

EDELMAN: Thank you for joining us for today's Foundation for Defense of Democracies event. I'm Ambassador Eric Edelman, a member of the Board of Advisors at FDD's Center on Military and Political Power.

Today, we are honored to be joined by General Charles Brown, the 22nd Chief of Staff of the Air Force.

In its annual report to Congress on the Chinese military that was released last month, the Department of Defense warned that the People's Liberation Army Air Force is "rapidly catching up to Western air forces." General Brown testified this summer that China and Russia have "studied, resourced, and introduced systems specifically designed to defeat US Air Force capabilities."

Meanwhile, the US Air Force is attempting to address serious modernization, readiness, and force structure challenges that compete for finite resources. The Air Force's aircraft fleet is 30 years old on average and more than 40% of aircraft are beyond their intended service life. Exacerbating these challenges and delaying efforts to address them, the Department of Defense is operating, yet again, on a continuing resolution due to the absence of an on-time defense appropriation from Congress.

General Brown is right to warn that securing our nation requires, among other things, "a modernized and ready Air Force." As the National Defense Strategy Commission, chartered by Congress, reported in 2018, "Regardless of where the next conflict occurs or which adversary it features, the Air Force will be at the forefront. It will need more stealthy long-range fighters and bombers to penetrate advanced air defenses, as well as more tankers to refuel them and allow them to operate at longer ranges. It will need additional lift capability, especially if the United States intends to project power across the Pacific. Above all, it will need more intelligence, surveillance, and reconnaissance platforms to give commanders the information they need to fight and win."

Can the US military assume it will have air dominance in a potential conflict against China and Russia? What are the leading readiness, force structure, and modernization challenges confronting the US Air Force? How does the seemingly habitual congressional reliance on continuing resolutions impact the Air Force? What kind of overseas US Air Force posture is required to secure US interests? How secure and strong is the US Air Force's domestic innovation base? How can the US Air Force work more effectively with allies and international partners to secure common interests?

In *Securing the High Ground*, my colleague Bradley Bowman, senior director of FDD's Center on Military and Political Power, discusses these and other questions with General Brown.

General Brown serves as the senior uniformed Air Force officer responsible for the organization, training and equipping of 689,000 active-duty, Guard, Reserve, and civilian forces serving in the United States and overseas.

He was commissioned in 1984 as a distinguished graduate of the ROTC program at Texas Tech University. He has commanded a fighter squadron, the US Air Force Weapons School, two fighter wings and US Air Forces Central Command. Particularly relevant to our discussion, prior to serving as the Air Force Chief of Staff, General Brown commanded Pacific Air Forces for US Indo-Pacific Command. He is a command pilot with more than 2,900 flying hours, including 130 combat hours.

My colleague and friend Brad Bowman focuses on US defense policy and strategy at FDD, having served as a long-time Senate staffer, Army officer, and assistant professor at West Point.

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And with that, over to you, Brad, to begin the discussion.

BOWMAN: Eric, thank you for that introduction. General Brown, I want to thank you for joining me for this conversation to talk about our nation's Air Force.

BROWN: Well, Brad, thank you so much. It's a real honor and a pleasure to be here with you today.

BOWMAN: Thank you. Well, given the growing threats that we as a nation confront, particularly in my view, from China, but also Russia, it seems to me that the United States and the joint force need a ready, modern, capable Air Force of sufficient size more than ever. So, with your permission, I'd love to structure our conversation around those ideas.

So, first the threats we confront and then a discussion perhaps on the readiness of our conventional forces, the readiness of our nuclear deterrent, and then time permitting, perhaps we can go through a smorgasbord of topics and go from there.

So with that, General, I'll jump right in. In your written testimony, as some will know, you testify regularly to Congress as Chief and as a member of the Joint Chiefs of Staff, in your written testimony at the Senate Armed Service Committee on June 17th, you said something that really caught my eye. You wrote that, "Competitors, especially China and Russia, continue aggressive efforts to negate our longstanding war fighting advantages while challenging America's interests and geopolitical position." You said, "They've studied, resourced, and introduced systems specifically designed to defeat Air Force capabilities." If you wouldn't mind, General, can you provide some specific examples of where you see Chinese or Russian capabilities that you find particularly concerning in the air domain and how they're trying to offset our traditional advantages?

BROWN: Yeah, sure, Brad. I look at this broadly. I think part of this is based on my experience as an Air Force officer, but also as a senior ranking officer. And I spent quite a bit of time in the Middle East as a general officer where we were really fighting in an uncontested environment. And I'll even say, when I did the second year of the Defeat ISIS Campaign, where we were doing operations in Syria and we were flying permissively in a non-permissive environment. And what I mean by that is there was plenty of capability that the Syrians had integrated air defense systems. And we were able to work through the MOU with the Russians to actually work really more of the de-confliction and safety of flight type things, which put pressure on Syrians not to interfere with the Defeat ISIS Operations.

At the same time, because we've been focused the Middle East, what I did see and really hit me when I became the Commander of Pacific Air Forces in July of 2018. And going back to January of 2018 is when the National Defense Strategy came out, and it really talked about China and Russia and great power competition. And what I found was that I personally had not been paying attention as closely to, really, the Indo-Pacific, but I did have some experience in Europe because in all that time between Middle East, I actually spent 15 months in Germany as the Director of Operations for United States Air Forces in Europe - Air Forces Africa. And I got to that position a week after the Russians went into Crimea. And then I watched the Russians also come into Syria when I was the Air Component Commander for CENTCOM.

And so what I did see is the capability, in this case, let me talk about Russia really quickly, the capabilities that they had vis-à-vis Crimea, but also some of the capabilities they were bringing in and using in the Defeat ISIS Campaign, where they brought in some of their advanced capabilities. So, you're able to see that as well as being able to shoot land-based cruise missiles into Syria, for example.

