

Readiness in the Balance: U.S. Military Preparedness Amid Growing Threats

Featuring: Mark Cancian, Diana Maurer and Mark Montgomery

Moderated by: Bradley Bowman

Introductory Remarks by: Ambassador Eric S. Edelman

EDELMAN: Thank you for joining us for today's event from the Foundation for Defense of Democracies. I'm Eric Edelman, Senior Advisor at FDD, a research institute exclusively focused on national security and foreign policy. We are non-partisan and accept no funds from foreign governments. Today's event will focus on the readiness of the United States military, and implications for Congress's consideration of the Biden administration's fiscal year 2022 defense budget proposal.

Along with former CNO Admiral Gary Roughead, I served as the co-chair of the bipartisan, congressionally mandated National Defense Strategy Commission. Our non-partisan team included 12 of the nation's leading defense experts, including current Deputy Secretary of Defense Kathleen Hicks and controller designate Michael McCord.

Among other findings, our commission found that, "By 2017, all of the military services were at or near post-World War II lows in terms of end-strength, and all were confronting severe readiness crises and enormous deferred modernization costs." We concluded that, "America's ability to defend its allies, its partners, and its own vital interests is increasingly in doubt." And we warned that, "If the nation does not act promptly to remedy these circumstances, the consequences will be grave and lasting."

The primary cause of this 2017 readiness and modernization crisis was the failure to provide the Pentagon timely and sufficient funding during the previous decade. Thankfully, since our report, the Budget Control Act has lapsed, Washington provided DOD more robust and relatively more predictable funding. That level of funding has enabled the Pentagon to begin to dig itself out of the 2017 readiness crisis. We've seen significant progress in the last few years, but serious challenges remain when it comes to military readiness. Given the intense competition with China and Russia in particular, the stakes could not be higher.

As Congress considers a Biden administration defense budget request that will not even keep pace with projected inflation, it's important to understand (1) what caused the 2017 readiness crisis so that we can avoid the same mistakes, (2) the current state of military readiness, and (3) what must be done to improve the readiness of our forces. That is why I am so pleased that the U.S. Government Accountability Office (GAO) released its congressionally mandated report on military readiness this month. And I am so excited for today's conversation.

Joining us today is the GAO report's lead author, Diana Maurer, and three defense policy experts and veterans, Mark Cancian, Mark Montgomery, and Bradley Bowman. A bit more about each of them:

Diana Maurer, a Director in the Defense Capabilities and Management team at the GAO, where she leads the work overseeing defense sustainment and readiness issues. She has more than three decades of experience leading important efforts within the GAO.

Mark Cancian is a retired Marines Corps colonel, a senior adviser with the CSIS International Security Program and my colleague at the Strategic Studies Program at Johns Hopkins School of Advanced International Studies. He joined CSIS in 2015 from the Office of Management and Budget, where he spent more than seven years as chief of the Force Structure and Investment Division.

Mark Montgomery is a retired Navy Rear Admiral and serves as senior director of the Center on Cyber and Technology Innovation. Prior to joining FDD, Mark served as the Executive Director of the congressionally mandated Cyberspace Solarium Commission, where he remains a Senior Advisor.

And last but definitely not least is my colleague Bradley Bowman. Brad serves as Senior Director of FDD's Center on Military and Political Power, where he focuses on U.S. defense policy and strategy. He served as a long-time Senate staffer, Army officer, and assistant professor at West Point. Brad will moderate today's discussion, which is hosted by FDD's Center on Military and Political Power.

For more information on FDD's work and areas of focus, we encourage you to visit our website: FDD.org. We also encourage you to follow us on Twitter @FDD. I'll now turn the floor over to Brad to kick off today's conversation.

BOWMAN: Thank you, Eric. I'm Bradley Bowman, Senior Director of FDD's Center on Military and Political Power. Eric set the stage well for this discussion, I think. We've already introduced our impressive panel. So, with that, let's jump right in. Diana, welcome. It's good to see you. I'm so pleased that you can join us for this discussion. Congratulations on GAO's report that came out this month. Congrats also on your excellent testimony this week [April 22] to the House Armed Services Committee on the F-35. For those who don't reside within the Beltway and its environs and who don't do this sort of thing for a living, what the heck is the Government Accountability Office?

MAURER: Brad, first off, thank you very much. I'm happy to be part of the conversation today. And it's a great question. What is the GAO? In a nutshell, we are a relatively small federal agency, about 3,000 or so people who are part of the Congress. We reside within the legislative branch. Our job is to do reviews and assessment of basically everything the federal government does. We do our reviews at the request of Congress. We report back to Congress, as well as to the public and the media. And that's in an effort to ensure that the taxpayers are getting the most for the tax dollars that they're sending to Washington, on a wide variety of topics. I, of course, work in GAO's Defense Team. And I've had a wonderful opportunity to work with the amazing people at GAO on a wide variety of issues over the years.

BOWMAN: Great summary. In short, really, an entity that brings an independent analysis for the benefit of the U.S. government, including Congress. Is that fair?

MAURER: That's absolutely fair. Sometimes I get the question, "How in the world can you be independent and non-partisan when you are part of the Congress?" It's because everyone who works at GAO – no one's a political appointee. When there was a recent change in administration, we had no change in anyone within GAO. Similarly, if there's a change in leadership in the House or the Senate, that does not change the makeup of who we are, how we do our work. We cherish that independence. It's something that Congress takes very seriously. It's a good value added for the taxpayer.

BOWMAN: I agree. And Mark Montgomery, who we'll speak with in a moment, and I both worked in the Senate. I would regularly push for Congress to ask, explicitly, for a study by GAO because of the credibility and authenticity and independence that you all bring. That's excellent. What brings us to today? GAO and Diana did not put me up to this, but I'm holding up a published this report this month, this month. And as you may or may not be able to see, its title is *Military Readiness Department Defense Domain Readiness Varied from Fiscal Year 2017 Through Fiscal Year 2019*. Diana, why did GAO do this study?

MAURER: Like with 95% of what we do, we did the study because Congress asked us to do it. About five, six years ago, we issued a report on the status of military readiness across the services. Found a number of concerning areas or something that grabbed the attention of Senate and House staffers on the various Armed Services Committees. They asked, first off, the defense department to implement the recommendations from our prior report. But they asked us at GAO to just keep tabs on how is the Department doing on improving readiness. At that time, there was a plan to devote additional money to the Department, give them more money to help improve readiness. They wanted

GAO to go in and say, "Is readiness actually getting better or is it getting worse?" And provide some insights as to why.

BOWMAN: That's great. And so, you use the word "readiness." We've used it in our title for this event. And it's in the title of your report. For the lay person, what is readiness? What is military readiness? We use that term a lot. What do we mean?

MAURER: So, what we basically mean is, if you think of a military commander, someone who's in charge of a military unit. Readiness is the ability of that unit to execute its mission. And those missions can vary. It could be refueling a bomber in flight. It could be a naval unit that's supposed to keep sea lanes of communication open. It could be a cyber unit that needs to defend a website against cyber attack. It's a variety of different missions. And so, readiness is, basically, assessing whether or not that unit can do what it's supposed to do and what it's been tasked to do.

