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WEBINAR

A CONVERSATION WITH  
VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF  
GENERAL JOHN E. HYTEN

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## P R O C E E D I N G S

MR. O'HANLON: Greetings, everyone. Thank you for joining us today. I'm Michael O'Hanlon with the Foreign Policy program at Brookings and I have the distinct honor to welcome General John Hyten to a discussion with us today.

General Hyten is the 11th vice chairman of the Joint Chiefs of Staff and the nation's second highest military officer. He is now into his final season of military service. As in recent years, as we will discuss in a moment, the congress has decided to essentially alternate the periods of transition for the chairman and vice chairman. So while they used to align and switch over typically every four years together, General Hyten will now be concluding his service this fall and making way for a new vice chairman, the identity of whom we don't yet know.

But General Hyten has had a remarkable career, as I mentioned. He began as an ROTC cadet at Harvard University where he studied engineering. Those of you who know the military know that the vice chairman is often quite involved, not only as the deputy to the chairman, but perhaps even more importantly as in some ways the chief uniform technologist for the Department of Defense. That's not an official label or slogan, but it is in fact often the case. And General Hyten's background, not only starting with that ROTC experience, but all the way through when he was combatant commander at U.S. Strategic Command, he has often been involved in the high technology aspects of our military, as if they weren't all quite high tech. But he's particularly been involved in the domain of nuclear forces, satellite capability, communications infrastructure, command and control. If you read through his bio, you see a lot of assignments in Colorado, in Nebraska, in Alabama, where the U.S. military has a lot of its space related assets. And of course at the Pentagon and also of course in the Middle East.

So I think we will begin today — first I'm going to give General Hyten a moment just to say greetings to the crowd and amend anything I described about the vice chairman role that he may want to underscore, and then we'll start to walk through a little bit

of his reflections on much of the vice chairman agenda, such as it is. In other words, a lot of the technology side of things, modernization, innovation, a lot of the ideas that Secretary Mattis put forth in the 2018 National Defense Strategy, but also ideas that predated and have followed those concepts and programs, concepts that he's been extremely involved in developing over his career.

So, General Hyten, thank you again very much for joining us. Let me just give you a chance to say hello to everyone.

GENERAL HYTEN: So, thanks, Michael.

Hello, everyone, and good afternoon. It's a pleasure to be with you today. I think the most important thing you need to know about the vice chairman's job is the most important word in the job is the first word, "vice". Not the second word, not the third, vice is the most important word.

So I came in with three priorities. The first priority is to make sure my bosses get the best military advice I can provide, that I do everything I can to make them successful. And then in my copious free time, I try to make sure I put speed into everything that we do. And I try to make sure I always remember to take care of the people that actually get the job done, because like all other general officers, I don't do any real work anymore, I just get to lead the people that do.

So it is great to be with you today, Michael, and I look forward to your questions.

MR. O'HANLON: Well, General, let me pick up on that very point because you and I had discussed earlier that we would focus this conversation on sort of high level defense modernization, innovation, and strategy, but you've obviously been involved — and even more so many of the people that you were just saluting and that I salute and thank for all the crisis response in Afghanistan this summer as the U.S. military carried what I think was an extraordinary evacuation operation with very little foreknowledge of when it would be necessary or if it would be necessary. And I just want to thank you. A lot of the coverage

has been of course where things went awry and the controversy around the fundamental decision by President Biden to pull forces out this year. But separately from that I just want to give a big round of applause to the men and women that you commanded and/or helped command and oversaw and what they accomplished for the country.

So I'd like to join you in that, but also ask you for any update you might have today on where we stand exactly in the Afghanistan operation.

GENERAL HYTEN: So, you know, thanks for those comments. I do very much appreciate it. I know the people that participated in that mission appreciate that recognition as well, because when you look back we went down the 2,500 really directed by the end of the last Administration, and then the decision to leave or not, that was finally made in April. And so when August rolled around, we were basically down to a minimal security force at the embassy only. All the other American forces were gone. And so to come back in after that amount of time as quickly as we did, I think was a pretty remarkable mission. I think everybody that wears a uniform is experiencing lots of emotion these days – – disappointment, anger, frustration. But I think we're also feeling a lot of pride, pride in doing every mission we've been asked to have done the last 20 years and pride on the way we executed this last mission.

Sadly, it came at a significant price over the last 20 years, with all those we lost and in the last mission with the 13 that we lost. That wears heavily on all of us. But nonetheless, to get — and I looked up the Viet Nam Experience the other day and in the Viet Nam evacuation from April of 1975 to June of 1976, by air and sea the United States evacuated 80,000 Vietnamese and another roughly 50,000 evacuated themselves over land, private boats, other things. So about 130,000 people evacuated over 14 months. One of the largest evacuations ever in the history of mankind. And we evacuated 124,000 in basically less than 2 weeks, starting from nothing because we really had no military capability when we started to drop into that.

Now, we have over 50,000 of those folks that are in the United States at 8

military bases across the country right now. We have about 10,000 left in Europe, about 3,000 left in Central Command that we still have to move out. We'll do that over the coming weeks, we'll do that smartly and at the right time to make sure we know what we're going to do as we move out.

It really was a pretty remarkable mission, but it's not done yet. But I like to think that a lot of those people now have a chance at a free future. Many of them will become American citizens I think in the future. And you never know, one of them may — most likely will grow up and do great things.

So thanks for letting me talk about that for a couple of minutes.

MR. O'HANLON: Well, we appreciate it very much.