Even more broadly was when I went into Commander of Pacific Air Forces was how much the PRC had improved their capability over the course of really 20 years, and in some cases, I would say 30 years that the United States Air Force has been in the Middle East. And when I came into my staff and first got there, they were just coming off a great focus on North Korea, but at the same time, we talked about how things have transpired really over the course of the past five or six years. One of the key areas that they highlighted to me was that the H-6 bombers that the People's Liberation Army Air Forces operate, they typically would not operate over water. It was very rare they would operate over water. And matter of fact, it was a reportable event if they operated over water. Fast forward, probably four or five years later, flying over the water was a regular occurrence multiple times a day. And so it's become a norm. So you've watched that capability to increase from their bomber capability, which we're able to see in how they operate in parts of the Indo-Pacific, how they've also increased some of their fighter capability. But the concerning piece also is their missile technology, whether it's a hypersonic, ballistic missile, cruise missile capability, it puts our air fields at risk for when we operate.

And so that to me is one of the key areas I'm concerned with, particularly in the Indo-Pacific. Russia is maybe a little bit different and it's their nuclear capability. But I also say the same thing for the PRC as you've watched in the press that they've started to increase some of their nuclear capability as well.

So when I look at both those areas, they're both advancing in certain areas and they've been able to watch us operate. I'd say the Russians probably more up close, in some cases, than the Chinese just based on our interaction in Syria, for example. But I also say the Chinese have watched us operate around the world over the course of the past 20 years and particularly in the Middle East and watched our tactics, techniques, and procedures, and then watched our equipment operate. So that's kind of a long answer, but there's a lot that I've been thinking about as an operator out in the field, and as Air Component Commander a couple times, but also now here as the Chief of Staff.

BOWMAN: No, thank you, General. I think that's a great answer and, I think it's a good thing for our country that you have those firsthand experiences, both with respect to the Russians and the Chinese. And as some viewers may know, the Department of Defense released a report, its annual report, to Congress last month. And in that, the department explicitly said, reinforcing what you just said, General, the People's Liberation Army Air Force is "rapidly catching up to western Air Forces." And I noticed General and some of the viewers may not know this, that in August 2020, you published a document, "Accelerate Change or Lose." As someone who reads my fair share of strategic documents from the Pentagon, for what it's worth, I thought it was refreshing for its candor and sense of urgency.

That's frankly, not something I've always seen when you read strategic documents coming out of DC and the title, "Accelerate Change or Lose," that's pretty stark, but I think it captures the sentiments that are expressed throughout the document. And from my humble perch here on the outside, it captures the stakes that we confront as a nation. I noticed that you've also said democracy, quoting you, "Democracy is not a birthright and neither is air dominance." Air dominance is not a birthright. General, what do you mean by that when you say, "Air dominance is not a birthright"?

BROWN: Well, you think about what our United States Air Force has been able to do with our joint teammates. The last time that US service members were attacked from the air, it goes back to the Korean War. And so we've been able to

have air dominance, air superiority in a number of different locations throughout all the conflicts we've been in, or we're fighting in conflicts where the adversary doesn't really have an Air Force. And so from that aspect, we just can't take it for granted. And that's the part of where, in some cases, it's how we operate and how we think. Maybe it's just assume it's going to happen. It does not happen by magic. It doesn't happen without the hard work, the capabilities we acquire as an Air Force, the Airmen that make all of this come together.

As I like to say, even the capabilities we do have, whether it's what we have today, versus what we're trying to harness for the future, all of that is a static display without outstanding Airmen to make it go. And that was one of the things that really resonated with me when I was the Air Component Commander for CENTCOM because I'd have a spreadsheet each day showing what we were flying for combat operations, but that was just a spreadsheet that really is a piece of paper. But what made that piece of paper come alive was the number of Airmen and the capability we have to make all that happen. And we just can't assume that's the way it's going to always going to be, particularly if we're going to be challenged. And that's why we've been really good as Americans with our allies and partners to operate in the aspect of air superiority and air dominance, but we can't guarantee that.

That's where you see that our adversaries will challenge us because they understand and respect the United States Air Force and what we do with our joint teammates and with our allies and partners. So from that aspect, what I want to do is actually ensure that we don't get into a place of complacency and still have a sense of urgency that if we have someone that's going to compete with us, that we have some things that are at risk. And if we don't start moving forward and thinking about it and studying them as much as they're studying us, then we might regret it later. And that's why I want to make sure that we all understand, not only the outstanding things that our Airmen have done, but also the aspect that we just can't take it for granted.

BOWMAN: Thank you for that. As a former soldier whose career wasn't nearly as impressive as yours is, I would concur with what you've said about assumptions, about air superiority. I lived that as a young officer and later as a Black Hawk pilot. I always assumed that the good guys controlled the air, and we did. And for what it's worth, I agree that we need to be careful about that assumption going forward.

For listeners who don't do this kind of thing for a living full time, we cannot assume that everything's going to be like the 1991 Gulf War. The world has changed and our budgets, our strategies, our policies, and our capabilities I would argue, have to reflect that. So General, with your permission, I'd like to move on. At our think tank, we don't like to just admire the problem and wring our hands about it. We want to talk about what we, the good guys, working with our allies and partners should do about it. So, with your permission, I'd like to transition to looking at the Air Force.

So, what do we do about these problems we just talked about? Perhaps we can organize it by readiness, force structure, and then modernization. Actually readiness, modernization, force structure. So readiness. General, you know this. You've lived this. But for the viewers, when we talk about readiness, we're really talking about, do units have the right number of people? Are they properly trained? Do they have the right equipment? Is that equipment well-maintained? And are individuals and units ready to conduct the missions they're assigned? When I say readiness, that's what I mean. General, in your view, what is the state of the readiness of the US Air Force right now?

BROWN: Well, I'd say it's good for the environment that we've been operating in for the past 20 years, particularly in the Middle East. But I do get concerned about thinking about the threat that we see in the future that's advancing and the conversation we have here, when you talk about readiness, some of our younger folks will say, "Got it, General Brown. You want us ready, but ready for what?" And part of this is we got to think about, it's just not the capability we

have, it's also thinking about the threat and based on the threat and the adversaries we may be up against, or the geo-strategic environment we're in, we have to make sure we're ready for these future events, because we can't predict the future. And I will tell you most times that those that predict the future are going to be wrong.

It's going to be something different than that. But I think we can shape the future. And how we shape the future is what we do as United States Air Force to take a look at the things that we've been doing, really for the past 20 years, and how we start to evolve, where we go to in the future. And this is an area that, in fact just here about two weeks ago, I sat down with my Director of Operations and their team. We go, "Okay. So now let's step back now and take a look at all the tasks we've asked for ourselves to do, the things we've gotten comfortable with over the past 20 years. And then now what do we look at? Other skill sets, the task that we need to be thinking about for the future." Which may be different.