BOWMAN: That's a great summary and pretty clear. But, let me bring in Mark C., at this point. We're going to go with Mark M. and Mark C., as we talk here. Let me go to Mark C. first. As our guest from CSIS, Mark C., you have long experience, both in the military and out. When it comes to military readiness, you do some of the best research in D.C. on these issues. What would you add to what Diana said in terms of just a basic understanding of what military readiness is? And how maybe it's different from like military modernization, for example? Another term we hear a lot about.

CANCIAN: Right. Readiness is one element of what many people call the triangle of military capability. The other elements are modernization, which is the acquisition of new weapons and capabilities. And force structure, which is the size and structure of the forces. Every budget is a tradeoff among these three. Readiness is important because it measures, or it ensures that our forces can fight tonight and respond immediately to crises. But readiness is expensive and perishable. Every budget is a trade-off. I do get a bit nervous when senior officials disparage readiness. Arguing that it's an improper metric or asking ready for what and implying that readiness is impossible to measure. Such discussions tend to be justifications for cutting readiness. And in that we have to be careful.

BOWMAN: That's great. Thank you. Going to Mark M., now. The other Mark. Mark, decades in the Navy, years on Capitol Hill, lots of other great experience. Mark M., if you were explaining to your educated aunt or uncle that doesn't know anything about military readiness, what would you say to them? Why would you say they should care about this discussion, frankly, and about military readiness? Why does this matter to the average American?

MONTGOMERY: It's because I think that military readiness is a key component of our ability to execute our contingency plans or our war plans, in the vernacular. Not any one mission in one service can make it so you can execute a war plan. But if you look across the broad range of these readiness areas, if too many of them are below the level you need to be able to generate the forces you need, you may not be able to execute your war plans. And I'd also say that there's a requirement for these. The requirement for forces, in the present, to be out there deterring adversaries. And military readiness also drives your ability to field forces, again, in the vernacular, win the peace. The ability to be out there are those times. Readiness is a key component to conduct day-to-day operations and your ability to surge forces to conduct a war plan.

BOWMAN: That's great. It's important. It affects our security. Our adversaries' perceptions of our readiness, perhaps impact their decisions whether they want to roll the dice and try aggression. And that's why so much of this is classified. But yet if we're not honest with ourselves, then sometimes we have a struggle to get the resources we need to address problems. When people are testifying on Hill, they have to speak the truth, about a problem, to try and get the resources to fix it. But they have to be careful about how they speak the truth because you don't want to tell our adversaries things that might not be helpful. There's a balancing act here. We'll be striking that ourselves as we go along here. Back to

you, Diana. So, it's important. We got to measure it. If anything's important, you've got to measure it. If you don't measure it, it's probably not important. We got to measure it. How does the Department of Defense currently measure readiness?

MAURER: There's a whole elaborate way that the military measures readiness, which we won't go into in painful detail. But to oversimplify, but in a meaningful and informative way, readiness essentially is, the military assesses readiness based on what we call inputs. Which means they look at; do we have the right number of people? Are they appropriately trained for that mission or the unit they're assigned to? Do they have the equipment that they need? And is that equipment ready go? Or is it sitting in a maintenance yard being fixed?

Those are the inputs. Another key component of readiness is, can the unit actually carry out the mission? And that's called mission capability. And that's a little more subjective. That's based on the unit commander's assessment. And that is a function and part of all those other inputs. But it's also a function of what are you being asked to do? And if there's an adversary, or potential adversary involved, what are their capabilities? What can they do to keep you from carrying out the mission? When we went about looking at DOD's assessment of readiness, we were looking at those two broad categories. The inputs as well as mission capability which is the output of readiness.

BOWMAN: That's great. One thing that as I read your report carefully, that jumped out to me and I'm going to try to walk the fine line here, not to get too wonky, but I think it's important for the listeners to understand this is, you have the services, Army, Navy, Air Force, and then you have domains. The 2018 National Defense Strategy, which you highlighted in your letter back to Congress, which laid out serious concerns about what China, Russia are doing as well as Iran, North Korea, and terrorist groups. Talked about the importance of domains, ground, sea, air, space, and cyber. I worked a bit on the Army staff. Mark C. has Marine Corps experience. Mark M. has Navy experience. We're all familiar with how services measure readiness. Congress, correct me if I'm wrong here Diana, Congress told the Pentagon in the law, in the annual defense bill, we want you to measure it, also, by domain, by ground, sea, air, space, and cyber. Is the Pentagon currently doing that, Diana?

MAURER: They are not currently doing that. And that's been an area of respectful disagreement between GAO and the Pentagon. We're firm believers, and if Congress passes a law that says, thou shall, then thou shall. In this case, DOD's position is, we've been assessing and reporting on readiness, on the service level basis, for years and years and years. And they did not see a need to also report on a domain basis. We thought it was important. The reason Congress thought it was important, as well, is because when you think about operations, it's never just one service.

The Army just doesn't go in just the Army. It's always in conjunction with another service. Also, looking at domain, provides additional information for Congressional decision makers, particularly in domains, such as air, cyber, and space, where you have all of the services have some kind of role. All of them are doing something, particularly, in those domains. You might think Army, but don't forget about helicopters. When we talk about air domain, that also considers those capabilities as well. Congress thought that was important. We agree. DOD hasn't done that, to date. They think that what they're doing is sufficient. We're going to continue following up with them and see if they change their mind.

BOWMAN: No, that's a great rundown. In summary, Congress told the Pentagon to report readiness by domain. The Pentagon is not doing that. You said that in your report. They're not doing it. And then as GAO always does, you submit your report to the department agency and they can concur or not concur. They concurred. The Department of Defense said, "You're right. We're not following the law." That's essentially what happened here. Is that about it, Diana?

MAURER: Generally, yes. From their perspective, they think that what they are doing and what they have been doing complies with the intent and –

BOWMAN: Which arguably is not their position because it's a law and they should follow. That's my commentary. That doesn't have to be yours but let me bring in Mark C. and Mark M. here. Give us a little bit more nuance, now, as we kind of inch, from the general to the specific about the specific components of readiness. I'm thinking equipment, training, people, that sort of thing. Let me start with Mark C. and then go to Mark M.

CANCIAN: Yeah. As Diana said, measuring readiness is a bit tricky. To prepare for this panel, I went down to my basement and looked at some of the old reports I had down there on readiness. I have quite a library down there, much to the annoyance of my wife. And these debates have been going on, literally, for decades. How do you measure readiness? As Diana mentioned, the Marine Corps, the military, has this quite sophisticated method of measuring inputs. But it's very difficult to measure the outputs. In other words, you can measure how many people are in a unit and whether the vehicles run, but it's very hard to measure whether the unit can actually do the job it's supposed to do.

The Department's been chasing this kind of measure for a long time, and they do have some insights. There are some high level exercises where you can get some insights about the ability of large units to do their jobs, but it is quite episodic. The other difficulty is figuring out the connection between funding and readiness. Although there's obviously some connection, it's hard to say how much additional readiness, another billion dollars, will buy you. Again, the Department and GAO and many others have been trying to figure this out for a long time and it's very difficult. There is a great issue in measuring here.