And so in recognition of the centrality of great power competition and the National Defense Strategy, and whatever now new ideas are being developed by the Biden team with the uniformed military to go to the next step, I wanted to focus our conversation really on the National Defense Strategy and on technology and big picture issues that have consumed so much of your time and energy.

And I wanted to begin with a big broad question. I'm not asking for a comprehensive answer, but sort of an overall perspective on how well are we doing at implementing Secretary Mattis' National Defense Strategy, which even though we're now into a new presidency with a new secretary of defense, remains an influential document that I think has a lot of bipartisan support and that partly grew out of latter day Obama Administration thinking with the so called third offset.

So I see a fair amount of continuity, even though Presidents Trump and Biden may not agree on a lot, they've still had Pentagon strategies that have tended to focus increasingly on great power competition with Secretary Mattis' National Defense Strategy being perhaps the ultimate document so far, until supplanted by a Biden modification of whatever form.

So how are we doing? What would you say are the key tenets of the

National Defense Strategy and how well have we achieved them so far?

GENERAL HYTEN: I think the biggest tenet of the 2018 National Defense Strategy is that it's a threat-based strategy. If you think back to a lot of our strategies, up until the latter part of the Obama administration all our strategies were really capability-based strategies. Really from 2000. In 2000 in the QDR, in the Quadrennial Defense Review in the year 2000, we made the statement that we no longer have any peer adversaries. And so because of that we don't have a defined threat and we just need to build the best capabilities we can. And if we do that, we will stay ahead of any adversary that we find on the planet.

The problem with that strategy, which was in place for 15 years — the problem with that strategy is that you tell every potential competitor you have in the world exactly what you're doing, and you telegraph that to everybody. And our potential adversaries, Russia and China in particular, watched that exactly. They knew exactly what we were doing and they started building capabilities to counter that.

So I think the biggest adjustment in the National Defense Strategy — and that will carry forward now — is that we have a threat-based strategy that we have to respond to. I think that's the good piece about it. And if you look at the ways and means that are defined in that strategy, a lot of those ways and means will continue. Now, the new administration will get a chance to put their own stamp on it. You've already heard Secretary Austin talk about the concept of integrated deterrence. That will be a significant piece of that discussion. We can talk about that if you want to. And so I think it's —the 2018 strategy, the strategy promulgated by Secretary Mattis, really moved us into that threat based approach. I think that's the big strength. And it started us moving towards the challenge that we're going to face with China.

I think the downside is we're still moving unbelievably slow — unbelievably slow. We're so bureaucratic and we're so risk-averse, because when you don't have any potential adversaries out there you can try to remove all risk from the system and you can go

slow. But when you have a competitor, especially like China and Russia, but when you have them going so fast, you have to be able to move fast as well, and we still move way too slow.

MR. O'HANLON: Thank you. I wanted to follow up on the Russia versus China concept and see if you really were prioritizing China much more than Russia at this point because certainly if we think back to the history of this debate of the last six years or so, Chairman Dunford talked about the "four plus one" threats, and at that point it was Russia, China, North Korea, Iran, and terrorism. And it wasn't even clear in the pecking order where China might be vis a vis the others. And then with the National Defense Strategy the focus was on great power competition and it sort of seemed like Russia and China in some places were being treated as roughly comparably dangerous threats, but in other places people would say well, you know, Russia is a shorter-term problem, but China is really the pacing threat, it's the more comprehensive super power.

But in military threat assessment terms, how do you look at it? Are the two equally concerning to you, or are you really focused primarily at this point on China?

GENERAL HYTEN: So when we went through the National Defense Strategy it went from the four plus one, you know, before the 2018 Strategy, to the two plus three. And it was clearly the two plus three — China, Russia, and then Iran, North Korea, and violent extremism. That was the two plus three. And the two pacing threats were Russia and China. And then we began to discuss China in more certain terms. And the current administration, both President Biden and Secretary Austin have made it crystal clear that China is the pacing threat. China is the pacing threat that we have to be concerned about, not only today but in the near-term and in the long-term. That is not meant to discount the potential threat that Russia brings, especially with their significantly large nuclear force that they've built that is now pretty much fully modernized where ours is not. So that creates a significant challenge for us with Russia. Nonetheless, Secretary Austin and the President have made it crystal clear to all the military leadership, China is the pacing

threat and we need to focus on that.

So as we've looked at developing a new joint war fighting concept, the first threat we look at is China, trying to make sure we understand that. Now, this year we're also expanding it to look at Russia, but nonetheless, it has been made crystal clear to us that China is the pacing threat.

MR. O'HANLON: So thank you. And one last word on China and then I want to get into some technologies and some of the modernization efforts and other things you've been doing to try to address this threat. But sort of in a broad, historical, strategic, and even philosophical level, I wanted to ask you how you look at China as a threat. And specifically, how do you assess the likelihood that we will have to fight them in the future in some way, shape or form? Because as you know, in the world I live in, in the world you've been part of in your Harvard studies and elsewhere, there are people like Graham Allison, a professor at Harvard, who have argued in his book, *Thucydides Trap*, or at least that's the famous nickname of the book, that most times when you have a new superpower arise to the level of an old one, war is the vehicle or method by which they adjudicate their relative standing. And I think Allison goes through 16 historical cases and says that 12 of them have been settled by conflict. Obviously in the nuclear age, that brings a whole new dimension to the question.

So I wondered if you wanted to use your own words to explain the likelihood of war as you see it and just how we think about handling this threat?