Some of them are going to be core, they won't change much, but there's some that are going to need to be different. So that's an aspect that we got to start putting out those things on it that we need to start working towards what will shape and change that readiness, not just for our Airmen, but also as you start looking at the capabilities, we'll go into maybe a following question about modernization.

BOWMAN: Thank you for that. An editorial comment from me that you don't have to respond to unless you want to is you said it so well, "Ready for what?" If we don't define specifically what we're getting ready for, and we find ourselves trying to be ready for everything, we're going to dilute training time, resources, attention in a way that's dangerous. And seems to me, we have to be first and foremost, focused on the most threatening challenge, the pacing threat, if you will. And that seems to be China and Russia. Do you care to comment on anything I said there, General, do you agree with that, disagree?

BROWN: Exactly. The 2018 National Defense Strategy, I thought it was a good strategy. And we're in the process of writing one for 2022. I think it's going to be a good strategy. It's really now how we execute and implement that strategy. That to me is, you mentioned my "Accelerate Change or Lose," kind of a strange document for coming out of DC. Well, the interesting part is, the last time I served in DC, I was a colonel. And so I spent a lot of time away from DC and it gave me a chance to look at things a bit differently, which is why I wrote what I did.

But at the same time, when you think about strategies, they're only as good as what we do to implement them. And the discipline part that we do here inside of the Air Force, inside of the Department of Defense to balance how we take the resources of the United States Air Force and the rest of our joint teammates and how we use those against what we outlined in our National Defense Strategy, which underlies the National Security Strategy and therein lies the urgency of today versus how we ensure that we're going to be ready for a contingency that we can't predict, but we know we want to be prepared for in the future.

So there is the balance and it's a natural tension. It's a good tension. I think by having that tension, it hopefully does not put us in a place of complacency where we force ourselves to ask ourselves the hard questions and understand the give and take of what's required for today but ensuring we're ready for what we foresee might be on the horizon in the future.

BOWMAN: Those comments, at least for me, are very well received. You mentioned the National Defense Strategy and talked about strategies in general. It seems to me, and you talked about being of the receiving end as a Colonel, of documents coming out of DC. A lot of things with the word strategy on the cover page, but I would argue really aren't strategies because a list of, "Here's what we'd like to do," or, "Here's what we've accomplished." As someone who

taught a little bit of strategy at West Point, that's not a strategy, right? A strategy is coordination of ends and means. And if we don't coordinate ends and means, establish priorities, then I would humbly submit that's not really a strategy. And so that's welcomed to hear you, General, saying that. Before we move on to other topics, there's so much here to cover and not enough time, but if I may ask, what are your most serious readiness concerns for the US Air Force? What, if I may, what keeps you up at night in terms of readiness concerns right now specifically?

BROWN: Well, just ensuring that we don't spread ourselves too thin. I've said before and feel that the United States Air Force is very popular because of the capabilities we provide—and I've watched this as I've worked Global Force Management at various Combatant Commands or particularly at CENTCOM, where I was as a Deputy Commander, but also working with the Air Force as Air Component Commander and now sitting here as the Chief of Staff. So we do see that the Air Force is popular. And oh, by the way, because we can move very quickly, that we can do and get places in days and weeks, which may take others weeks and months. So we can put combat power in different places very quickly. So there's some goodness in that, but by the same token, if you keep using it over and over and over again, you don't have a model to kind of reset it, which is why we're really looking at how we set ourselves up so we can actually posture ourselves so we can actually have forces committed, have forces reset, have forces repair, and then have forces ready and have a cycle to do that and then not pull forward.

Because as soon as you start pulling things forward, you start dipping into the well, and you don't want to go to the well and the well is dry. So that's an aspect of why, when I look at readiness, this is usually the things that concern me, of, if we're over-executing flight hours on aircraft, for example, and we prog[ram] out its service life for X number of hours per year and we're doing twice that amount, that means that aircraft is going to reach the end of its service life much faster than we expected. And those are the kinds of things that worry me because, then we're going to put ourselves in a situation that will impact future modernization. Not just today's readiness, but also future modernization.

BOWMAN: So if you're operating at such a rate, if your crews are flying so much or aircraft are flying so much you don't have time to maintain or to train, then that over time eats into readiness.

BROWN: Yes.

BOWMAN: General, last question from me on readiness, if I may. I worked as a former longtime Senate staffer. I had a second-row seat, if you will, during the 2016 timeframe, to what I would characterize as a readiness crisis for not just the Air Force, but for the US military broadly in that 2016-2017 timeframe. I noted that in 2017, the then Secretary of the Air Force and Chief of Staff informed Congress, "We are the lowest state of full spectrum readiness in our history." They said that in 2017. In the spirit of learning lessons and avoiding repetition of mistakes, as someone who was serving in the Air Force at that time, what do you think? Do you agree that we had a serious readiness problem in 2016-2017? And what do you think caused that?

BROWN: Well, I agree. We were in a little bit of crisis. Part of it was driven by sequestration. So you're digging yourself out of a bit of a hole to get back on track. So the lessons learned from that is sequestration and the other one I'd throw out there is that, continuing resolutions are not helpful because what you end up doing is you basically—the way I kind of describe it, it's almost like you put your car in neutral and you're just coasting and you can't really put it back in gear and continue to move forward to do the things that we need to do to make sure we have the readiness, make sure we're doing the things to provide the capability that our Airmen need with our joint teammates, to be able to execute what the nation's asked us to do, whether it's the crisis of the day, or what's laid out in a national security, national defense strategy.

So those are the areas that I think have put us in a situation before, and this is why when we talk to our members and others, you've probably seen stuff in the press here recently, why the Department of Defense is not a fan. I'm personally not a fan of continuing resolutions, because all the great plans we have, now you've got to kind of put them on a shelf and wait, and hopefully you can get it all done in the time remaining.

BOWMAN: Thank you for that. So I hear you saying that the lack of sufficient and timely funding was a major cause of the 2016-2017 readiness crisis. Do I have that right, General, as leading causes?