BOWMAN: Mark M.

MONTGOMERY: And I agree completely what Diana and Mark have said, on this. I'll go one further and say that when it really gets hard is trying to figure out readiness for a near peer adversary. And there's a lot of problems with that. First, it's hard to set up an exercise that frames how your adversary will fight. That's large enough to really stress your logistical tail, without exposing your war plan to an adversary who's observing you. It becomes very hard to translate readiness to war fighting capability. But I will tell you historically, having commanded large disparate units that come together in a war fighting exercise or in operations, the reported readiness does have a general, is kind of an outward sign of an inward grace. You can see high readiness units, ones that are assessed by their training commands, whether Fort Irwin, by the training groups in Norfolk or San Diego, the ones that are ranked high do well.

There's obviously exceptions to that. But there is a tie in this, and you certainly see that with the one, the aviators who come off of Fallon. And I'm sure there's an equivalent in the Air Force when they come off their test range. But, if they rank high there, they perform well. There is a tie between readiness and war-fighting capability. I think that that's why we need the Department of Defense to assess this. And that's why we have to have GAO assessing the Department's ability to assess it.

BOWMAN: That's great. Does a unit have the equipment it's supposed to have? What's the condition of that equipment? What's the individual and collective training? These are the inputs that Diana and all of you have been talking about. I was going to save this question for later, but Diana, I'm going to pull it in now because I think it's the right time. And I'm going to read it because I want to get it right. Because one of the things in your report is, you saw an improvement in resource readiness ratings for the air, space, and cyber demands. The inputs or those resources that the equipment, don't let me misquote you, but the equipment, the condition of the equipment, these sorts of inputs improved. Yet, we saw a mission capable readiness rating decline in air, space, and cyber. What explains that improved input, but a decline in mission readiness in those three domains that you talked about in the report?

MAURER: That is a great question. And it gets to the heart of matter of what Mark, Mark and I were just discussing. When we looked at, from 2017 to 2019, for those areas, that they had, arguably,

now had more people, and they were doing a better job of maintaining the equipment they had. They had, more frequently, able to have the right number of equipment that they needed. They were more appropriately trained. The inputs, that side of the equation, had improved. But, when commanders were assessing the ability of units, and this is sort of writ large, there were bumping up against some changing realities. Foremost of those changing realities is the change in the threat environment. You can conceive of a situation where, those units that we looked at circa 2019, were put backward in time into a threat environment circa say 2009, the output of readiness would almost certainly be a lot higher because they were facing a very different threat perspective. The capabilities in particular of China and Russia have changed dramatically over the course of the last 10 to 20 years and that makes it more challenging for units to be able to say with absolute certainty that they can carry out their planned missions. There are other factors that go into it, but I think that's probably one of the most significant ones.

BOWMAN: So, in those three domains, the inputs, generally speaking, were better, but commanders assessed a growing and different threat for which they felt less prepared. So, that might explain why you have better inputs, but decreasing confidence that they can accomplish their mission, the changing threat.

MAURER: I think that's right.

BOWMAN: China and Russia in most cases, major combat operations probably. Let me transition – So, we're about to dive into the details by domain here in the report. I'm eager to do that within our allotted time. I also want to just do one last look to talk about the baseline and the history because I worry, for one, not speaking for anyone else, we're about to make the same mistake. In 2016, 2017, I'll just put my cards on the table, I feel that our country, based on true readiness ratings and the testimony of Pentagon leaders, our country faced a readiness crisis.

The Army Vice Chief of Staff attested we're out manned, we're outgunned, and were outranged and we saw a lot of this across the services. In your report, Diana, I know in September – this is a quote and I quote, "In September 2016, we found that the military services had reported persistently low readiness levels." That's from your report. Going to Mark M., when we talk about readiness, it's a comparison against the standards we've been talking about, but it's also a relative comparison to what it's been in the past. Are we improving our – That's why we have the arrows. Are we going up or down? Eric Edelman, Ambassador Edelman who did the introduction for us here, helped chair the National Defense Strategy Commission in 2018 and in their intro, they said, "By 2017 all the military services were at or near post-World War II lows in terms of end-strength and all were confronting a severe readiness crisis and enormous deferred modernization costs." Mark M., do you agree with that assessment of the National Defense Strategy and what role, in your view, did insufficient defense funding play in that?

MONTGOMERY: So, I do agree that we were at low levels readiness for the threat we were facing and that is – That's a mix of what Diana and Mark and I just mentioned, which is that there's an increasing threat and we had recognized the threat at that point too, the Chinese threat particularly, but also Russia after Crimea. I think part of that is you knew that Russia had the capabilities. You weren't sure about the intent. They showed a lot of intent. So, I do think that by that point, commanders are starting to raise that bar a little bit, but really what was happening then is the limited force structure and this gets at what Mark was talking about earlier where there's a tripod of readiness, modernization, and force structure. We had a limited force structure with a large demand and the worst kind of demand, which is unplanned demand.

And it was the large number of excess deployment requests on all three services, and I'll throw the Marine Corps in with the Navy on this, but the Navy, Air Force, and the Marines. And what it was for the Navy was extended deployments in the Middle East, surge deployments INDOPACOM. With the Air Force, it was extended deployments and surge deployments into CENTCOM, and with the Army, it was

extended deployments in CENTCOM, dealing with two major contingencies – With both Iraq and Afghanistan, so I think those – If you looked at the total number of extensions or early polls, it has just a tremendous effect on – And then, where it impacts the most are the services that own and maintain and keep expensive equipment. So, you saw it really hit the Navy the hardest because they had these fixed availabilities of two to three to four months in duration or six months in duration even that costs anywhere from 20 to \$120 million for destroyers.

And when you start to move those around, nothing good is going to happen from a delayed or deferred availability. All that will happen is you'll misspend money or not spend money on the readiness of the ships. And I'll tell you this, this also kicks into modernization, I don't want to go down that path, but I'll say it affects another leg of the stool as well, but I absolutely believe that in 2017, because of this mix of funding and schedule and certainty, those services really found themselves in a readiness hole.

BOWMAN: That's great nuance. I, for my part agree, I was on the Hill during this whole period, the 2011 Budget Control Act. The inability in my view of Congress to provide sufficient funding forced the Pentagon and the services to make tough choices when it came often to modernization. So, they would often defer desperately needed, overdue modernization efforts in order to fund readiness, structure, and current operations. And as a result, China and Russia were rushing ahead with modernization. We were delaying it and that is what contributed to the erosion in the U.S. military supremacy that we've seen. That's my take. Mark C., quickly to you. Would you agree? And, you worked at OMB, right? So, would you agree that there was a mismatch between the Obama administration strategy and resourcing and that that insufficient funding contributed to the readiness challenges in the 2016-2017 timeframe? Would you agree with that?

