an organization inside your office, to help you think through that.

How can we, you know, manifest that more fully beyond just – you know, I'm sure your thoughts are broader than just this assistant, who's presumably going to help you think through an agenda. What do you think is going to come out top on that agenda that gets beyond the rhetoric of people first?

GEN. HYTEN:

So I got – I've been asked that question a lot in the last year, multiple times. As the STRATCOM commander, as I was going through the preparation to be the vice chairman, I kept getting the question. So we keep hearing, you know, people first. And then I look at the numbers and we're not doing anything.

And I've been involved in the military in all of these programs, all of these programs that we put in place, and I've noticed some interesting things about those programs. Some of those programs have been really good. Some of those programs have been not so good. But whether they're good or not so good, they have a shelf life of about 12 months, maybe 24, before they all become no good. What that means is that all of those programs are band-aids to a problem. And a band-aid actually stops the bleeding, but if you have a – something seriously wrong it doesn't fix that problem.

So I think that we have to get into the structure right from the beginning of entry into military service. I think we have to start right from the very beginning. I know all the services are starting to move that into basic training, to move that back to understand the culture, understand the care. And we have to start going down that right from the beginning and not try to add band-aids after 10 or 15 years of service, because that doesn't work.

The other interesting thing is how we look at mental health. And there's a number of things that have been in the news recently that are kind of examples of that. And we have tried to make the point – we, the leaders of the military, have tried to make the point about mental health and issues like that, is that it's actually no different than any other illness, no different than any other injury. If you're sick, you go see a doctor. Well, that's still not quite the way we treat it. We still provide special accesses and we make it so people don't know that you're going to see mental health. If we're putting people in a place where to go see mental health, if you don't want people to know we'll set up a side and give them the side way, that means that clearly mental health is not like physical health; it's different.

MS. HICKS: There is a stigma is your point.

GEN. HYTEN: There's a stigma that's still out there. And as long as that stigma is there, we won't treat it effectively. And so we have to somehow remove that stigma. And we're going to get after that issue to try to do that, where people should be able to, if they're injured, go see a doctor. That doctor could be a physical health provider or a mental health provider. But if you're injured, for gosh sakes, go see a doctor. And we'll get after that. As long as that stigma's out there and people stay away, that's when bad things start happening.

And so starting early and making sure that we treat people and provide the right kind of care right from the beginning without that stigma is going to be important, and that's going to be difficult. So the person I'm going to bring in has never been in the Department of Defense, is not an expert in any one of those areas, but has been working those areas for an entire career. She's been a leader. She understands those kind of pieces. But she's going to look at us with a set of eyes that is completely different than all of us who have lived in the Department of Defense for years and years and decades and decades.

MS. HICKS: Are you open to conversations about where, for example, sexual assault should be reported, whether it's in the chain of command or outside of it, if that's something that comes forward through that process?

GEN. HYTEN: I'm open to everything that's in that discussion right now, that structure. But the one thing I know, having been in the military for almost 40 years, that no problem has ever been solved in the military unless the chain of

command is a part of the solution. So the chain of command has to be part of the solution. There's no doubt that that has to be. But what that role is, I'm willing to look at everything related.

MS. HICKS: Great. So speed, which I, again, really appreciate that you brought into this discussion. Let's talk about the JROC first, the much-maligned JROC. Are you at a point where you're thinking we need new statute on the JROC, we should disband it, we should completely blow it up? Or are you more in a revise and reform and refocus mindset?

GEN. HYTEN: So I'm actually in neither position at the moment. Where I am right now is in a data-gathering, because what I – you know, if you look back to when I was a two-star – and some of the people in this room were working with me when I was space acquisition in the Pentagon – I hadn't done acquisition in 20 years, basically, when I came back and was put into that. So since I hadn't done it for 20 years, I decided that I would go actually read. And so pulled three documents out: DOD 5000 series of regulations on acquisition, the – which –

MS. HICKS: A fine night of reading, yes. (Laughs.)