BROWN: Yeah, I think it does have an impact. And it doesn't just impact those of us at DoD. It also impacts our industry partners.

BOWMAN: Yes.

BROWN: They're also looking to—they're trying to determine how do they actually support our requirements. And if they don't have a good funding stream, then they're going to get concerned it's going to come either out of their pocket, particularly for the primes, or if it's a smaller company, they might not be able to keep themselves afloat. And then the same kind of thing, if you have your supply chain and it's a bit unpredictable, then they're not going to have either the resources or the manpower on tap, ready to do things. So it'll take a dip and then it's going to have to come back up. And I think we've come back up, but it's something we got to continually pay attention to. I think COVID has taught us a few things about supply chains and the events we're going through today, how important it is, not just the beginning of this, getting that funding, but it's how you think about it all the way through to all your suppliers and make sure we have the capabilities we require to respond when our nation calls.

BOWMAN: Thank you, General. You mentioned continuing resolutions. For the viewers, this is a, shall we say, a Beltway maneuver, where Congress copy and pastes essentially the appropriation from the previous year, because they haven't passed a defense appropriation for the new fiscal year. And for the viewers, I would just flag that the new fiscal year started on October 1st. And here we are in early December and the Department of Defense still does not have a National Defense Authorization Act, which is the important policy bill, and still does not have the annual defense appropriations bill. So as we're talking about our threats sprinting, to field capabilities superior to our forces, we have the Air Force that doesn't yet have a new defense appropriations. So General, here's my question for you. And this is actually something that Major Lauren Harrison, our fellow at FDD and I published on recently, talking about the impacts of continuing resolutions. Can you speak with any more specificity on how continuing resolutions hurt the US Air Force?

BROWN: Well, exactly. One of the key areas that we tend to focus on is some of our new starts. So you can't do any—as you described you, you basically kind of cut and paste. So you stay at the same funding level that you were from the previous year. You really can't exceed that. So anything that you had planned that you want to do something new, you can't start that. So really it puts an impact on being able to start the program. So it puts you a little bit behind getting that program started. It can also potentially impact our industry partners. But also I see in some cases it has impacted our Airmen as well, because we're making decisions on personnel moves and where we go and do things, and if we can't get the appropriations done, then we can't have those actions.

So they're kind of stuck as well. So it has a ripple effect when we do these. One of the other areas, particularly as you look at this, is pay raise for our service members and some of the other programs. So there's a number of things that impact them across the board. It impacts buying power. So those are all things that create some challenges and some

concerns as we do this. So the sooner we can get to an appropriations act and the closer we can get it to the beginning of the fiscal year, the better.

BOWMAN: No, thank you for that. And for the viewers, I mean, continuing resolutions come in all forms. You have ones that are just a few weeks, a few months, then you have three, six, and even dare I say a full year continuing resolution. And just for my part, and General, you don't have to respond if you don't want to, it's just we often beat up on the Pentagon for, "Hey, you're not moving fast enough. You're not doing this fast enough. What's taking you so long?" And I was there staffing a Senator during the wonderful era of Senator John McCain. And he was rightly upset at times for the Department not moving quickly on things. And I remember some of those exchanges with senior officers vividly, but here we have a case where the Air Force is trying to sprint, but yet it's being slowed by the fact that it doesn't have a defense appropriation.

So I think that's just something important for viewers to understand. General, unless you want to comment, I'll move on to modernization. And readiness is: are we ready today to do what we want the Air Force to do, ready for what? Modernization, are we making the investments today so that we're ready in the future? So General, if you wouldn't mind, can you speak generally to how important is modernization right now in light of the China and Russian threats that we were talking about earlier?

BROWN: I do want to comment on your—

BOWMAN: Oh, please. Yeah. Yeah, by all means, thank you. Yeah.

BROWN: One of the things I did highlight in "Accelerate Change or Lose," and one of the things is I engaged with, whether it's industry, here inside the Pentagon, and with members on the Hill, is we are all in this together.

BOWMAN: Yes.

BROWN: We all have a responsibility for our national security. So I don't know that we should be pointing fingers at each other. We should be working together.

BOWMAN: Right. Yes.

BROWN: And one of the things that I—when I turn to our staff here, but also as I engage with others, is that I talk about instead of talking past each other, we need to be talking to each other and figuring out how we solve these problems together. And that's what we've got to be able to do, because when the history books are written, we want to be able to say that we all had a role to make ourselves—

BOWMAN: That's right.

BROWN: -- and not play a blame game. So I think that's —

BOWMAN: Absolutely. Absolutely. No, thank you for that. And I hope my comments didn't come across that way. That was not my intent. All I'm trying to say is that under our constitutional structure, the Article One branch appropriates money, and it's more difficult for you to do that job when the money comes late. And there's a lot of patriotic, hard-working people in Congress who are trying to make that happen, for sure. But I just want the viewers to understand how your job is harder when you don't have that, but thank you for that General, I agree.

BROWN: As you said, everybody's trying to do the right thing. It's a matter of understanding. I think for all of us it's to understand the give and take, the second and third impacts, the equities, and we all have different views and where you sit is where you stand. And I think part of that dialogue is so important so that we have a better understanding and that we can move forward together on things. So let me jump to your question on modernization—

BOWMAN: Yeah, sure. Please.

BROWN: — and the importance. What we got to be thinking about is we've actually been—I would say probably over the past number of years, we've been focused on capabilities, capabilities-based acquisition. So we're looking at various capabilities, but you didn't have really a strong pressing threat that challenges us in the way when you look at the People's Republic of China and Russia. So we need to kind of now transition to a threat-based approach. So you want to understand the threat as you look at capabilities. And so often we do our acquisition programs, and as you probably know from your time on the Hill, they look at cost, schedule, and performance. I say we also need to take a look at the threat, because you can have a good cost, scales, and performance, but if performing doesn't meet up against the threat, then that's a great program and it may not be the program we need in the future.

So some of the capabilities we have today were the capabilities that were started or around when I first came into the Air Force 36 years ago. And that's the part we've got to think about. And how many of us are driving a car that we've had for 36 years? So I just use that as an analogy that you're going to upgrade some of that, that we can upgrade some of it, but at the same time, as you look to the future on some of these, we call it our Weapon System Sustainment, really the maintenance of these aircraft is growing at twice the rate of inflation. So when you're doing that, that eats into your buying power. So to be able to modernize is something that actually is going to be capable 15, 20 years from now, you've got to make a transition, which means you've got to retire some things. At the same time, we look to the future.