CANCIAN: Absolutely, the Obama administration expanded its strategy in 2014 without increasing funding. The previous strategy had viewed Europe as an exporter of security, had seen some cooperation as well as competition with Russia, had hoped to bring China into the existing international structure and had planned to withdraw from the Middle East as the wars wound down. But 2014 showed that all of these assumptions were wrong. Russia invaded Crimea, ISIS rode out of the desert and threatened Baghdad, China continued its assertive behavior in the South China Sea, and the Obama administration, to its credit, responded by increasing military activity in Eastern Europe, moving troops back into the Middle East and expanding forces in the Western Pacific, but it didn't ask for more money.

CANCIAN: So, the budget remained on a downward slope and this wasn't entirely their fault. As you note, there was the Budget Control Act that deficit hawks in the Republican Party had pushed through, which squeezed both domestic and defense spending, but the bottom line is the administrations must pay for the strategies that they adopt. The readiness crisis was one element of this strategy, resources mismatch, and I do worry, as you do, that the Biden administration may get itself into the same problem.

BOWMAN: Very well said. I struggle to improve upon that, but I will add to it by just saying strategy as many of us learned in grad school and our lives, is the coordination of ends and means. It's making tough choices, making priorities, allocating finite resources, and mitigating risks. That's the essence of strategy. So, what I heard you just say is that they had these objectives or ends, but there was a misalignment with the allocation of resources to meet that and that gap, arguably, is what helped create the readiness crisis, which as our listeners are hopefully learning is not just some wonky thing, it's a real thing that affects life and death on battlefields and our security. So, Diana, the part I'm most excited about. Let's go right to the report here. So, let's dig in. So, tell us, if you're willing, what were the major findings of your report that you think listeners need to know about?

MAURER: Sure, so the first top line finding of our report was that, and this was a bit of good news, is that the Defense Department has developed a strategic approach for enhancing readiness. We

talked earlier about a report back in 2016 that said there were problems with readiness. The other half of our report was about the lack of a concerted strategy that cut across all the services of how are you going to fix it, what are your metrics going to be, how long is it going to take and how are you going to align it to resources? The good news is, is that since our 2016 report, DoD has implemented those recommendations. And again, that does not mean us being done with perfection. There's always room for improvement, but they've taken sufficient action to address those. So, we're happy that there's a strategic approach embedded in within the Department to address readiness challenges.

We then reported on the scorecard, which you've already talked a bit about. We looked across all five of those domains, ground, sea, air, space, and cyber, and we found that generally speaking on the input side, things had improved. The sea domain was a notable exception where there was a decrease. On the output side, readiness had generally decreased. And again, the one exception there was in ground forces actually. So, the ground elements of the Army and the Marine Corps, it had actually improved from 2017 to 2019. In the other four domains, it had decreased and there were a variety of reasons, and a variety of stories embedded in all of that and pulling back the lens all the way, we are very encouraged by the increased focus on readiness. We are encouraged by at least increased attention to the importance of aligning strategy with resources. Finding the right sweet spot on that is always a challenge. That's a function of internal politics in the Pentagon, as well as the political process on Capitol Hill.

BOWMAN: Thank you for that, and just commentary from me here, it's interesting. The National Defense Strategy Commission that I mentioned earlier that Ambassador Edelman, along with Admiral Roughead co-chaired, they recommended that the defense budget increase three to 5% above inflation for the foreseeable future and I would just note that the Biden administration's defense budget request will not keep up with projected inflation, so much, much lower than that bipartisan commission recommended. So, I think that is notable.

And so, what I hear you saying, Diana, coming back to the report is readiness... And I'm just reading it straight from the summary and repeating what you said just for our listeners, "Readiness increased in the ground domain and declined in the sea domain between fiscal year '17 and '19 and there were mixed results in the air, space and cyber." With your permission, let's take those one by one and dig in and take advantage of the expertise we have here with the two Marks. So, ground forces, talk to me, Diana, if you're willing, about what we saw in readiness with our ground forces, and by that we mean largely or completely Army and Marine Corps, right?

MAURER: Right, exactly. So, generally the story there has to do a lot with the draw down from places like Iraq and Afghanistan. The Army and the Marine Corps had been essentially developing readiness capabilities over the preceding two decades, and they were getting chewed up. They were producing readiness and it was being consumed with those wars in Iraq and Afghanistan. As we stepped back, it gave the Army and the Marine Corps the opportunity to train for a new mission set against a higher end threat, gave them the opportunity to reconstitute, that gave them the opportunity to recover.

And as a result, overall readiness was able to increase as they're able to think in position about, hey, what's coming on down the road, as opposed to, okay, we have to go back and do another deployment for another mission in the Middle East. So, that's essentially the story there. It'll be interesting to see as we continue to look at the readiness metrics, this as a continuing mandate, we're going to be doing this for the next few years, is as both of those services pivots to a different approach and a different focus and emphasis, it will be interesting to see if they're able to maintain those, hit those readiness marks the way they have been doing over the past few years.

BOWMAN: No, that's great. And as all of you will know, and some of the listeners may or may not, a major component for the Army example are a brigade combat team. We have different kinds, we have armored, we have Stryker, we have these different kinds of brigade combat teams. We went from a situation where only I think two or a very small number of the brigade combat teams had the highest level of readiness to much, much more now. So, in a very quantifiable way, correct me if I'm wrong, we've seen significant improvement in Army brigade combat team readiness.

MAURER: Yes, absolutely, and those kinds of units are better aligned with the new approach in the National Defense Strategy, which envisions the need to have ready forces to deter major ground forces in the great threats from Russia and China, Russia in particular when you're talking about ground forces. So, having those capabilities, having the ability to train, having the necessary equipment is a vital part of making sure that those Army units can execute their mission.

BOWMAN: That's great, and I won't go too deep on this, but this is just – I can't resist the temptation right here, and here's where we see a correlation, in my view, between force structure, how much you have of it, capacity and readiness because if you don't have a large enough structure and you're constantly deploying, then you don't have time for individual training, you don't have time for collective training to go to the combat training centers, CTCs as we call them. And, we have this term "deploy to dwell." How much time do you spend deployed? How much time do you spend at home? It's not just time to get reacquainted with your spouse or your kids, it's also training time, and while there is a largely good news story with the Army in a lot of these trends as your reports have rightly identified, I would just flag that you have some units like Army aviation, like Army air defenders that are just deploying at crazy rates and that's having a wear and tear on them. Would you disagree or agree with any of that?

MAURER: I would definitely agree with that. In fact, in another venue, I got a great question from someone who's not an expert in military readiness, but they said, "Well, wait a minute. Military units are deployed all the time. They should be really good at what they do. They should be exceptionally ready." And, the answer is I can see why people might think that, but the answer is no, that's actually not the case in part because combat is really, really hard and it's really difficult and it damages vehicles, it damages people, and units need the opportunity to come back, get new equipment, heal the people, bring in new folks, do the training, and then go back out and they also need the opportunity to be prepared and ready to conduct a different kind of mission. So, at some level, being deployed certainly helps because you're in an essence part of the job, but if you're deployed all of the time, it eats readiness. And so, that's an important thing for sort of lay people to understand.