GEN. HYTEN: A fine night of reading. That was – that was so enjoyable. Only to be beaten by the federal acquisition regulations – (laughter) – which I pulled out. And then JCIDS, the chairman's instruction that described the – and the interesting thing I found when I went through all of those documents is that actually, if you want to go fast, all the authorities are right there. They're written down and they're allowed. All you have to do is get the bosses to say, yes, go do that. And then sometimes you have to go to Congress and say, yes, I'm going to do this instead of that. But everything is right there for you to do.

However, in setting up the structure over the years on whether it's the acquisition side or the requirements side we have set up this very bureaucratic risk-averse structure in order to do that, and there's a right way to go through the process to achieve success without failing at the end. And when you do that, and if you go to the Defense Acquisition University, that's how we train people to get through. There is a best answer but in almost every case those answers are very slow and those answers are built to remove risk.

So what I didn't want to do is just jump in and say blow up the JROC and because JCIDS is actually a very flexible document with lots of flexibility in there. Well, I think that most of it is our own – you know, not Congress' fault, our own fault for the pieces that we have to do to that.

Now, we're going to have to be transparent with Congress in all these things that we're going to do. But if we do it right, I don't think we have to blow up those kind of pieces. We just have to take advantage of what is in there. But I don't know enough now to say this is what we're going

to do. But I can tell you, the one thing I know is that when it comes to 21st century capabilities, all heavily dependent on software, the JROC process and the current process that we have for building software is horrible.

So we're going to change that. That's going to be the one we can change out of. I've talked to Secretary Lord. She's trying to do the same thing on the acquisition side but she needs help on the requirements side. And I don't know what to call it yet, so my working term is "process requirements," because here's the way we write requirements today. We write requirements for a product, we say "build that". I want that built. I want it delivered in 10 years. I want it perfectly cyber secure. I want it perfectly everything. Deliver it in 10 years. That's the way the process is.

So if you do that and you say, here's a threat at the beginning, deliver me that capability 10 years from now, that capability is to defeat the threat that was 10 years ago.

MS. HICKS: Right.

GEN. HYTEN: And a cyber threat – as soon as you hit that day one, tomorrow you're already out-of-date. Tomorrow you're out-of-date. Not five years from now. Tomorrow you're out-of-date. So how do I move fast in that structure? I think you have to, basically, go back to a threat-based view of the world, say here's a threat. The world will update that threat. You have to monitor that threat. And then there's got to be a process that you build in order to deliver the process that allows you to get into that. That's the kind of structure that we need as we go forward. That's going to be difficult to figure out how to do. But that's the kind of structure we're going to have to figure out how to do.

MS. HICKS: What is – the role do joint concepts play in that process?

GEN. HYTEN: So the big thing that we need at the top of it is a joint warfighting concept. When you look at force design and force development, there has to be this joint warfighting concept that describes the broad-based capabilities and attributes that we need into the future that we need to do that.

But that is not systems. Those are capabilities and attributes. What we've tried to do in the past with our joint concepts is take the systems and build it in to a joint concept. That will always fail. So what we're trying to do now on the Joint Staff is we have a concept that we're working with the Office of Secretary of Defense to, basically, build a singular joint warfighting concept with a number of different elements underneath it that will have to support it, and the elements underneath it are service concepts and capabilities but also these joint concepts like

command and control, joint logistics – things that have been orphaned in the process because they don't neatly fall under a single service.

We have to figure out how we're going to build those capabilities as well but our job in the Joint Staff is not to define the systems. That's the service's job. Our job is define the capabilities and attributes that we need without getting into the system design, and in many cases when you read the joint requirements that come out of the JROC it has been system-designed specific to allow a service to go build something. I understand why, but that's not the job of the Joint Staff. So we have to make sure we focus on our job.

MS. HICKS: What about incentives on – for experimentation for taking risk? Can you talk in any specific ways yet about some of the approaches you're thinking of using to get to that more agile speedier experimentation and risk-accepting process?

GEN. HYTEN: So I've had some interesting discussions with Congress on this because Congress has actually been pretty helpful the last couple of years on encouraging, through law, which is always interesting encouragement – (laughter) – to move stuff out of the Pentagon and back into the services and the services have been moving stuff from the services back out to the field. I've told my leadership. I've told the members of Congress. There's actually a pretty easy metric to evaluate if you want to understand whether you're being successful or not. All you have to do is go out to any program manager of a major acquisition program and take their calendar for the last three months, add up the number of days they've been in Washington, D.C., or in the Pentagon, and add up the number of days they've been in the contractor plant. And the day, the number of days they've been in the contractor plant exceeds the numbers they've been in Washington, D.C., you'll have changed the risk equation.