So what I've really been trying to do is actually outline what I think the future looks like just kind of broadly, and then how do we make the transition from today to where we need to get to those points in the future? At the same time, last week I was out in Silicon Valley and had a chance to engage with parts of the tech sector. And it's not all about tech, but it is the aspect of we want to move at a pace as the rest of the world. We're really more of a software-driven world. And matter of fact, what we're doing today is all based on software that we—you go back five, 10 years ago, we wouldn't be doing this. Matter of fact, you go back two years ago, we did much less of this.

And from that aspect, there's opportunities out there that we need to be thinking about as we try to modernize and be more software based, because you can change things very quickly using software based on a threat, more so than the hardware. So I don't think the hardware—in some cases the hardware may not change as much, but we got to get to process of how we do software much faster, to upgrade systems and make them software based, and collaborate across our industry partners. And this is where we're looking at trying to do open mission systems so that anybody who can actually get the form factor can compete, whether it's a big company or a small company, and using software can help us upgrade our capability against the threat. So that's kind of what I can tell you broadly about modernization. I'm happy to go in more detail if you've got other questions.

BOWMAN: Thank you for that. Now my sense, and General, you'll correct me if I get any details wrong here, is that DoD generally, but also the Air Force, has been forced to postpone modernization for a long time. And we're getting to the point now where in many cases we just cannot wait any longer and the age of our core weapons systems and aircraft is getting to the point where they need replacements and they need replacements now. Ambassador Edelman in his intro, I think quoted you or a general Air Force document in saying our aircraft fleet is 30 years old, on average, if I have

that right, and 44% are beyond their designed service life, or how long they were intended to perform. Maybe as a way to kind of delve into some detail here, General, could you talk about the E-3 Sentry for viewers? What is that? How old is that airframe? And how important is it to replace it sooner rather than later?

BROWN: Yeah. The E-3 or our Airborne Warning and Control System, it's a battle management capability. It has a big radar dish on top, for those that have seen it. It's based on an older Boeing airframe. And in some cases, those airframes aren't made anymore. So when you start thinking about some of the airplanes we have, the ability to get parts for these—the one plus is the additive manufacturing where we can actually do 3D printing can give us some capability, but what you find there is as these aircraft age and their mission capable rate, meaning the airplane will be ready to go 80% of the time, those numbers start to come down.

And ideally a good number would be around 70-80% timeframe or mission capable rate, but when you're starting to see mission capable rates that are hovering down around 50%, then you can't count on it to be available when you need to be able to deploy and operate, which then creates risk for our Air Force and our joint teammates. So that's just one example when we start with some of these aging aircraft, they get harder and harder to maintain. So your mission capable rates will go down. At the same time, what you'll find is when they do break, that it takes a little bit longer to fix as well. So those are the things that we think about when you –

As you look at these aircraft, whether it's the E-3 or some of our other older platforms, and then just the day-to-day maintenance, but then also we'll put them in a depot to do good overhauls. And so when you do those as well, it's just like when you take your car to the shop and they do the diagnosis and they find a few things that you weren't planning for and it hits your pocketbook. That's the same thing that happens to the Air Force as you have these aging aircraft. So it's a broader problem, which is why when you modernize and you get new equipment, it works a bit better. That's why we tell you about the F-35.

And I'll just tell you, it is a great airplane. It's the cornerstone of our fighter fleet. It does not break very often. And so that's the beauty of it for a newer aircraft. And that's the kind of thing why it's important as you look at some of these newer aircraft, it will not break as often, which means it has less downtime and you're not spending as much money on sustainment and parts to keep it operating.

BOWMAN: So for the folks at home, if you have an old car and that car is going to be in the shop more often, you're going to spend more time and money on repairing it and trying to keep it on the road and when you need it to drive the kids to school or to go to work, it's not going to be there for you and so maybe that's a bit of an analogy to some of the challenges the Air Force is confronting. General, I can't resist asking you, can you give us any updates on, I understand the Air Force is going through a process of looking at specifically how to replace the E-3 looking at the E-7 and some other options. Is there anything you can share with us on next steps to replace the E-3 to solve this problem we've been describing?

BROWN: Yes, the platform that we're seriously considering to do this is the E-7. When we look at the E-7 as a bridge to the future, ideally we'd like to be able to do this with some other capability as well, but the one thing about the E-7, it's already being flown by some of our partners, the Australians in particular, and I've actually, as the Air Component Commander for United States Central Command in the Middle East, I've had the E-7 operate to support operations there for me. I've gone to Australia a couple times and actually flown on the E-7 to see its capabilities. We've actually included more and more exercises. The Royal Air Force from the United Kingdom is also going to purchase the E-7. I've actually had a chance to talk to both the Air Chiefs from Australia and the UK about the E-7.

So we are interested in the E-7 as a kind of a bridging solution as we look at what's the future pathway for the E-3, because we're not going to be able to keep that E-3 flying forever. And so we got to start looking at the future. I would say that for a number of aircraft, that's something we're always thinking about is how long can we keep that particular airframe going? What's its service life? How much does it cost us to continue to operate? And then when do we need to start making a transition? And so the E-7 is really the near-term way ahead for the E-3.

BOWMAN: Thank you for that. One of the issues you know well but the viewers may be less familiar with is this idea of divestments. This is a term that we throw around in DC about, and it is just a fancy way of saying a bit of what we've been already talking about. The Air Force needs the ability to get rid of older aircraft to create budget space to buy the new aircraft that our force will need to deter and potentially defeat great power adversaries. General, what is your assessment of the Air Force's divestment efforts? Are you getting the support you need from Congress on divestments?

BROWN: Sure. Brad, let me talk to you a little bit broader and I'll get to your question, but one of the things I do think about kind of tied to this is this is why it's so important for me to be able to articulate a bit about where we're headed in the future as an Air Force, because as I tell folks, as soon as you start saying divestment, that makes people nervous because it's bird in hand and they don't want to let go. And so what I try to highlight is, where do we want to be as an Air Force? What do we want to be as a nation 5, 10, 15 years from now? And we can probably all agree that we want to be in positions that we don't lose. We want to be in a position that aspects in our national security is still secure.