GENERAL HYTEN: Well, you know, we always have to be concerned about Thucydides Trap like Professor Allison talks about. But we went through that same thing with the Soviet Union ever since World War II. We went through what was the most significant, you know, confrontation between two great powers that the world had seen at that time because it was the first two great powers that had massive nuclear weapons. And we never came to major war during that entire period. We didn't because we always maintained a deterrent, they always maintained a strategic deterrent. And because of that



we never crossed the line. It doesn't mean that there weren't conflicts. You could look at Viet Nam, you could look at a number of different elements that were, you know, conflicts through surrogates, if you wanted to discuss it that way. But fundamentally, we never went to war with the Soviet Union.

So when you look at great powers, our goal should be to never go to war with China, to never go to war with Russia, because that day is a horrible day for the planet, a horrible day for our countries. It wrecks the world; it wrecks the world's economy. It's bad for everybody. So we have to make sure we don't go down that path. We've had pretty good success with the Soviet Union and now Russia. We're having strategic stability talks with Russia to make sure we understand where we are, not just in the nuclear realm, but in space as well. We need to have that conversation start with the Chinese. We need to be able to sit down — I need to be able to sit down, General Milley needs to be able to sit down, Secretary Austin, the political leadership, the State Department, and talk about these issues with China, because as different as we are, we do have a fundamental common goal, and that is to never go to war with each other because war with a nuclear power is a bad thing.

I'll just stop there.

MR. O'HANLON: That's great. And actually I do have one follow up before we get to some specific technology issues. And it has to do with, as you probably get a little bit philosophical thinking of retiring fairly soon, and having been through a lot of these debates, and having commanded strategic command where you had to think hard about these terrible scenarios, and also as you watch the rise of Russia and China in the period dating from — I don't know how you would define it in the modern era, but roughly, I don't know, 2012, '13, '14, as things got tenser with both, do you feel like we've at least begun to reach a little bit of a more stable period? Maybe in regard to Russia in particular, not yet China, in the sense that NATO has now beefed up its eastern flank, we don't talk quite as much about expanding NATO to the Ukraine and Georgia, even though that's still the end

long-term ambition for some and for official U.S. government policy, but it's not as much of an immediate point of contention, we're not necessarily competing so much in Syria anymore. And is there a case to be made that you've at least achieved some interim progress, some partial progress with the set of policy initiatives and strategies that have been implemented, at least in part — too slowly, but at least in part over the last half dozen years?

GENERAL HYTEN: So I think it's fair to say partial progress. I think that's fair. Full progress, stability, I don't think we're there yet, but I think it's very instructive to realize a strong NATO and a stronger NATO is unbelievably important for maintaining stability with Russia. That is an important balance of — the North Atlantic Treaty is one of the most amazing treaties and the partners in that treaty, including those on this side of the Atlantic, are hugely benefitted by a strong defense. And I think for a few years we lost the understanding of how important NATO was to that structure. And I think it was during the time where Russia was no longer one of our adversaries. In fact, if you read the 2010 nuclear posture review and documents, it clearly says that Russia is not a threat anymore. At the same time, they're modernizing their entire nuclear arsenal. And I don't think they were doing that because they needed nuclear weapons for the Chechen rebels. I think they were worried about the United States. Because if you read back, President Putin announced that in 2006 in public, that we're going to modernize all these capabilities. So we've been going down that path.

But during that time we kind of took a step back, having a very strong NATO. Now I think we have to look at the Pacific and understand who are our partners in the Pacific. And you can see partners in Japan and South Korea and Australia and across the entire Western Pacific. But we need to start reaching out and understanding. And we also have to understand that China is a very different competitor than Russia because of the sheer size and power of their economy. That the allies and partners that we want to develop need to be able to work with China as well because that's a very big economy in their area

that they need to partner with.

So it's a different construct, but the fundamentals are still the same. A very strong military deterrence and reaching out through diplomatic, economic, other means, in order to use the whole of government to build a better relationship with China. But it doesn't happen just by sitting aside and not talking to each other. And that's my one concern right now, is we're not talking to each other a lot. I know the President and President Xi have talked a couple of times this year. That's important. But I hope we can broaden that conversation all the way down to the mill to mill level as well.

MR. O'HANLON: And so on China, before I ask you about some of the specific military modernization efforts, let me ask you if you could offer your own words on what makes you most nervous about China beyond the lack of adequate dialogue. And, specifically, is there an issue, like Taiwan, that concerns you the most? As you know, there have sometimes been commentary that's tried to drive a wedge between the combatant commander of IndoPacific Command and the Chairman of the Joint Chiefs who have seemed, in some people's minds, to use slightly different language in talking about the imminence and the seriousness of the short-term Chinese threat to Taiwan.

I wondered if you wanted to not necessarily square that circle, but just give us your own words on which particular type of Chinese threat you would see as the most acute and just how acute is it.

GENERAL HYTEN: Well, I don't think you can really talk about China in the future and ignore Taiwan. I think Taiwan is a part of the equation. That's been a part of the equation since, you know, the — when President Nixon first reached out to China, that's been a part of the discussion. And so you have to understand that there is going to be tension between China and the United States and Taiwan and the other neighbors in that theater about what is the long-term future of Taiwan.