It's really that simple. Because risk has to be pushed down to that level if you're going to go fast. And that means that captain, that Navy captain, that Air Force colonel, that Army colonel has got to have the authority to make those decisions and move quickly. And I go back to when I was a young engineer, because I started as an engineer in the military, and I was in Los Angeles as a young space engineer. And I tell you, the person I wanted to grow up and be, was the colonel who was the program manager. God, I didn't want to be the general. That was, like, a nightmare. (Laughter.) I wanted to be colonel.

Why did I want to be the colonel? Because that's where all the authority and responsibility – they had the budget. And I remember the failure of a major program in Los Angeles in the late '80s, and the firing of the person that was in charge. And it was ugly. But I also remember that there's like 10 colonels lined up to say: I can do it. Give me the authority. Give me the responsibility. Put me in, coach, I'm ready to go.

And, boy, that's just not today. That's just not today, because the authority and responsibility's down there.

If you want to see a military person go fast, all you have to do is give them the authority and responsibility. And then when they fail, well, you have to fire them and go find somebody else. But isn't that the way America works? Why does that sound so strange? I remember Senator McCain, God rest his soul, I really do miss Senator McCain. And oh, by the way, if you go back and watch some interactions I had with Senator McCain, man, he beat the snot out of me multiple times.

MS. HICKS:

I share that, yes.

GEN. HYTEN:

You know, just – and I remember him screaming at me one time about a major acquisition program that was not doing well. And he screamed: Who are you holding accountable? Who are you going to fire? And I said, Senator, the problem is, it's a committee in the Pentagon. And you don't hold committees accountable for anything. So I'm not going to fire the colonel, because it's not his or her fault. That would be wrong. Now, if that person had the authority and responsibility and they failed? Well, then they get fired. But you can't do that unless they have the authority and responsibility. So it's really that simple.

And the good news is because of the congressional law, things are being pushed down. Because the actions in OSD and A&S and R&E, they're pushing things down. But now, we have to transition to start training our people again to go buy things. And we've been training our people again to go buy things. And we've been training our people not to buy things, not to enter into good contracts, not to understand what a good contract is. I can – you know, I'm going on and on, but this is an important subject.

I remember as a young engineer, negotiating a big contract for what was then the F-15 anti-satellite program. And I was the software engineer. And I remember sitting outside the door, waiting to go in and negotiate with the contractor on my particular issue for days. And when I finally got to go in, when I went in, I knew my issues backwards and forwards better than anybody that was there. And all the other engineers that were outside knew those issues. And we would negotiate down to get to a good contract, and then hold the contractor responsible to that. And then I watch now, we negotiate contracts today and it's not that way. It's not that structure.

The engineers we have need to know as much about the system as the contractors do. And it's not that way, because we've trained them on process, to get programs done, not on how to buy things. So we can't just say: You have the authority and responsibility, but we haven't trained you how to buy things. We haven't trained you how to – one of the greatest things that happened to me as a young officer is that my boss made me go out in the contractor plant and learn how to buy satellites,

and learn how to build satellites, and learn how to build rockets, and learn how to build missile defense systems. Because I was one of the first engineers on SDI back in the day.

And you know, I didn't know what I was doing. I was going to get out of the Air Force. It didn't really matter. But now when I look back, I realize I walk into a contractor plant now and I can look at something and I can tell the good and the bad just by looking at it. And when I'm operating the system, I know the good and the bad because I understand how it works. That's hugely beneficial to an operator – hugely beneficial. So we have to get to get after this structure.

MS. HICKS:

OK. We're going to go ahead and collect your cards. So please, if you haven't passed them in, do so.

I want to ask, since you broached us toward the next topic, which is – which is Space Force, you have as a member of the Joint Chiefs of Staff expanded the Joint – you know, you have an expanded membership. You have a new member to join. Can you give us a little insight inside the building into the efforts that are underway now? Congress gave quite a few study, for example, requirements for the department to think through aspects of Space Force and integration within the department. Give us a peek at some of the big questions that you all are thinking through right now.