BOWMAN: I'm so glad you said that because while we've seen that improvement in Army readiness, we continue to have challenges in certain parts of the Army that are very real. As you said, deployments consume readiness, and also what are you doing on the deployment, right? If you're a field artillery unit and you're acting like a military police officer as we saw in Iraq or Afghanistan, you're not doing your mission. And so, that's a problem for long periods, so that's a problem too. Mark C., let me come to you. You're a Marine Corps veteran. So, forgive me, I've got my Army hat behind me. Forgive me for the Army focus, help balance out our conversation, and give us a little analysis on Marine Corps readiness.

CANCIAN: Well, let me talk a little about the Army and Marine Corps, building on something that Diana mentioned, which is that the frequent deployments, they chew up the resource side of readiness, and that's one reason why you saw lower levels and the reduction in deployments has helped build the training and the maintenance and the budgets have helped. When you look at both the in-strength of both the Marine Corps and the Army, they've been able to add some people and that helps to also fill out the units. You have more people to do the maintenance and the training and that sort of thing.

And it is true that our forces have a lot of combat experience. That doesn't really get picked up in the readiness measures, but it is really important if you think about the United States in a conflict with China. The last time China fought a war was 30 years ago against Vietnam and they lost, and our forces have a lot of current expertise, but I do want to raise a question stepping back from this report, which ends in 2019 and point out that things have happened since then.

One of the big things that's happened is the fact that we're doing this panel from our homes because there's this pandemic out there, and that's had a big effect on the military services. And in many ways, it's overwhelmed some of the other measures in the last year. The services had the pause training in the spring and developed procedures to continue operations, but they were able to restart training at all levels and continue global deployments. This was critical for maintaining U.S. global presence and preventing power vacuums, but some of the high level training exercises were canceled and some of them still can't be fully reestablished. So, it's unclear what the long-term effect of the pandemic is going to be on readiness. Now when I've asked senior service officials in the Army and Marine Corps, they're emphatic that their services can execute all the missions that they've been given, but they also acknowledged that there are just some things they haven't been able to do for a year.

BOWMAN: Great analysis, absolutely. And if I'm not mistaken, the Defender 20 Exercise is an exercise where we mobilized a lot of forces, including Army forces, ground forces and tried to send them to Europe to simulate a crisis, perhaps with Russia in Europe. That was curtailed, I think, because of the pandemic, was it not, Mark C.?

CANCIAN: It was. And there have been a lot of exercises that have either been canceled or curtailed.

BOWMAN: Yeah, a lot of them. Absolutely. All right, so let me transition. Mark M. has a million things he could say on that. But let's go to his particular sweet spot. He's good across all of these areas, but let's go to his particular sweet spot on the Naval or sea forces. So, Diana, what did GAO find in terms of Naval domain or sea domain readiness?

MAURER: Yeah, in sea domain readiness, the news was not good across the board. And the underlying reasons were a lot of the themes that we already talked about. For a period of many, many years, the Navy was shrinking, so it had fewer ships in the fleet. The demand on the Navy at best was staying flat, and sometimes it was going up, so they were doing more with less. They were also contending with an uncertain budget situation, which had implications for their ability, among other things, to adequately maintain its ships.

So, all of those things combined with a variety of other things. They had training challenges. They had challenges in getting the number of people necessary to be on board. All these different ships contributed to decreases in both the input side, as well as the output side. We have a whole series of reports on, for example, maintenance delays at the Navy. Three quarters of the time aircraft carriers and submarines did not complete their scheduled maintenance in a timely way, which created essentially this traffic jam. All the other ships and subs that were waiting to go in for maintenance, they were delayed, too. All of that degraded readiness and that created real problems in the sea domain.

BOWMAN: That's great. Now, Mark M., based on your decades of experience, I have no doubt you could go for three hours and it would all be awesome. But give us your best two minutes, if you're willing, on the state of Naval readiness, as you see it.

MONTGOMERY: So, I think I agree with everything Diana said. I'd say, it's, a factor of things. In the report, there's a specific mention of insufficient, and the Navy says this publicly, insufficient Navy shipbuilding yards and capabilities. And what I'd say is, that's the causal factor now. The actual drivers to that are exactly what Diana said, which delayed availabilities or extended availabilities that cause a

traffic jam or a failure to execute on availabilities. And these are driven by several factors, one being what I mentioned earlier, the change in deployment schedule.

Talking to senior officers, just in the last year, there's been at least 19 deployment changes that impact availabilities. And this causes, in concrete terms, several hundred million dollars' worth of lost maintenance opportunity. But then in reality, it causes these longer ones later on, that they try their hardest to squeeze 12 months of work into eight, and it ends up at 14, and then causes another traffic jam.

So, there's these delayed and deferred maintenance. And by the way, when you defer maintenance, it doesn't just cost the same amount two years later. It costs 1.4 times, two years later, or 1.8 times. It's not tied to inflation; it's tied to a piece of equipment being even more degraded than it previously had been. So, that kind of inefficiency hurt.

One other one I'll tell you, particularly in the surface warfare community. And GAO has done a great study, two great studies on this, that get at that, as the Navy prioritizes its insufficient funding for maintenance, the first thing we do is make sure that our nuclear carriers and submarines are properly funded. And there's a good reason for that. They're home ported in U.S. ports. We'd like to make sure that it's safe and there's no kind of problems there. The second thing that we fund is aviation, because we generally don't like planes falling out of the sky. That challenges your pilot retention.

And then the third thing, what's left to fund then, is surface warfare. So, as a result, over 15 years of stretched budgets, maybe 12 years of stretched budgets, that surface warfare payment was higher. And then they're part of the ships though that are in that deployment delay. So, this is a double whammy. And in the end, you can tie a lot of the collisions with McCain and Fitzgerald to this issue. And you can tie challenges in the surface warfare training program to this issue, which the GAO is tracking the Navy's effort to get out of it. So, there really is a lot of factors coming together. But they're based, I think broadly, on insufficient funding, schedule uncertainty, and then the kind of traffic jam that creates at the end, that gives you a shortage of shipyard capability and capacity.

BOWMAN: Outstanding. What a great summary. Well done, sir. Mark C., I see your hand. Please, by all means.

CANCIAN: Yeah. Well, I actually have a question for Mark M. and Diana, which is –

BOWMAN: That's not legal. I'm just joking, go for it.

CANCIAN: Which is, this problem about ship availability, ship maintenance, has been long-standing. I mean, it's decades, two decades. And the Navy came out some years ago with a new concept, which is called the Optimized Fleet Response Plan, which was supposed to take care of this problem. And my question is, why didn't it? Or will, with time, this new concept mitigate the ship maintenance challenge?

BOWMAN: What a great question. Careful, you're going to make the moderator look bad. Mark Montgomery, go for it. What's your answer to that?

MONTGOMERY: So, OFRP in, in principle, having consistent scheduling, properly funded, across a mathematical 36 or 40, depending what type of ship you are, month period, would work. And we tend to do that for submarines. And again, I'd emphasize submarines, nuclear powered always get their money. Where, OFRP won't work is if your overall funding's insufficient or the pull on your forces becomes exceptional. And so, if those two factors still happen, insufficient funding and schedule uncertainty delays occur, even a principled effort like OFRP, a mathematically based effort like OFRP, will struggle to solve what are really inherently political problems.