From a military perspective we have to be concerned about that and ready in case something should go wrong. But the specific capabilities that worry me about China

are not the capabilities about the future of Taiwan, it's the almost unprecedented nuclear modernization that is now becoming public. Even though, you know, at STRATCOM I certainly watched it happen, but it was in very classified channels and you couldn't talk about it. But now you see hundreds and hundreds of fixed silos coming in. You can see the commercial imagery that came out in the press over the last few months. It seems like every couple of weeks new pictures of more silos were coming in. And, oh, by the way, there's no limits on what China can put in those silos. So we're limited with Russia to 1550 deployed nuclear weapons. So we have to decide where we want to put those — submarines, ICBMs. Bombers are counted a little bit differently under that treaty, but that puts a limit on what we have. China, there's no limit. They could put, you know, 10 re-entry vehicles on every one of those ICBMs if they wanted to. There's nothing to limit that ability.

And so without having that discussion — and you watched them build out an entire modernized triad and then you watch them — how fast that they're building these silos and how fast that they're building these capabilities. And then you compare it to ours, with the GBSD Program, the Ground Based Strategic Deterrent Program. If everything goes right, we'll have 400 new silos, initial operation capability, in 2030, final operation capability in 2035. It's going to take us 10-15 years to modernize 400 silos that already exist. And China is basically building almost that many overnight.

So the speed and difference in that threat is what really concerns me most. And when you look at that nuclear capability and you look at China's declared no first use policy and what they have nuclear weapons for, you have to ask yourself, why are they building that enormous, enormous nuclear capability faster than anybody in the world. That's what really concerns me.

MR. O'HANLON: Thank you.

I want to now turn, as I've been promising for a while, to specific concepts of modernization and innovation, and some specific programs as well. And I wanted to begin by asking you to explain, you know, sort of not at the National Defense Strategy level, but

one level down, what are the main guiding doctrines, concepts, that are informing the way in which DoD tries to prioritize its modernization and innovation.

Let me just say by way of background that of course a lot of us think about the Joint All-Domain Command and Control, JADC2, and that may be one of the things you mention in your answer, but I'll just say I appreciate that JADC2 in the sense that it strikes me as a little bit more specific than some of the ideas we had heard earlier. So I want to thank you for making it a little bit more specific. Because we used to have air-sea battle, which doesn't tell you a whole lot about what's happening with the Air Force and the Navy. You know, it's a good sounding term, but of course some people thought it was a little provocative, so then it was renamed the Joint Concept for Access and Maneuver in the Global Commons, which sort of killed it with an unmemorable phrase that most of us didn't use much. And then we started to hear multi-domain operations. And that seemed like more of an Air Force, Army thing. So the Navy's role wasn't as completely obvious. And it also seemed to be all things to all people — multi-domain operations. That all ranges and all dimensions, whereas as JADC2 is focused on command and control and sensors and information flows and presumably the resiliency of the network, as well as its capacity.

Am I correct in sort of watching this evolution? And is JADC2 designed to be a little bit more focused than some of its predecessor concepts?

GENERAL HYTEN: Yeah, you're onto a very important concept, but it's — you're only about a quarter of the concept. Because it's important to realize that JADC2 is just part of an overarching structure.

So in the fall of '19 when the chairman came in and when I came in and we looked at where we were going, we were trying to figure out how to move our capabilities forward and how to get after the future that we saw. And so we had been under General Dunford's leadership talking about multi-domain operations. And it did involve the Navy, but in the broader terms it was becoming very difficult to actually explain what the role of the Navy was, what the role of the Air Force was, what the role of the Army was, what you know,

multi-domain ops — what General Dunford started calling it, all domain operations just to make sure that it was all domains, including maritime, space, and cyber into that. But even that was, you know, not quite sufficient.

So Secretary Esper, at the time, was looking at where we're going. We had the initial joint concept that was written by the joint staff under General Dunford, the Joint Concept for Contested Operations. And he said I want you to take that and built a joint war fighting concept. And so as we looked, you know, in late 2019, early 2020 at the elements of that, they were four orphans that were out there, orphans from a perspective of we really have never taken care of those from a joint perspective and defined what they were. One of them was command and control and that became the first identifiable element of it, JADC2, that became kind of the fundamental. But that was just one of four orphans.

And then the four orphans because the four supporting concepts to the joint war fighting concept. But now that there are the functional battles. And it's important to look at all four of them.

And I'll just — the number one is integrated joint fires. Number two is contested logistics. Number three is information advantage. And then the thing that ties it all together is the Joint Command and Control. And it's also important to realize that joint command and control is not joint all domain command and control, it is the requirement for Joint Command and Control. It happens to be all domain and there is a JADC2 element that is working that element with the joint staff and OSD and the services, to actually deliver capabilities to do that. But the requirement is joint command and control. And the requirements were an interesting dynamic too because right when I got here, I do what I always do as — I pull out my orders and I read my orders before I start my job. And I know many people in the audience heard me say this before — I'm going to say it again — but the law is one of my orders. And it's interesting when I actually read the law of what the JROC is supposed to do, two things jumped out at me amongst five that I carry with me all the time — six that I carry with me. Number one, the JROC is supposed to assess all joint military

capabilities and identify, prove, and prioritize gaps in those capabilities.

We've never really done that and we're starting to do that now. But down there at number five is to identify new joint military capabilities based on advances in technology and new concepts of operation. And that's exactly what this is. So on the first of July this year we at the JROC, which is me and the vice chiefs of the services, published joint strategic directives, requirements for each of those functional battles that are now mandatory compliant on all the services. They have to be able to meet those pieces. And the reason that's so important is because if they do that, when they start delivering their platforms into this overarching structure, there's a very good opportunity to have them actually work together when they deliver them now. I think that's why the services, after a little bit of reticence early on, came to see the merit of that, because if we can define all these joint functions, the joint command and control information, logistics, everything including fires, to find that up front, then we can deliver it. And it actually enables the services to go much faster because they don't have to come back and ask the JROC for mother may I every step of the way. That's already defined when we start down the force designed problem.