GEN. HYTEN:

You bet. So, it's a pretty interesting time to be a space guy. It's kind of weird, isn't it? Never been a space guy on the Joint Chiefs of Staff; now there's two. What the heck is that? The hardest thing I have to do is I have to realize I'm not the space guy; I'm the vice chairman. The space guy is General Raymond. So you know, when those issues come up, I'm wanting to jump in because I've got opinions. And oh, by the way, I'll state those opinions, but General Raymond gets first dibs because he is the – he is the chief of space operations. He's the guy at the top of the Space Force.

But you know, a pretty interesting thing happened right away because the law didn't make us put General Raymond on the Joint Chiefs of Staff right away. It actually said you can take up to a year to put him onto the Joint Chiefs of Staff. The secretary and the chairman – and I certainly got a vote in that – made a decision right upfront: on day one, General Raymond is now a member of the Joint Chiefs of Staff. And I think General Raymond was excited about that until he saw the calendar for the Joint Chiefs of Staff – (laughter) – and realized he's also the commander of U.S. Space Command, and oh my gosh, you know, there is no sleep on his calendar anymore. He's going a hundred miles an hour.

But there's a lot of decisions that have to be made upfront. There's a lot of things that have to happen. The first thing, we've gone ahead and already moved 16,000 people in. There's a lot of –

MS. HICKS: Is that all Air Force?

GEN. HYTEN: All Air Force. But that actually goes into the answer about one of the things that we have to look at early, is we have to look at the Army and the Navy and we have to look at the Guard, because you actually can't do the space mission without the National Guard.

The National Guard is a perfect partner for the space mission, much more perfect than many other missions that we have the Guard do. It's perfect, because it's in many cases a stateside mission, a homeland mission. It's done in one place. And you can build very, very good expertise in that one area and have a Guard unit that is focused on a singular mission. It's perfect. So we have to figure out the Guard.

We have to figure out the Army and the Navy. And when I look at the Army and the Navy, there's two elements that are going to be in the Army and the Navy. And we only have about a year to figure it out, maybe a little bit less, because Congress is going to make a decision next year about how the Army and the Navy are going to be treated and we need to try to be ahead of that.

And so the questions are pretty straightforward because each service, whether the Air Force, the Army, the Navy, or the Marine Corps, has two elements that are space or historically have space. The Air Force being the biggest, but they all have it. And that is a space capability that brings space into your Army maneuver unit, Navy fleet, Marine Corps. Whatever it is, you have an element that knows how to integrate space into your force. That's actually a service function that should stay in the service. And then you have, capabilities like flying satellites, building satellites, delivering satellites. That's a Space Force function.

So as we move into the future, we have to figure out which element goes in the Space Force and which element stays in the service. And different services are structured different ways right now in order to do that, but they both – they all need that capability. So one of the first things we're going to have to worry about is figuring out how to do that. And we would like to make sure that we have a voice in that decision, which means we have to do it pretty quick because, come this summer, probably as soon as posture hearings, Congress is going to be asking that question.

MS. HICKS: Do you have a sense of the timeline for determining the permanent home for Space Command?

GEN. HYTEN: I think it'll be sometime in the next year. I can't tell you exactly when. Interesting thing about being the vice chairman is that I'm actually not involved in that decision.

MS. HICKS: (Laughs.)

GEN. HYTEN: That's one of the things I actually don't have insight into.

MS. HICKS: OK.

GEN HYTEN: – because that's done inside the Air Force. And the Air Force set up a really good process – each of the services have – about how you do a basing decision. And it's kept very close hold, and it goes through a very structured process because it becomes so political, that you want to make sure you have all your ducks in a row to do that. And so Secretary Barrett I'm sure knows exactly where it is right now and I don't. But I do know that we need a decision, I think, this year sometime. I think as long as we have it this year sometime we'll be OK. But that's why I said roughly a year. I hope it happens sooner, but we need it in a year.

MS. HICKS: So one of the questions from the audience is related to space questions, which is – you raised, of course, hypersonics – hypersonic missiles. Sorry. My colleague, Tom Karako, hates it when people call to hypersonics. So I apologize, Tom.