...So, I usually start there and then I go, if you agree with that, then there's some things we got to change in order to make sure that that stays the same based on the threat, based on where we think the geo-strategic environment is headed, which will drive us to some level of divestment. And so over the course of the past year, I've spent a lot of my personal time engaging with members and staffers. If a staffer or particularly a member is going to travel some place and they want to visit on Air Force things, I've done this several times, right? I'll explode my calendar to go there and be there because that four or five, six hours, half a day spending time talking is better than a 30-minute phone call or office call because you get a chance to one, build a relationship, two, really dive a little bit deeper into some of the details of what we're trying to achieve, and then really kind of increase each other's understandings of where we're headed.

And so as we look at—there's press reporting [from December 7] at least the NDAA was voted in the House—so by and large, many of the things we're trying to get done from divestments we can look to the future are laid out in NDAA. And I feel pretty good that we're able to do some things that we have not been able to do in the past, but that again was a lot of engagement and dialogue with members and staffers to lay some of the groundwork. So it wasn't just me, but my entire team and also those over on the Hill that were willing to listen to us and have a conversation with us. And sometimes, me being able to take some of their advice as well because that's one of the other areas, is getting some of their advice because I don't know everything. But being able to be open and getting some feedback that was very helpful to help us get in a position where, as we're closing out the National Defense Authorization Act for fiscal year 2022, we see at least from my perspective, there's some goodness there.

BOWMAN: Thank you for that. A last question from me in this category before moving on to, force structure and capacity. I'm interested in, General, how you think about risk. Strategy, as I understand, at least in part, is about managing risk and I see risk in the short term and the medium term and long term. Short term, just look what's happening on the border of Ukraine. There's some short-term risk. Medium term, I think of what the previous commander of INDOPACOM said about what could happen in the Taiwan Strait in the next six years. And then long term, I look at what DOD's saying about China's efforts to establish a "world-class" military by 2049. General, how do you think about risk? And to me, this is more than just an intellectually interesting question, it has direct implications for how we

balance our research, development, test, and evaluation funding versus procurement funding. So can you speak about how you see risk and what the implications are for RDT&E versus procurement?

BROWN: Sure. So, one of the things that I really think about, I've been thinking about this for a while before I came into this position. And it's again based on experience, is when we think about risk, I talk about how you balance risk over time. And so to me, it's almost like a water balloon. You can squeeze here, it's going to end up someplace else. And so how do you understand where that risk is being taken? And so it's the risk when we are looking at whatever the current event is, and what's going on in and around Ukraine, what do we do for that immediate risk? And then how does that impact the other parts of the world as we make decisions of what we're going to do there because we can't just do it in a vacuum. Then how does that impact our near-term readiness, our future readiness, and how that might impact our modernization.

And then at the same time, you need to be thinking about each one of these, as you kind of described, kind of what's going on today, what might happen five to six years from now, where you might be fifteen to twenty years from now, you can't just pick one and go, okay, we're going to prepare for that one and then we'll be good for that one which means you won't be ready for the other ones. You really got to think about all, really over time and go, okay, what are the things that are going to be capabilities we're going to require for each one of those? And then how do you pull those levers? I do believe, this is one of the things, particularly in the way we do software today and how much data we have.

There's a lot of data out there. And I do think there's models that we can build to run scenarios very quickly to at least get a sense. Won't probably give you a perfect answer, but it'll give you something to have a good conversation about, to center the conversation, because I've spent a lot of time in conference rooms where folks are sharing their opinions, but you don't really have maybe the depth of analysis to go with it. I think the analysis is going to be important to help us understand. And there's some historical things that we can go back in history and go, which either triggered or there's some geopolitical type things where understanding how different cultures might react to how we respond or do things we do not mirror image.

And so those are the kinds of things I think about. Now based on all that, there is the tension between procurement and research and development. I think we've always got to have something in research and development because if you don't have it and looking out to the future researching some things, again, this goes back to my trip in Silicon Valley, talking to venture capitalists where, they may try ten things, but they want at least one of them to work. And the other nine may fail. We got to be doing those kinds of things, we're looking at things to go here's—and then at some point we got to make some decisions or at least have enough analysis done on these research and development, either internal Department of Defense or with others outside the department so that we know what's in the realm of possible.

And if you did have to move very quickly, you could actually start a program to provide capability for our Airmen in the future. So you got to have a lull of research in the moment that's ongoing all the time. And again, you got to balance that with procurement. And then as you look at procurement, the other thing I think about procurement, does it have growth internal to it?

So if I buy it, can I upgrade it over time and be able to actually continue to, particularly with software, continue to upgrade or modernize that particular capability? And we've been able to do that and it wasn't by design. I'll just go back to the airplane I flew throughout my career, the F-16, which was supposed to be a day fighter, well, I've flown it, it's got so much capability that's been added onto it and we can do those things, but if we don't do it with forethought, then it cost even more to do when you upgrade the aircraft or a platform or a capability to do some things it wasn't designed to

do originally. So having a mind of, how do you start with procurement with a pathway to bring in things from research and development will be important as we operate in the future to make it cheaper for our taxpayers as we think about our future capability.

BOWMAN: Thank you. I see the department just from the outside here, I see the Department of Defense spending increasing amounts on RDT&E research and development tests [and evaluation] and I think that's an unambiguous good thing, but because of finite budgets, as you've suggested here, there's a tension with procurement, and which leads me directly to where I want to go next, which is force structure [and] capacity. Do we have enough? Right. So we want our Airmen, our warfighters to have the best capabilities, but I would argue, and you would know better than me if we don't have enough of those capabilities, if you're looking at the high end, high attrition fight and you lack capacity, enough aircraft, enough capability, enough strike capability, that can become a problem. So I guess here's my question General, if you don't mind, how big is the Air Force currently? How does that compare to kind of like Cold War high-water marks, if you will so the viewers have something to compare it against, and how big of an Air Force does our nation require?