BOWMAN: I can't resist here. And Mark Montgomery will correct me if I'm getting my facts wrong, and then I want to turn to Diana to see. I'm happy to spend a little more time on the sea domain here because that's where a lot of the challenges are, right? And then as we think about the Indo-Pacific, we got to get that right.

But just based on some of my time on the Hill, I have to say, it was the Department of Defense that wanted to close one of our four public shipyards focused on attack submarine maintenance. And they didn't want to do that because they were evil, they wanted to do that probably because they had a limited budget. And within that limited budget, they said, "We have to make tough choices. So, let's close Portsmouth Naval Shipyard. But now we know we don't have enough attack submarine maintenance." Right?

So, around, and around we go with these sort of decisions. And no one can see into the future, but this is kind of the decisions that we see made, like, "Hey, let's cut the A-10, not because we don't need it, but because we have a budget and we have to live underneath that, and we're making tough choices." Diana, what would you add in the sea domain before we move on to the next domain?

MAURER: Right, so on the sea domain, to go back to the plan just real quickly. Having a plan is wonderful. But the problem was when the plan, in this case, the Navy's plan, collided with reality. Right? And so, when an aircraft carrier needs maintenance, you just don't pull up to any random port and fix it. You need very specialized facilities. You need a gigantic dry dock. You need nuclear repair facilities. So, the plan is important. When you're late in executing maintenance, the plan falls apart. And that's essentially one of the reasons why OFRP hasn't worked as planned for the Navy.

BOWMAN: Mark M. 20-second rebuttal? Or are we good?

MONTGOMERY: Oh, no. You got that right. And I think it is exactly that. It's when a plan meets reality. And one thing I would say, Mackenzie Eaglen does a great job of discussing excessive combatant command demand. But I don't think this is a combatant command demand signal. This is a White House, DOD leadership demand signal. And I'll give you one good example. So, we're drawing down from Afghanistan, what's the first report we got out of the Department of Defense? We're going to extend the Eisenhower Strike Group some number of months out in the Indian Ocean, Arabian Gulf. I promise you there's a cruiser in that group, there's one or two destroyers in that group, and there's an aircraft carrier in that group. And they all have scheduled maintenance that is now scheduled to probably begin prior to their arrival back in home port.

And even if it was slightly thereafter, there were other things that are supposed to happen, pre-maintenance, that you don't get to do. So, the minute we had a change in our policy on how we're going to handle Afghanistan, you would not think that the next thought on your mind is, "Well, we just kicked maritime readiness in the butt." But we did, with this decision. And I should expect, if I was the Air Force, I'd be nervous because the relief for the Enterprise Strike Group might be three squadrons from CONUS that are now surging over four months from now, to serve as the equivalent of an aircraft carrier's worth strike fighter aircraft.

BOWMAN: I'm so glad you said that. And the irony is just notable, I think. A lot of people want to, not a lot, some people want to withdraw from Afghanistan because they're concerned about the China threat. And they say we only have so many resources and we need to allocate more finite resources to address the China threat rather than Afghanistan. And yet, as you said, one of the potential side effects of that withdrawal decision from Afghanistan is more demand signal on our sea forces. And if you look at General McKenzie's testimony and his press conference yesterday, it's probably going to be more demand on our drones, right? Because our drones will be flying, not from a base there in Afghanistan, because we will be gone, but from bases in Qatar, a very long, long flight.

So, second, third order, unintended effects of policy decisions made in the White House. Very interesting. Okay. Air domain. Diana, what do we need to know on the air domain readiness, based on your study?

MAURER: So, for the air domain, what we found was a slightly mixed picture. On the input sides, the situation had improved, but on the output side, on mission capability in particular had decreased. There are a variety of reasons behind that. I'll just highlight just a couple, right off the bat.

A lot of these air systems, and again, this is something that cuts across all the services. So, we're talking about Air Force, Navy, and Marine, as well as Army, right? And it's not just aircraft, but airplanes, but also helicopters. Broadly speaking, a number of the systems that these different services have are using are aging. And in many cases, they're being used well beyond their expected life, which means they're breaking down more often because they're getting older. And as a result, they can't fly as often. So, that degrades readiness.

We did another report that we issued late last year on mission capability rates across four dozen different air systems. And we found that only three of them met their goals a majority of time over a 10-year period. And about half of them never met their mission capable goals over that entire decade-long period. So, that's a real problem. And that's part of the reason why we're seeing the downtick in overall output for readiness in the air domain.

BOWMAN: Thank you. Mark C., what would you add when it comes to air domain readiness?

CANCIAN: I would add two things, building on what Diana said. One is that we have to be careful with air readiness. Airplanes are fabulously expensive, but we have to be careful that we don't substitute aircraft that costs \$40,000 a flight hour for aircraft that cost \$15,000 a flight hour and think that's going to help our readiness. Because the cost of these new aircraft, which may bring very important capabilities, is just so high.

The other thing that I would flag is a caution about reducing support for aircraft that are leaving the service. And what I see the services tend to do is that if an aircraft or a type of aircraft that's going to leave, going to be retired, they cut way back on the support. And so, for those last couple of years, it doesn't have the kind of maintenance or readiness that it usually did, and that can be in fact can become dangerous. And this may have been one of the problems with the Marine Corps' CH-53E heavy lift helicopter, which had a lot of accidents that may have been a result of, at the end of its life, getting cut way back on parts and maintenance.

MONTGOMERY: Hey, Brad. If I could add it on that –

BOWMAN: Yeah, please. Go ahead, Mark.

MONTGOMERY: I'd also say that uniquely, this is an area where both China and Russia have asymmetric advantages. The air defense weapons systems of China and Russia are high quality. The electronic warfare practiced by, particularly Russia, but also China, are significantly better than ours, particularly at the tactical level. So, as a Commander is measuring readiness of his capability of his current assets, our fourth generation-plus aircraft, a Commander would have a greater level of concern about operations against SA-400 systems, Chinese 21s, and the numerous ground-based electronic warfare systems that both those countries have. So, I think that factors into how a Commander would see the readiness of those units.

BOWMAN: Great point. And that shows how this readiness discussion so quickly can start to touch on modernization issues, because an F-15 and F-16 and A-10 might be ready to conduct its mission. But if you fly that anywhere near China or Russia, it's going to be dead. Because it won't survive in that air defense domain. Diana, any closing comments that you'd like to offer on air domain?

MAURER: Yeah. So, to get back to Mark C.'s comment on cost. Yes, some of these systems are incredibly expensive, and I think, we talked briefly at the very beginning about the F-35. It's kind of the poster child for this. And we're talking about a life cycle sustainment cost, not just production, but just to sustain that system, it's \$1.3 trillion. And the services are at a point now where they, at least with the way their program is currently structured, they literally cannot afford to fly the number of planes that they plan to buy. So, resourcing is an important part of all of this. And balancing the prioritization between readiness, force structure, and modernization is a key thing, and it's also very difficult to get that right.

BOWMAN: No, that's excellent. Thank you. Boy, I wish we had more time. This is excellent. I'm really enjoying this. Let's go to the space domain. You know, space domain, someone who doesn't do this sort of thing for a living might think, "Space domain? That's where my cell phone coverage comes from. What are we talking about with the military here?" Tell us what you found in the space domain, Diana, if you wouldn't mind.