MR. O'HANLON: That's a great answer. And before I ask you about a few specific programs, like hypersonic weapons, directed energy, missile defense — a couple more I want to at least put on the table, I want to ask one more higher level question, which comes out of your four main concepts. I notice that at least a couple of them focus on dealing with potential vulnerability — contested logistics, vulnerable command and control. And the 2018 National Defense Strategy talks a lot about improving our lethality, which was sort of your first — the integrated fires concept. I wonder if you worry more about lethality or more about survivability and redundancy in defense. I know it's sort of — you know, it's pointless to say do you care more about offense than defense. Obviously, you have to care about both. But when you look at the overall state of the Joint Force and you ask where are we most vulnerable, where are we most in need of improvement, is it on the lethality side or

is it on the resilience and survivability side?

GENERAL HYTEN: You'll never hear the chairman or the vice chairman ever define a vulnerability in a public forum. But what I will say is the interesting thing about the joint war fighting concept is that it looks at both. And one of the very interesting elements of how it works is that we see — and I'll just summarize it on an unclassified level, a very high level, we see the need to aggregate capabilities in order to integrate our fires. And we see the need to disaggregate our capabilities in order to survive and operate. And we have to do that very quickly in all domains with all services all at the same time in order to do that. And when we do that, it creates such a huge problem for any adversary we have on the planet that it will give us an enormous advantage. So you actually have to balance your lethality aggregated to create the maximum effect on the battlefield with the survivability, which is disaggregated in order to effectively survive.

So large formations at fixed sites that don't move are not good. And then you have all of the links between them. And it's not just COM links and command and control links, but it's the logistics links as well. And then if you're talking about the functional battle for logistics or command and control, a battle is two sided, so it's not just protecting yourself, but it's actually denying an adversary the ability to do the same thing. So you have to put all those pieces together.

So at the unclassified level, I think I'll stop there.

MR. O'HANLON: Yeah, and I understand and appreciate your answer and need for a little bit of care in how you provide, but I'm still going to ask one more along the same vein and see if there's anything more you can respond. Partly because my former colleague, Frank Rose, who is now the deputy director of the National Nuclear Security Administration, when he was at Brookings, he was very concerned about things like the vulnerability of our fiber optic cable on which the military depends. And of course they run under the oceans and some of their locations are well-known, locations and vulnerability of satellites, upon which we depend so much for reconnaissance and for communication, and



also the vulnerability of our computer systems which I think it was a 2017 Defense Science Board study that said basically couldn't really be vouched for, that there were way too many commercial types of software even in nuclear systems that potentially could be hacked.

And I guess let me put it in a way that maybe makes it a little bit easier for you to talk about in an unclassified setting. Is there any one of these areas that you feel has seen major progress in the United States improving whatever the vulnerability might have been and making that less glaring, less apparent, and less important if we do wind up fighting against a high end threat?

GENERAL HYTEN: So I'll talk about some of my frustrations, because I think some of my frustrations will get at your concerns without going down to the specific level, which I really can't do in an open forum.

But when I think about my frustrations, we've been talking about the challenges we have with vulnerable space architectures for a decade now. Because a decade ago, when we started looking at the advancing threats we were going to face, we realized we had a very — you know, a very small number. And I, you know, in a speech when I was at Space Command — and that's probably six years ago now — I said they're just a bunch of fat, juicy targets. And that's what they are, because everybody knows where they are, everybody knows what goes through them, everybody knows how important they are. And so we've told the entire world. And then we've said at the same time, we recognize that and so we're going to build a more resilient architecture.

And I can tell you the Space Force has developed, you know, the concepts for what this new architecture is going to be, but we have not moved down that path. So if you open up the space budget right now, you look in and you'll still see the same challenges that were there 10 years ago are still on the budget today. So we have to start moving quickly in order to address those things.

The good news is that because of the investments that we made in SBIRS and AHF and other capabilities in space, we have just exquisite enormous advantages over

an adversary for the foreseeable future. Now, whether that's five years or ten years, I can't tell you, but as fast as China's going it's probably on the lesser side. So we've got to start moving fast as we look at that.

We've also identified the challenges that we have across our entire COM infrastructure. And you talked about the nuclear piece. You know, when I was at STRATCOM, I'll tell you what, I looked really, really hard at the vulnerabilities of our nuclear command and control architecture. And I can tell you I became very, very confident that we could survive any threat that existed when I was the STRATCOM commander, that somebody could throw at us and still be able to communicate and survive through any threat, which is critically important.

But now I see China starting to build different capabilities, capabilities to deny that. And then my biggest concern in that area is actually not with today, but it's with tomorrow, because a lot of those capabilities we built we built in the '50s, '60s, '70s, copper cable underneath five states in America that — you know, thousands and thousands and thousands of miles of that deeply buried that nobody can get to. Nobody even knows where they are half the time, even if you went hunting for it. But it creates huge redundancy in our capabilities. But just like any other material item that's 50 years old, it starts falling apart and it's going to have to be replaced. It can't be replaced with thousands of miles of copper cable — it just can't. You know, we don't work that way anymore, we don't work analog anymore, it's digital. So it's going to go to a digital environment in 20 and 30 and beyond, which is going to be different, but it's going to attach itself to the areas you just described that are vulnerable. And as it attaches to yourself, that will create vulnerabilities if we're not smart about it.