And I have a question about what can you tell us about the importance of Space Sensor Layer as a foundation for that capability set?

GEN. HYTEN: So, you know, it's important to realize that it doesn't matter what the threat is. If you can't see it, you can't defend against it. If you can't see it, you can't deter it either. And that second piece is actually maybe the most important thing. If you can see it, then you can enable your entire defense. You can enable your deterrent capability. And you actually don't have to build hypersonics to be able to deter hypersonics. You just have to have a capability that can respond if you're attacked by hypersonics. That's – hypersonic missile, so I'll use the right term.

MS. HICKS: There you go. He'll be very happy. (Laughs.)

GEN. HYTEN: It is the correct – it is the correct term, by the way. But nonetheless – I'll probably slip again, because everybody else does. Nonetheless, when you look at that capability, if you can't see it, you can't defend it. If you can't see it, you can't deter it. So if you want to do that, the first thing you do is have to build sensors in order to see it.

Now, what's the best sensor to see a hypersonic? The best sensor to see a hypersonic is actually probably a ground-based radar. What's the problem with a ground-based radar? Well, the earth is a big place. There's not enough islands in the Pacific. There's not enough, you know, room on the East Coast, to build all of the – and imagine the cost it would take to build that amount of radars. You can't get there from here.

So then that means you have to go to space in order to see those capabilities, absolutely. So you look at our capabilities we have today.

Our capabilities to see missiles are in geosynchronous orbit. We have very exquisite capabilities. And there are some capabilities in geosynchronous orbit. But if you want to see a dim target – and oh, by the way, a hypersonic missile is a dim target – you actually have to get closer, which means you have to come down to a different orbit. You have to come down to medium-earth orbit or low-earth orbit in order to see that. And you have to start to build .

That's what the Space Sensor Layer is. And from my perspective, I would like to see research and development into low-earth orbit as well as medium-earth orbit to figure out what the right mix of capabilities we are in order to see that. That's the only way to get a global capability that is affordable to actually deter that threat.

And a lot of people think the only reason you build it is to build a missile-defense capability. We should have some missile-defense capabilities for point defenses, et cetera. We have to do that with hypersonics, just like we do with ballistic missiles. That's a critical element of the architecture.

But the first thing you do – the first reason we built all of the early-warning radars we have around the world, we built those before we had any missile defenses. We built that to enable our deterrence. We built that to provide early warning. We need the same for our hypersonic-missile threat that will enable our deterrence first, and then ultimately it will enable our defense as we continue to mature the technology.

MS. HICKS:

Is it fair to say that's already a priority, the Space Sensor Layer, in the department?

GEN. HYTEN:

It is a priority. It is the priority. But it's one of those things, again, where I'm a little frustrated at our ability to go fast. And I won't beat up the Space Sensor Layer in the department this time. I'll go back to a historic issue of missile warning, because it's the same thing.

So when we're going from the space-based infrared system to whatever the next is going to come, we actually started that transition in roughly 2006, 2007. No, I guess it was 2007. We started that. And then every summer between 2007 and 2014, I was involved in a summer study that would look at what the next replacement for that capability was. And then we would decide it in the budget, and then we would defer it to a year and we'd go back and say, well, we actually need to study it a little bit more. And we'd go back the next summer. I did – seven summers in a row, I did a summer study on it.

That's what we're doing on Space Sensor Layer. We're studying the heck out of it, when actually what we need to do is we need to say – because I know the two basics. There are only two orbits that make sense, LEO and MEO. That's it. OK, now, what kind of sensors can I put? Now, there's all kinds of sensors that are out there. Put the sensors

on some satellites, fly them cheap, fly them fast, see what they can do, and then figure out what you need to actually go build.

If you do that, you will go infinitely faster. You'll save enormous amounts of time, enormous amounts of money, and you'll get the capability faster. But that's not the way we do it. We try to study the heck out of it to get to the perfect answer before we start something. I think that's crazy.

MS. HICKS: So Bob Gates used to call this the 80 percent – 80 percent's good enough for – to move out on most things.

GEN. HYTEN: In this case, 50 percent is good enough on that.

MS. HICKS: Yeah.