MAURER: Sure, no problem. So, in the space domain, you're right. Most people think, "Space? What are you talking about?" That's basically the ability to launch satellites into space. We use satellites to look down on adversaries, we use it to provide communication and other really important capabilities. Our ability in space has been really instrumental to our military capabilities across the board for the last several decades, particularly the last two in particular.

So, in looking at readiness in the space domain, we found a situation not dissimilar to what we saw in the air domain, that in terms of inputs, there's more people and more material, and so the readiness there has been going up. But the ability to execute on missions has been going down, which is in large part a function arguably of the threat environment. Because we're currently in a situation where at least, in the public domain, there's been some discussion about what the Chinese and the Russians in particular have been doing in the space domain. They certainly have capabilities now that they did not have 10 to 20 years ago. And that creates some real challenges. The last thing I'll say about space domain is that it is one that cuts across all of the services. It is absolutely vital to their ability to execute on pretty much any military mission.

BOWMAN: That's great. And I would just add, the present and the future of warfare, as I understand it from my humble foxhole, is that side that can most quickly detect what the adversary is doing, determine whether this is something that's a problem that you address and then deliver the effect or the ordinance. It's the side that can do that quickest is going to have a great advantage, certainly in the beginning of a conflict and throughout. And space will play a huge role in that detection, determining, and even delivering. It'll help reinforcing, delivering.

And I'm so glad you mentioned the Chinese and Russians here. We have a visiting military officer program at FDD, and I've done some research with Major Jared Thompson on what the Chinese and Russians are doing. And I'm not sure the average American realizes what's been going on there. Chairman Milley, the Chairman of the Joint Chiefs of Staff, said a few months back that he thought the next Pearl Harbor, surprise attack, could happen in space. And perhaps one of the reasons why he said that was because the Chinese and Russians had been working for quite some time as this group knows, but the listeners may not, on ground-based missiles that can actually shoot down satellites. Of course, the Chinese demonstrated that capability back in, I think, 2007. And they've also been working on lasers to do the same thing. And under the guise, of civilian or commercial programs, they're actually putting things in space that could disable our satellites and the Russians even conducted what our intelligence community believes is a weapons test in space a short time ago. So, America does not have a dominance of the high ground, I would argue. And let me bring in Mark C, here, if he wants to add to, subtract, or anything I said there.

CANCIAN: No, the only thing I would add is that space is a unique domain with regard to readiness as to many other attributes and trying to distinguish readiness here from military capability is very difficult because basically once you get that satellite up into orbit physics does most of the rest of the work for you. You can't repair it you can't supply it. So, we're going to need to think about how to describe readiness in space in a way that maybe distinguishes it from modernization where there's no question building new satellites, getting new satellites up there is very important.

BOWMAN: Great point. For the sake of time, let's move on to our last domain before we kind of zoom out, and conclude. Cyber domain. So, Diana, what did you discover in terms of readiness in the cyber domain?

MAURER: Story's very similar to the one we found it in the space domain. As you can imagine, there's been a great deal of additional emphasis and focus on the cyber domain across all of the services. So, that's why it sort of gets back to the broader point. This is why it's important to report out on domain level, not just on a service level. And so, the inputs have improved, so readiness there has gone up, but the overall ability to achieve goals, and on the output side that has gone down. And I think that's in part a reflection again, of not just necessarily the threat environment, specific to any particular country, but just the massive challenge, right? When you're talking about cyber from a defense perspective think about everything that uses a computer, has the capability of having an adversary mess with that capability, right?

So, that means cyber defense is a big part of that. So, it's a mammoth challenge. I mean, some of the reporting that we've done on cyber defense and cyber capabilities within the U.S. military gets at some of the internal plumbing issues just within the Pentagon, right? How do you make sure that everyone is performing, what's known as cyber hygiene, which is doing what they're supposed to do to keep systems safe. There was a Cyber Command, how our training requirements that are established by Cyber Command trickling down and being executed by the military services. So, there's a lot of sort of, kind of back office portions of the readiness picture within cyber. Another factor, of course, is the ability to hire the skillset that they need. Hire and train the skills that they need to carry out these defensive, as well as offensive operations. There's a tremendous demand in the private sector for those skills. And it creates a challenge for the military. There are many others, but I think those are the high points.

BOWMAN: That's great. Mark, in addition to your other accolades, you also played a leadership role in the cyberspace solarium. You're the Senior Director of our Center on Cyber and Technology Innovation. What is your assessment of our nation's current readiness in the cyber domain?

MONTGOMERY: I think GAO has it just right, which is to say the services aren't in a good – They can say their readiness is up. If each service told me, they were 80, 80, 80 Army, Navy, Air Force, and CYBERCOM told me it was 40. Because I don't think the services are in a position to really assess the readiness of the forces because so much of the service forces go directly to CYBERCOM into their cyber mission for the national mission force and other assets. So, the first thing I'd say is I absolutely would go along with the mission – This is the best example of where mission readiness is the actual driver readiness, and the service readiness assessments are of limited value. I'd go, secondly, and say that I'm not even sure CYBERCOM has it right yet.

In the NDAA, we asked them to do a force structure assessment of the cyber mission forces and the combat support agencies that support them because it's our understanding that their manpower and their requirements are pegged to a 2013 assessment done at the standup of CYBERCOM based on a 2012 threat vulnerability of China and Russia. And I think we all believe that China and Russia have evolved markedly in their cyber offensive capabilities since 2012. So that force structure assessment, I have a feeling that when Diane briefs this in 2022 or 2023, looking back at the next two or three years, the cyber arrow should continue to go down because I think we're going to see that force structure

assessment is going to show that we're probably now at about 50% of required manning. When they think that their stipulated manning is only 50% of what they actually need. So, they're going to be in a readiness bathtub pretty quickly. I think when that force structure assessments done. If they're not, I'd have some questions about the integrity and analysis of the force structure assessment.

BOWMAN: That's great. I want to come back to you Diana, if you have anything on cyber that you'd like to – and I'm going to put this out there, then Mark Montgomery can help me correct it if I get it wrong. But I think it's really important for listeners to understand this isn't about whether Russia, China or Iran can steal your social security number off a computer, right? This is going to have real world effects in the war fighting domains, right? So, maybe we kind of bring a 1991 Gulf War: Our ships, our airplanes and cyber's over here, right? Cyber's not over here, right?

It's going to be affecting everything we try to do a military – It is now, and it's certainly affected – I mean, can our aircraft that are delivering forces from the continental United States to the conflict zone? Can they trust the data they're getting that is organizing that flight and getting it off the ground, these sorts of things, Mark Montgomery, do I have that right? Or what would you add to what I just said? I'm just trying to, this is a core war fighting thing, not a peripheral thing,

MONTGOMERY: You're absolutely right. It's about our ability to protect critical infrastructure that allows you to generate force structure or to move it when it's overseas and forward in the zone, but I'd also say it's about your C4I, your ability to command and control those assets. And I think that's where we're really worried that it's reasonable to expect that the Chinese or Russians would have some success at the disrupting or denying our ability to communicate, and command and control forces and bring the true value of our integrated joint war fighting concepts to fruition. If our units are not in a position to talk and share data.