So coming up with a different way to do that is going to be critically important. So if you look at the entire enterprise, what you have to do is you have to build resilience, resilience in the Force, resilience in the capability, resilience that will survive any threat that anybody throws at you. And we have to be able to be postured to respond to that

threat. That allows deterrents to hold.

MR. O'HANLON: Fantastic. And you mentioned budgets a minute ago. I'm going to in a couple of minutes — before I go to audience questions, I'm going to come back to the overall size of the defense budget and ask you any reflections you might have on that. But before I do, could I just mention all together in one question, some of the signature technology innovations, poster children that have been featured in the NDS, hypersonic weapons, directed energy missile defense, some of the nuclear modernization programs that you were of course so involved in at Strategic Command and still today. Anything else that would make your short list of how we should, you know, see our top priority weaponry? And one might add the B21 bomber or maybe things that we're not building very fast or prioritizing very much but should, like long range unmanned aerial vehicles flying off aircraft carriers or maybe more robotic submarines operating off mother ships. Anything that you would want to put on a short list and highlight either the progress or the lack of progress?

I'd just love to hear what leaps to your mind when that kind of a question about specific programs is put before you.

GENERAL HYTEN: So I'll give you two categories of programs and then I'll break it down inside it.

So when I look at our current Force design, our current Joint Force design, I see two elements that need significant improvement. Number one is the ability to effectively hold any target at risk on the planet anytime, anywhere. We've had that really for the last 20 years, but now with the advent of again great power competition and with the advent of capabilities in China and Russia, that has been put at risk. That's where hypersonics come into play. Because right now we can hold any target on the planet at risk, today. We do. And we do that every day, and everybody knows it. It's the nuclear weapons that are deployed every day. The adversaries that we face cannot do anything about those nuclear weapons. And so that holds everything at risk. But if your only ability to hold a target at risk is a nuclear weapon, that's a bad place to be. That is a really bad place to be because that

runs the risk of an escalation into a world that we don't want to exist. You know, we were talking about Secretary Mattis a while ago. My first conversation with him about nuclear weapons, he's asking as he — unbelievably detailed questions and being the STRATCOM commander I'm giving him unbelievably detailed answers about nuclear weapons and the Force structure that we have and how command and control works, and find after about an hour he just stops and said, hey, just explain to me in simple English the most fundamental thing, why do we have nuclear weapons. And my answer was one sentence, to keep people from using nuclear weapons on us. That's why.

And so you don't want your only capability to be the capability to cause an escalation in nuclear conflict. That's why we need hypersonic capabilities. Actually hypersonics — when I was the STRATCOM commander I never talked about hypersonics. And I kind of fell into the trap, because you pulled me into the trap this time, the real requirement is conventional prompt strike. That's the real requirement. Conventionally hold targets at risk anywhere. Hypersonics happen to be one of the solutions to do that, but cruise missiles can do that, other capabilities can do that as well. We need a mix of capabilities to do that.

The second category is on the defensive side. And it's not that I have concerns over our defenses working against North Korea. I'm very confident with our missile defenses against North Korea, but the defensive capabilities that we've been building tend to be very, very cost prohibitive on us. We need to come up with defensive capabilities that are cost imposing on the adversaries, not cost imposing on us. And when our interceptors cost more than the weapons attacking us, that's a bad place to be. It's not just on missile defense, but that's across the board. That's where a technology like directed energy has a huge, huge potential to change the equation, because once you build it, it's just energy. It's energy promulgated in form of light. And if that light can be promulgated in a cost-effective matter and take out targets, well that's a cruise missile on the way in, a ballistic missile in the way in. You can see any number of different capabilities that changes

— all of the sudden your ability to improve your defenses in a cost-effective way for you are changed.

Now, a challenge with directed energy — and I've worked directed energy for decades now — and I had a boss once who was a secretary who in a briefing said imagine a giant neon sign over my head that said in the entire history of the world, in all of the capabilities that we've ever built, no directed energy system has ever worked. Now, start your briefing. And, you know, that's important to realize. But it's also important to realize that technology has advanced significantly. And we're actually getting very close to that kind of capability.

And so then we have to take those technologies and integrate them into a joint concept, which is the joint war fighting concept, that actually requires that in the integrated fire zone, both on defense and offense, to effectively work. That's why you have to embed these in a concept.

And the last thing I'll say is that concept is by definition aspirational. Many things in that concept we will not be able to deliver, but as we learn and as we experiment — — because we're using that concept to drive experimentation now — as we learn from the experimentation we're going to see much better capabilities that more accurately deliver the kind of integrated joint fires and joint capabilities we need in order to deal with threats in the future.

So that's a little bit long, but I wanted to make sure I hit the elements that you addressed.

MR. O'HANLON: That's very, very good and it sets up my last question — and I want to thank the audience. We've got a few questions in their queue. And anybody who still wants to send one in, it's at [Events@Brookings.edu](mailto:Events@Brookings.edu). I'll try to weave it into the conversation in the remaining 15 minutes.

By my last question is about the defense top line. And I'm not asking you to wade too much into a political debate, but I can't help but remember that when the National

Defense Strategy was issued in 2018 it was pretty clearly stated by most participants in that conversation, and then by the independent commission that reviewed the NDS thereafter, that 3 to 5 percent annual real growth in the defense budget would be necessary in order to implement and achieve the vision of the NDS.