GEN. HYTEN: You don't have to get to 80 (percent). You get to 50 (percent) because you know the basics. The basics are known issues. Explore that. Allow R&E to go explore that, and then in a couple years – literally, it will be a couple years – you'll have the information that will inform the 80 percent answer. Then start down the 80 percent answer.

MS. HICKS: OK. Another related issue, this on missile defense more specifically. Do you think current missile defense systems of the United States are capable of protecting the United States from North Koreans – North Korea's new missiles?

GEN. HYTEN: They are. I have – I have 100 percent confidence. Literally – I don't say 100 percent very often. I have 100 percent confidence in those capabilities against North Korea. But you got to understand, that's what they're built for. They're built for North Korea. They're not built for anything else. They're built for North Korea. And they're going to work against North Korea, God forbid if we ever have to. But that's, again, not the perfect answer.

I think, you know, when you look at our deterrence, the rest of the world looks at deterrence as the integration of offense and defense. That's the way the rest of the world looks at deterrence. And oh, by the way, when they look at us, they look at our offense and defense and think about that as our deterrence. We need to think about offense and defense as our integrated deterrence as well, and we need to start thinking about what the next generation of defense is going to be and what we're going to walk into that. And we don't.

And if you want to know, how you know that we don't look at it together, the last time we had an opportunity to look at them together, was at the beginning of the administration, and we decided to do a Nuclear Posture Review and a Missile Defense Review, separate. That –

MS. HICKS: And a strategy review yet separate from those two, yeah.

GEN. HYTEN: And a strategy review. It's all a singular strategy, and you have to decide what you want to do. And oh, by the way, as a nation we understand that missile defenses are critical to our future. They're critical to our defense. They're critical to the rogue threats. They're critical to North Korea. But we haven't made a decision about what the role is of missile defense broader in our overall – we have to make that decision. And that's a national decision. That's not a Joint Chiefs decision. That's not a – that's a national decision that we have to make.

MS. HICKS: So you're doing a great job of segueing perfectly from question to question without even knowing it. So one of the things that the chairman, I understand, has asked you to pay special attention to is nuclear weapons, former STRATCOM commander. We have a question on the expiration of New START in February 2021. Can you talk a little bit about the merits of an extension on New START? And the specific query revolves around – let's see if I can understand this – you have expressed concern about new nuclear weapons systems under development by Russia, but Moscow said in November that two would be covered by the START Treaty. The others won't likely be developed in 2026. So the idea is, could we get an extension of the START Treaty, I assume in order to prevent deployment of further Russian weapons?

GEN. HYTEN: So, it's a really, really important topic. It's also a topic that we're having significant discussions about right now, not just in the department but in the interagency and in the White House. So I'm not going to share my military advice. I'm just going to structure the elements of the problem so you can understand.

And I will go back and I'll – you know, I'll tell you what I've said in the past because I still believe that. And I believe that New START is a good thing. If you're the STRATCOM commander, New START is really important. You know why New START's important if you're STRATCOM commander? Because it gives you a number that's at the top of the strategic deterrent element and allows you to posture your force and understand what you have to do in order to deter the adversary – Russia, in this case – it tells you kind of what you have to do. It also gives you insight into the Russian nuclear forces because of the verification regime that's on the New START Treaty. Those are very, very important issues. Those are the good things about New START. That's why, even as the vice chairman, I'll push for that kind of piece.

But there's a really negative piece that's going on right now. The negative piece is that nuclear weapons are no longer a bilateral problem; it's a multilateral problem. And China is growing as fast as anybody in the world. At some point we'd better sit down with China and figure out how we're going to do that, and it would sure be nice if we started early

rather than late. Start early, before we get into a position of potential conflict. Start now and have those discussions.

The other piece of the problem that is a big problem for STRATCOM, for the nation, for the world, is all of the weapons that Russia is building that aren't under the New START Treaty. And oh, by the way, it's not just the – it's not just all the things that President Putin talked about in the March of 2018 speech. It's not just the nuclear torpedo with a nuclear weapon on the top. It's not just a nuclear-armed cruise missile with a nuclear weapon on top that can fly anywhere and do anything. Those are significant. But it's also the thousands of low-yield nuclear weapons that they have deployed in many, many areas that aren't accountable in the New START treaty. If you read the New START treaty, it very specifically lists the platforms and weapons that are included in that treaty, and everything else is out. And from the moment Russia signed that treaty, they've been building weapons outside of that treaty.