BROWN: Well, I think about after the end of the Cold War shortly after I came in the Air Force, we were probably about twice the size of where we are today. Just based on, I'll use this, Airmen at large, we're about 330,000 total force. We were up around 600,000 and in some cases I'll use fighters as a good example, twice as many fighters than we have today. Now, the other part is there's a quantity and quality debate that you could have. We're much more capable based on technology we have and so that helps us, but at the same time, the world has not gotten smaller. And so you start looking at places you can go and how much you can have in different locations. That part becomes a bit of a challenge.

This is why when I think about allies and partners and how we bring our allies and work with our allies and partners, how we do things together and how being interoperable helps us to be able to spread our capabilities and all of us look at not just our individual national securities, but how we look at global security a bit broader. And so the other thing we look at is, as we do our war games and analysis is taking the capabilities we do have today, and how do we use them in a different way? And sometimes we got to break up how we've operated traditionally so we can actually use various different procedures, tactics, techniques and procedures. And when I think about innovation, we tend to gravitate to a new widget, a new piece of software, innovation sometimes just act-thinking differently and operating differently, which would increase your capability. And that's an important aspect of innovation that I encourage our Airmen to think about, not just about the technology, but it's also our operational concepts as well.

BOWMAN: Thank you. You mentioned the importance of allies and partners. If we have time, I'd love to come back to that in a bit. But one thing I would just flag for the viewers that I'm sure you know well General is that our intelligence community said a couple years ago that China and Russia are more aligned than they've been since the 1950s. And we've seen, and I'm sure you and your team have seen that there's been an increasing number of combined military exercises between the Chinese and Russians that suggests a degree of strategic coordination that I would find concerning. Are you concerned about growing military exercises and interoperability between the Chinese and Russians and what implications does that have for capacity, right? If we have Air Forces based in the United States and heaven forbid we had scenarios simultaneously in Eastern Europe or the Taiwan Strait, then I would think that that becomes a capacity problem pretty quickly with budget implications. Anything you care to say General on the growing cooperation between China and Russia and what that might mean for the US Air Force?

BROWN: I don't see that China and Russia are strategic partners. Much different when we think about our allies and partners, what we have around the world. But I do pay attention to the aspect that they are doing some things together a bit more often. It's something for us to continue to pay attention to and make sure that we have the capability to assure

our partners, also deter any type of a contingency crisis or conflict as we go forward. And the other aspect of this is we're just one part of this.

When you think about the instruments of power: diplomatic, information, military and economic. I think about a big D, diplomatic, and how that operates with a small M and realize economics plays a key role in there and how we operate, as well as what happens in information space.

So we want to be very supportive of all of the other parts, the instruments of power, particularly when you start looking at the economic and diplomatic piece, our role is hopefully to keep things stable, is the goal. And, but at the same time, we've got to pay attention to what's going on in the military space with Russia and China, but also in the other areas as well.

BOWMAN: Thank you for that. An editorial comment from me, you don't have to respond to, unless you want to General, is that it's certainly not, China and Russia are certainly not allies, but certainly increase, I would argue, strategic coordination between them that's concerning for sure.

I want to move in our remaining time, if I may General to one comment on diplomacy and development. I completely agree. We want fully empowered and effective tools of diplomatic and development... but former Secretary of State, the late George Shultz, has a quote that I often like to reference. He talks about the shadow of power over the negotiating table, that if we want empowered diplomats, it's helpful to have a military behind it that no one wants to fight. It seems to me Vladimir Putin understands that right now, with what he's doing around Ukraine. And for what it's worth, I think Americans should appreciate the importance of a military no one wants to mess with in order to empower our diplomats.

General, moving to nuclear triad.

BOWMAN: Oh. What was that?

BROWN: Yeah, I was going to say, I don't disagree with you with that.

BOWMAN: Okay. Okay.

BROWN: Our diplomats got to be able to go in and have that strength just like you described.

BOWMAN: Yeah. No, thank you for that.

Moving, General, to the nuclear triad. As you know, but again, some of the viewers may not, the Air Force is responsible for two of the three legs of our nuclear triad, our nuclear deterrent, the thing that keeps us safe in our homeland from nuclear attack. It's hard to imagine a more serious mission than that and a large portion of the command control and communications, the Air Force is responsible for as well, of course.

General, what is the state of our nuclear triad and how important is modernizing the two legs you're responsible for? How important is it that we complete the modernization of the air and land legs of our nuclear triad?

BROWN: I tell you, it's highly important, and this is something you only do about once a generation. And you think about where we are in both the land base part of the triad with our intercontinental ballistic missiles, and then

our bomber part of the triad. Those two, in addition to the command and control aspects of this. So we pay very close attention to it. Our Airmen, and they've been doing this for the better part of five decades plus of actually being able to even beyond that and being able to provide that backstop of strategic deterrence that provides that shadow of strength that we just talked about. And it's not only that shadow of strength, but that umbrella with our allies and partners that's so important. And you think about the land leg of the triad, it's available 24/7/365. And we want to make sure that we continue to have that capability 24/7/365. At the same time, the flexible aspect of it is the airborne leg of the triad as well.

And so both of those are going through an aspect of modernization, with the Ground Based Strategic Deterrent for the ground leg. And then for the air leg is we're going to be requiring the B-21, in addition to keeping the B-52 around for a while. It's built back in the first commitment in the Air Force in the 50s. They'll be around for a while. It was really built to last, to be able to do things we need to be able to do.

So this is something I take very seriously because it really does allow us to do all the other things that we do as an Air Force, as a joint force with our allies and partners. And we don't want to forget how important it is, particularly as you start to see increasing nuclear capability from Russia and also from the People's Republic of China.

BOWMAN: Thank you for that. I think that's so well phrased. The viewers, I think, need to understand that Russia has been going through a massive, not only modernization, renewing what they already have, but expansion of their nuclear arsenal into areas that are not covered by the New START Treaty. And China is undertaking what STRATCOM, Strategic Command, has called a strategic breakout. And you can read the recent Department of Defense report to learn more about what China's doing. So Russia and China understand the value of a nuclear arsenal. I think it's important that we do as well.

General, one last question on this. You've testified that, "deterrence requires all three legs for a response from the nuclear triad." You essentially just said that. Some have said we don't need the intercontinental ballistic missile leg of the triad. And it seems to me that some people who argue that, patriotic people just making their arguments in good faith, but it seems like they're putting a lot of trust in our undersea leg, which is amazing and incredible and valuable. But it seems to me you can't always assume that submarines will be as undetectable or difficult to detect as they are now.