And of course we got some of that. There was sort of a mini Trump build up if you will. But even President Trump before he left office, and now President Biden, have entered us into a period of more or less flat budgets. Admittedly, there has been some congressional desire to increase that a bit for 2022, but overall I'm just curious as to whether you believe that the NDS absolutely requires 3 to 5 percent annual real growth, or can we achieve much of it even with a lower budget? General Berger, when I did an event with him in May, a public event, he said that if there were stability in the budget that would help him even if there weren't growth, that he valued stability even more than a specific number of upward movement. I don't know if that's your philosophy or if you want to comment in any other way.

GENERAL HYTEN: So I'll say if we continue to do business as a Nation the way we've been doing business, the minimum we need in order to succeed with the threats we're facing is 3 to 5 percent real growth a year. And if that doesn't happen, that means we have to change the way we do business.

I had a boss once — and I'll modernize his statement to me — and in today's day and age it would be, you know what, for \$700 billion a year we should have a pretty darn good defense. Do you think anybody — any taxpayer in this country would believe that for \$700 billion a year we can't have a great defense? We should be able to. It's crazy that we can't, which means we have to start doing business differently, which means that if there are capabilities that we're operating that are no longer applicable to the fight we have to stop paying for them. We have to eject our old capabilities that no longer meet the threat and some new capabilities that might not meet the threat. I don't like the term "legacy capabilities" because that tends to identify old. It's really do they meet the

threat or if they don't meet the threat. If they do meet the threat, we should fund them. If they don't, we need to find something that does, and we need to move forward accordingly.

And then the stability in the budget will create more than 5 percent efficiencies every year if we had stability in the budget. Way more than 5 percent efficiencies. We institute billions of dollars of inefficiencies into our — and if you're a taxpayer I think that would drive you crazy. As a taxpayer it drives me crazy to watch the inefficiency every year. Because if you think about how we buy — I'll just look at it from a weapon system perspective, not the whole defense budget, just the weapon system perspective. If you think about how we buy things, we basically identify a contractor, that contractor builds a team of hundreds, thousands of people, that team is now setting aside, and guess what, they're being paid every day whether they're doing anything or not. So come the first of October when they're expecting new money to come in and the new money doesn't come in because the budget is not going to be around until December or January or February, whenever it comes, well, we're still going to pay for that marching army. Every day we still pay for that marching army even though they're not delivering the capabilities we want them to deliver because we don't have a budget. If we could just get that stability, if we could make sure we focus our investments on what's required for the threat only, then we can actually do it with \$700 billion a year. But if we continue the same as we are, we have to have bigger budgets.

MR. O'HANLON: It's a great answer. Thank you. Very helpful.

A question from a Hill staffer is how concerned are you about the increasingly widespread perception that America's armed forces are no longer apolitical? Is that a correct perception and is it something we need to address?

GENERAL HYTEN: So it's an important question, but I hate the question. Because the mere nature of the question means that somebody is viewing us as political. And I can tell you from the chairman's perspective and my perspective, we want to do everything humanly possible, all the way through the Force, to make sure we stay apolitical.

It is unbelievably difficult now — sometimes you're afraid even to come do an event like Brookings or I'll do another event later this week where I'm talking, just because I'm afraid that an answer I give will come out as somehow political and somebody will use it to drive. Because it's so important. One of the greatest strengths of our country is civilian control of the military. That has been defined as an element of this country since the beginning of time. And everybody I know that wears four stars, everybody I know that serves believes in civilian control of the military and does everything possible to keep out of that political realm.

But we're not perfect and that's why we get nervous about, you know, what we might say that might come out as a sideways comment. But I can guarantee you that we believe in an apolitical military. We believe that as one of the strongest elements of our country. And we want to do everything humanly possible to stay apolitical as we go through this.

We're living in a difficult time right now. But I'll also point out that it's not the most difficult time of my career. Well, it is the most difficult time of my career probably because I'm the vice chairman, but when I was younger I grew up in Alabama in the '60s and there's a lot of good people in Alabama and I love the state of Alabama. I'm proud to be from there. But in the '60s, oh my gosh, the things I saw, the things I experienced. How would this country ever come together in the face of that? And we did. And I fundamentally believe that we're going to do it again. And part of the thing that will enable that is an apolitical military. And I can guarantee you one thing, when I retire, I will stay involved in technology in military things because I think I have something to offer there, but I will be quiet on the political side. You'll never see me coming out on either side of the political spectrum. And I don't think anybody out there knows at all where my politics are. And I'm going to do everything I can to keep it that way as long as I live.

That's the way George Marshall was, that's the way all my mentors were, that's why I'm going to stay that way.

Thanks for the question though.



MR. O'HANLON: Thank you. Yeah, it's very well said. Very memorable answer.

And now a little more closer to home technical question, which is about the military combatant commands in an increasingly global security environment. And is it now becoming a little bit obsolescent to have such clean geographical demarcations? In other words, should the joint staff play a greater role in synchronizing joint activities?

GENERAL HYTEN: Yeah, so it's actually one of my favorite questions because it was answered by somebody for me when I asked that same question to that somebody. And so when I was at STRATCOM I asked that question to the chairman at the time, General Dunford about saying were we organized correctly for this global world that we live in right now. And he looked at me and he — and it was really instructive to me, so I won't describe the color that went with it, I'll just describe the factual elements of it. And the factual elements were wouldn't it be nice if we tried to figure out what we can do with the organization that we have today and then figure out what's missing rather than do what we normally do, which is try to reorganize ahead of understanding the problem.