So I think we have to make sure when we sit down with Russia we talk about all the nuclear weapons that are out there. Isn't it kind of foolish to think about sitting down with a nuclear power and saying: OK, we'll talk about these, but over here all these nuclear weapons? Eh, they don't really matter. Let me tell you, every nuclear weapon matters. There's no such thing as a tactical nuclear weapon. It's not. And when I see doctrine out there in Russia about the employment of a tactical nuclear weapon, that scares the heck out of me. Because that employment will not be tactical. That employment will be strategic. And it will be responded to in a strategic way.

That's a place that you don't want to be in. Which means when you sit down with the Russians, you need to have everything on the table. So those are the aspects of New START. Now, I won't – I won't tell you exactly the discussions that are going on, but those are the pieces of the puzzle.

MS. HICKS:

Great. Very helpful. OK, just a few more from the audience. What changes are being contemplated for changes to the unified command plan to integrate Space Force, for example? And where will the people come from, which I think you've addressed that latter piece.

GEN. HYTEN:

So it's pretty – it's pretty simple. The Space Force is not in the unified command plan. Space Force is a service. The way the United States military is structured is we have services that organize, train and equip forces and combatant commands that operate forces. So on the space side, you'll have the Space Force that'll organize, train and equip capabilities and give them to Space Command and the other combatant commands too, by the way, to operate in the unified command structure. So the changes that'll happen in the unified command plan will be an expansion of U.S. Space Command responsibilities as we continue to grow out. But the Space Force itself doesn't change that.

What the Space Forces changes is how we train our people, build our people, equip our forces, build our stuff. That's what the Space Force will do. And to have a focused person that – you asked a question a while ago about congressional oversight. And oh my gosh, if you read the law, the congressional oversight is intense. It's like every 60 days you have to be up there explaining it. Why is it that way? It's that way because Congress doesn't want the bureaucracy to get out of control. And given our nature as bureaucrats – because there's a bureaucratic nature in every one of us that has lived in the Pentagon, and I hate that. I hate that with a passion, but it does exist. And you better – you know, it's step one of the 12-step process. You better realize you are that – (laughter) – because otherwise you're not going to be able to fix it.

And so we are that. And so we have to figure out how to stay out of our own way. I talked about 16,000 airmen moving into the Space Force right now – 16,000. The Marine Corps is 187,000, roughly. That's the other small service. Ten times bigger than the Space Force. So if we create a staff over top of the Space Force that's a small staff like the Marine Corps, it's by definition ten times bigger than the force itself. So I mean, it'll be a general for every airman, or a general for every whatever we call that person. And I'm not using the term. I'm not going that direction. We'll figure it out.

MS. HICKS: No space cadet?

GEN. HYTEN: I'm not going there.

MS. HICKS: OK. Yeah. I helped.

GEN. HYTEN: Thank you for that.

MS. HICKS: (Laughs.)

GEN. HYTEN: But we're going to – we're going to figure out that kind of structure. But Congress wants to make sure we don't go crazy. And I actually think that's good.

What I hope – and I'll have a role in it because I'll be part of the space governance process – is what we feed Congress is our explanation of how we're meeting their intent. And we don't require them to engage very often. If we actually have a structure to do that, and we know this is – we know what you're looking at, here are the elements, all we have to do is update that, walk over every 60 days and say, OK, here's we are now, here's where we are now, it won't be so bad. We're going to have to figure that out.

But getting there and making sure we don't create this bureaucratic element over the top is really important. Because what the problem is in space is, we have a threat. It is a war fighting domain now. We have to

figure out how to deal with the threat with a war fighting culture. That should be the whole focus. And all the other stuff, all the other overhead, should not be that big. That's why putting it under the Air Force was so important to me. It became important to the vice president. It became important to the president too because otherwise the overhead you'd have to create to create a separate service would be just enormous, so.

MS. HICKS: Just more generally, quickly, on unified command plan. I think it's statutorily required on some –

GEN. HYTEN: Every couple years, yeah.