Do you think that, do you agree with, and if you don't, obviously that's fine, but it seems to me, we need the ICBM leg to present our adversaries with difficult dilemmas that are tough to solve so they don't even try the attack in the first place. And ICBM leg is a core part of that. Do I have that about right? Or would you correct something I said?

BROWN: What I would tell you is, what the land leg of the triad and really having a triad, it provides our President options.

BOWMAN: Yeah.

BROWN: And whether it's you may consider it a hard target, but it provides the President options to respond. And based on the recommendations from the Department of Defense, to be able to really, ideally, we want to use these to deter. And, but we want to make sure we have a capability in the event that the President needs to use those. And by having all three legs of the triad, this provides the President more options. I think that's an important aspect that we need to understand.

The other piece of that is it's deterred for a good number of years and before we make a dramatic change, we need to think through this. For those that maybe have that opinion, this is why I still believe having watched this for a number of years, as you might imagine. And coming into the Air Force during the Cold War, I do have a good sense of what we're able to do and having done nuclear missions with dual capable aircraft, flying the F-16s in particular, I understand the importance of what we do with our triad.

BOWMAN: Thank you. Now, when we see China and Russian conducting these tests with these exotic new weapons, I've argued, we don't need to match them weapon for weapon. We just need to complete the modernization of our nuclear triad and make sure we have appropriate sensing. To me, that seems like the right move.

General, in our remaining moments, I wanted to ask you quickly about posture. So we've talked about readiness, modernization and force structure. Do we have enough? But it also matters where those forces are located, right? Particularly in the context that anti-access area-denial threats, that are unlike really unlike anything we've ever seen.

What is the value, generally speaking, in your view, General, of forward positioned air forces in light of the current threat? And I'm thinking also of agile combat employment and things like that.

BROWN: Yeah. The forward presence of our Air Force does several things. It assures. It also deters. It also builds relationships. It also puts us in a position that we can respond very quickly, if called upon to do so. And the aspect of just not only the airplanes, but as we look at agile combat employment and the concept of being able to move very quickly to be kind of more light, lean and agile as you move around. And in some cases, pre-position capability that we can operate with day to day for exercises, humanitarian assistance, disaster response, or for any other contingency. That's the approach we think about when we have this force presence.

The other aspect of the forward presence is our Airmen have a chance to go and operate in that particular environment and a sense of not showing up day one of a contingency. They've actually been there before. And they've had a chance to see that, but also in some cases build long-term relationships.

That's the beauty of the State Partnership Program that the Guard has. It's the beauty of the folks like myself. I've spent most of my time as a General Officer, not in the Pentagon. In some cases, not in the United States, but focused on overseas locations. And so I have some really good relationships with Air Chiefs from around the world where I can call them and be able to work through areas, but also talking about our Airmen that are up there with them, side by side, to work together for global security.

BOWMAN: No, thank you for that. And last question for me before I give you an opportunity, General, to say anything that you'd like to say here as we conclude. You talked about the value of allies and partners. You just mentioned overseas basing. What are the benefits in your view to the Air Force and to Airmen of combined exercises with allies and partners? For example, we have the Israel-hosted Blue Flag Exercise in October. We're doing exercises with our Quad partners and allies in Indo-Pacific. How do we as Americans, in your view, benefit from those exercises?

BROWN: Well, the thing I think about is the interoperability aspect. That is one of the key areas, is the interoperability. Being able to figure out how we best operate together with our—in some cases, we have the same equipment, because it's US made. In other cases, they may be operating another piece of equipment.

But I also think that we also learn from each other. This is one of the things I thought is we come in as a big air force. And so we are big, industrial and can be sometimes bureaucratic. When I meet with some of the smaller air forces and talk to them and our Airmen go with them, they learn some things, how they operate and do things a little bit different than we do. And then how do we bring those things into our Air Force?

And to me, that's the aspect of doing these combined exercises. And we look at our tactics, techniques and procedures and find out where there's some similarities and then there are going to be some differences that we can build upon, that we can actually improve both of our air forces or those that are involved in those particular exercises.

So there's great value in these combined exercises, as you work through and it's also understanding decision making. Even as we do, not just the flying part of the exercises. That probably gets a lot more publicity, but it's the other part of being able to sit down across the table from your counterpart and thinking about the decision-making process.

And if you go back into what I talked about earlier on the instruments of power, each of our countries may make decisions maybe a little bit differently in how we might execute. And I've seen it as a senior officer. So having a good understanding of that and how we exchange information will be important to, whether it's a kind of command post exercise or versus an operational exercise, but they all kind of come together to make us better.

BOWMAN: Thank you for that. General, is there anything that I didn't ask you that you'd like to be asked or anything that you'd like to conclude by saying?

BROWN: No, Brad. I think we covered, I would say, pretty much, pretty good across the board there. What I will tell you is that I'm very proud of our Air Force. I'm very proud of our Airmen. But as I wrote in "Accelerate Change or Lose," we've got to make some changes. And we have to have a bit more sense of urgency. And as we, as a nation, look to the future, and part of this is it's not, it may not happen overnight with a crisis. We don't want to have a crisis drive us to change.

What I'm trying to lay out is, things are happening around us and we need to be thinking about those kinds of things, so that we have the Air Force of the future, so that those that come behind us. My job is to make sure the Airmen that come, the Airmen who are not even in our Air Force yet, have the capabilities they require to make our nation safe. And that, to me, is important. That's what I spend my days and nights thinking about. And I just want to do this to make a difference so that all of us as Americans with our allies and partners have the security that we have today. And hopefully, the goal is to have that same level of security here in the future.

BOWMAN: Thank you, General. That is so well said. We want to make the investments before the crisis, not after the crisis. Investments before the crisis will be a heck of a lot less costly than ones after the crisis. I couldn't agree more.

General, please thank--Let me echo what you just said. Please thank the Airmen that you lead for their tremendous service to our country. We want to make sure they have everything they need to defend our country. Thank you sincerely for your decades of distinguished service to our country and what you continue to do for our country. And for our audience, this concludes our discussion. Thanks for watching.

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Thank you very much.