How about we try to figure out the problem and then look at our organization and then figure out what's missing and then make adjustments accordingly. What we try to do — and this is all the way down at the lowest level. When you come in and you see a problem, the first answer for any bureaucracy is I'll reorganize. That's how I'll solve the problem, because I'm clearly — since I'm not being fully effective right now, I must be organized incorrectly. There actually may be a whole lot of fundamental problems that you don't even understand. How about we go try to figure out those problems and then we'll look at the organization. That's where we are right now, and I think that's a really good place to be.

So let's figure out the organization, what we have to do, the capabilities we have to have in order to do that, how the force has to be structured in order to do that, and then try to apply it to our current organization. And if it doesn't work, then adjust the

organization. Let's do that last instead of first.

MR. O'HANLON: Fantastic. I've got two last questions, with apologies to those who sent in questions that I won't be able to raise, but I think these last two are a nice way to wrap up the conversation, because one is going to ask you about the allies. How we're doing with ally cooperation in acquisition and modernization, but also more generally, burden sharing and other kinds of activities.

And then the second one will allow you to come back to your frustration with slowness and explain if there are any kind of structural fixes that we need to make in order to get faster in the various things that you want us to do more rapidly.

But let me pose the allied question first. And it was specifically about burden sharing, but also about joint modernization and synchronization.

GENERAL HYTEN: Well, if you ever want a better example of why it's great to have allies and partners, just look at the last two months. You know, when we dropped in into Kabul in the middle of August, you know, less than a month ago when we dropped into Kabul — less than a month when we dropped in. now, it's like history. It's like over. It's like, you know, they're already writing history books about it. But it's less than a month ago when we dropped in. And then in the next 10 days, 2 weeks, we pulled out 124,000 people. Where are you going to put those people? That is a lot of people to do.

And so, you know, I can't tell you how great our allies and partners were. Germany came through, Spain came through, Italy came through, Qatar, UAE, Kuwait, Saudi Arabia. They're just spectacular, spectacular in the support they gave us.

And then you look around the world at the folks who came through with capabilities to help us with the air lift, that sent airplanes from all over the world in order to help us. The C17s were going into HKIA and Hamid Karzai International Airport in Kabul. The C17s were going there. But that's where the C17s were focused. And there were — like every 45 minutes a C17 coming in and out all day long. It's just remarkable. But there had to be airplanes to move people around in Europe, in the Middle East, and then back to

the United States. We had to implement craft to get 18 more planes — 18. That's a small number and that was on top of our partners and allies.

So holy cow, that's amazing.

And the last thing I'll say about allies and partners is one of the neat things about the new joint war fighting concept is that embedded in it is a new way of dealing with data and sharing of information. Because right now one of our biggest impediments to integrating with partners is our inability to share information. Because we can't even get our closest allies to have free access to our secret network. It's just because — everything is labeled secret noform. And so we can't even get people on there.

But in the new concept one of the ways of dealing with data is that the data will go into a cloud architecture, maybe more than one. It will go into a combat cloud architecture. And then you'll be able to access the data based on the credentials that you bring to the problem.

So if the credential says that I can see X, Y, Z, you see X, Y, Z. If it says I'm going to see Q, P, and R, I see that. So I don't have to cut off the data base, I just have to work the credential problem. And all of the sudden everything is accessible to me. That means that an address or an ally in the future can come with us and work directly on that problem that we want to work with.

I think that enabling our allies to become more closely related to us is going to be hugely important. And that's what's happening.

MR. O'HANLON: That's fantastic. Thank you very much. And also there were questions about the cloud and about next steps in the joint war fighting architecture or concept. So you managed to address several questions in one answer.

Very final one. Do you have any thoughts on any particular — I realize the question is too big to expect a comprehensive answer, but you talk about your frustration with speed, whether it's in the acquisition world in particular or elsewhere, is there any kind of additional structural fix or legal fix or reach out to Silicon Valley, beyond DIUx and other

previous efforts? Anything that you would advocate that we either initial now or resource more effectively to improve our speed?

GENERAL HYTEN: I'll say two things real quickly. Number one, you talked about Silicon Valley, and we took a JROC trip out through Silicon Valley, through Seattle, through San Diego, through Austin to understand the new industry. Because actually if you think about the United States, we're still leading the world in technology, it's just not all on the Department of Defense. Most of the places we lead in technology are not defense related industries. So we have to be able to take advantage of that. And DIU is a good experiment. But that's not — you've got to fully embrace it and understand how to take advantage of the technology because, you know, as General Dunford used to say, we are the good guys. We've got to take advantage of those pieces that are out there.

And then the second piece is that we have to empower people to make decisions. And if you look at — you know, even in communist countries scientists and engineers are now empowered to take risk and make decisions. In many cases, we've removed that authority from the people that are actually managing the programs and building things. They have to come all the way to the Pentagon, go all the way through the Pentagon, sometimes across the river, either into one big white building or another big white building, to get permission to do anything.

When we used to go fast, that authority was handed down and people were allowed to take risk and fail and move quickly and they did. And when they failed, they were fired, and we found somebody else to go do it. And that allowed us to move fast. So we have to be able to push things down and allow people to take risk — smart risk again. And we have to understand that failure is not always bad as long as you learn and move forward.

So I threw a lot in there, but thanks for the time. I very much appreciate it.

MR. O'HANLON: General Hyten, thank you on behalf of all of us at Brookings and so many Americans, all Americans who appreciated what you and the men and women that you work with have done for the country. So wish you the very best for the

fall and the very best thereafter. And just wanted to say thanks.

And signing off from Brookings.

GENERAL HYTEN: All right, out here. Thank you very much.

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