MS. HICKS: Every couple years, or two years. Are we going to see a new UCP sometime soon? Are we on that schedule?

GEN. HYTEN: Well, we have – I don't remember the exact structure.

MS. HICKS: Nor can I.

GEN. HYTEN: I'll just give you – I'll give you the generic piece, is that we had an interim change to the UCP that allowed Space Command to stand up. And that was done, and it put the basic function underneath. And then the rest of the stuff will be done under the normal unified command plan update that I think is scheduled for later this year, roughly. I think that's when the rest of the stuff will come in. But we had to have an interim change to establish U.S. Space Command last August.

MS. HICKS: Great.

OK, last question is about really partnerships on this issue of speed. And in this particular question it's on Silicon Valley, though I welcome you to talk more generally about how you're thinking about bringing in partnerships. How will you take speed lessons from a Silicon Valley that succeeded because it rejects regimentation and control?

GEN. HYTEN: So I guess there's two parts to the question. One is the partnership. And it's not just Silicon Valley, but it's the commercial partnership across the board and it's also allied partnership. Because we need to be more aggressive in partnering with our allies. And that's across all domains. We have to be more aggressive in partnering with our allies and understanding how to bring those pieces together.

But if you look at how to integrate the Silicon Valley structure – but it's not just in Silicon Valley, because it's in Cambridge, it's in Seattle, it's in L.A. I'll just use the SpaceX model. SpaceX was an interesting dynamic in the way they worked with the United States Air Force. And I lived that from the time I was in the Pentagon as a two-star all the way through my experience as a four-star in Air Force Space Command, a little bit at STRATCOM.

And I will tell you that what SpaceX had to do to effectively do business with the United States Air Force is embarrass us in public. And when they embarrassed us in public, no service secretary likes to be embarrassed in public. And they looked at us and say: Hey, I don't like that. Go fix it. But the interesting thing about that partnership is – and this is – I hope it's not lost in history. But that turned into a mutually beneficial partnership, because we actually – we, the United States Air Force – I'm joint now, but I still wear an Air Force uniform and I'm proud of that.

But we, the United States Air Force, helped teach SpaceX what mission assurance really was, what it took to actually build a rocket that would work every time. That's a hard thing to do. That's a hard thing to do. And SpaceX taught us that you could do that in a commercial model and actually go fast and the two weren't mutually exclusive. And it was difficult for our culture to accept that, but it was also difficult for their culture to accept it. And it was the merging of the culture that created a great partnership. And then that pushed out into the broader launch sector, including the United Launch Alliance, because the United Launch Alliance then realized for us to be effective, we have got to take some of those things and transition those pieces.

And so if you look right now, just think in history. In 2007 the United States Air Force had to work with Lockheed and Boeing to basically create a company called United Launch Alliance because the launch industry in this country was about dead and we weren't going to have our own access to space. We were almost on the verge of having to go overseas to provide access to space. And look at where we are today. I talked about the China 40-year story. That 12-year story is almost as remarkable, where we went from a dead industry to now the industry that leads the world in commercial launch, that leads the world in every element, that is building an entire different structure, that is robust, that has multiple partners, that has so many people involved in it. That's just remarkable.

So if you want to figure out how you work with Silicon Valley, you have to figure out how to take advantage of their techniques, their ability to go fast, and insert your own I'll call it mission assurance requirements. Because the thing about a military capability is that when you call upon it, it has to work. But the interesting thing about a commercial company is that if they have a product that doesn't work, they're not in business very long either. So it's ultimately the same motivation.

And then, if you're an American company, there's something about an American company that wants America to lead the world. It doesn't matter whether it's commercial, whether it's military; you want America to lead the world. And that's a good thing.

And so you put those pieces together, and you mix the strengths of both, and you learn from each other. And you – I've spent a lot of time over the last year, because of – at STRATCOM I got the nuclear command-and-control responsibility, in Seattle, in Silicon Valley, in L.A., in Cambridge looking at the companies and understanding how they actually do business, and it's amazing. And there is partnership that is right there. We just have to figure out how to do it.

MS. HICKS:

Great. General Hyten, I want to thank you for your time today and for your leadership of this incredible military that we have. Please join me in a round of applause for General Hyten. (Applause.)

(END)