BOWMAN: That's great. And I'll just remind the viewers that so much of the analysis that Diana and her team had done was done at the classified level. So, there's a lot more here that, presumably, she can't talk about, but Diana, what would you say about cyber as we wrap up this domain?

MAURER: I think your general point was right on. I think for a general audience, when you think about any kind of major weapon system, whether it's a tank or an aircraft or a submarine or an aircraft carrier, it doesn't matter, they depend on computer systems, not just for communication and intelligence, but just to carry out their basic functions. In the modern warfare environment, it's really the software that drives the capability. That tells us how good something is going to do in combat. And if your adversary has the ability to mess with a software or interrupt the ability for units to talk to one another or inject bad information into what commanders need to execute missions, that's a huge problem. So, cyber cuts across everything.

BOWMAN: Outstanding. So, as we move to conclude here in the next few minutes, I want to... We kind of started broad, we zoomed in now let's zoom out a little bit. Mark M, let me come back to you. We've talked a lot about readiness. We defined it. And then we assessed where our forces are by domain, but it's not just about readiness, right? It's about location. Where are those ready forces located? If you wouldn't mind, give me 30 seconds or so on that.

MONTGOMERY: Sure. So, I think just as important as in that Commander's assessment of how useful is this unit to me, is its location. So, in that regard forward stationed forces are uniquely valuable. First, when you think about the National Defense Strategy and contact and blood forces, these are the preponderance of your contact and blood forces – talking about the ships and for the Navy, the ships in Yokosuka and Sasebo and the Pacific, and Guam as well, the submarines in Guam. And then in Europe, it's the ships in Rota. These ships are available on a day to day basis, much more frequently in theater than a ship in say Norfolk or San Diego. But in addition, and that kind of, we all need to go to war now, kind of crisis scenario. They're going to be available 75, 80% of the time, just when they're not in that

maintenance availability though, that's not the same full up round, but that kind of availability is going to be critical to winning.

And in the absence of that, you need a three to one or four to one or five to one, depending on the type of ship and the maintenance schedule with the nuclear ships being closer to the five to one kind of replacement plan to get that capability that drives that third leg of stool that Mark C. mentioned of force structure, and since none of us believe the force structure is going to increase at a ratio to support a five to one or four to one or even three to one rotation, those forward stationed forces are critical. Final thing I'll add in that applies to the Army as well. And the irony of President Trump's statements that he was going to remove troops from Germany last year is that over his four years, he actually recommended, and his administration recommended an increase of troops in Europe.

And in fact, we achieved an increase of troops in Europe, and they were the right troops. They were enabling troops. That's the final thing about forward stationed forces. For the Army, particularly, the right forces are they're enabling ones that allows – A battalion that allows a division to fall in on it, or really more likely a brigade combat team to fall in on it. Those troops are critical, and they also build the relationships with your allies and partners. They're constantly there, they're in the same exercises, they're in the planning. They speak the language often. From my point of view, forward stationed forces properly maintained, properly modernized, and rotated before they get too old. That's what happened with Fitzgerald and McCain was that they were kept out there for 20 years when it should have been eight or 10, but properly maintained, modernized, and rotated those forces, those forward station forces are critical to, particularly, the Army and the Navy and committed in performing their missions.

BOWMAN: What an outstanding rundown and for people who want to unpaid advertisement or people want to learn more about the value of forward forces, forward deployed, alongside allies and partners. FDD put out a major report on December 15th, 22 plus chapters on this very topic. So, it's not just about the readiness of the unit, but is the unit at Fort Riley, Kansas or Fort Stewart, Georgia, or is it in Germany or South Korea or Afghanistan? These things matter, especially if you're going against an adversary where you're not even confident you're going to be able to get your forces flowing in from the United States, there on time or at all. And so that has a deterrence effect, a training with allies, and partners effect that arguably is even more valuable than those. Mark C., you want to add to that?

CANCIAN: I just want to add that this is going to be a special challenge in the years ahead because the Biden administration has vowed to reestablish U.S. global presence, and to engage more closely with allies and partners that requires forces. Having capabilities back in the United States is often unconvincing to allies around the globe. As many observers have pointed out virtual presence is actual absence, and that's going to require the kind of base of forces for structure that Mark M. talked about. So, there's going to be a tremendous tension, I think, when the Biden administration tries to put together a budget, they're going to want to cut forces, but they're also going to increase forward engagement.

BOWMAN: Virtual presence. That's one of those beltway terms I love that strike me as a way to justify that mismatch between the ends and means that we were talking about earlier. Anyway, okay. So, let's move to concluding comments, for the sake of time, basically I'll throw you a softball and you hit it wherever you want. Any sort of 30 to 60 seconds of concluding comments you'd like to make. Let's go to Diana first.

MAURER: So, I would say readiness is vitally important. The environment that the U.S. is in right now is dramatically different than say 20 years ago. 20 years ago, prior to 9/11, we were in the fourth year in a row of a budget surplus. The Chinese economy was one eighth the size of the U.S. economy. And the Russian military had degraded to the point where we were helping them secure their weapons of mass destruction. We were in a very different environment. It's good that the administration is taking

on some of these major challenges, but the path forward is going to take a lot of good conversation, a lot of good discussion.

BOWMAN: Outstanding. Thank you. Mark C.?

CANCIAN: Yeah. I noted earlier that every budget is a tradeoff and readiness, of course, is expensive and perishable, but I do get nervous when senior officials disparage readiness and we're seeing that argument now coming out of the Air Force and the Marine Corps, they want to invest in new advanced capabilities for conflict against China. And there are good strategic reasons for doing that, but I worry that if they cut readiness and buy a lot of advanced capability systems on shrinking budgets, they risk being unable to employ those new weapons effectively because the weapons lack the spare parts to operate, and the crews lack the training to make the platforms effective.

BOWMAN: That's great. Thank you, Mark C. Mark M.?

MONTGOMERY: Yeah, I'll take a Navy perspective here and say the average Navy asset is, on value, is close to replacement value is close to \$2 billion. If you take everything from our frigates to our aircraft carriers and divide by the number. When your assets cost \$2 billion, you better maintain them. There isn't an option. And I agree that what I hear from the Air Force and the Marine Corps is not an option for the Navy. They have to continue to invest in this readiness, the average ship life is B-52-like. It needs to go from 35 to 50 years. These are long-term investments. First, you have to make them, you have to maintain them, then you have to modernize them. And then you have to decide how many of them you need.

You can't start out with how many of them you need and start to divest yourself. I will give the Navy one other shout out. There's a rumor now that they're doing the right thing and increasing the ships in Rota from four to six, if that's the truth, that's the right answer that would get us more capability, not just for EUCOM, which is necessary, both in the Mediterranean and in the North Sea, but for CENTCOM, when there isn't a giant tanker stuck in it, it's a pretty easy movement from into the Red Sea and the Arabian Gulf from the Eastern Mediterranean.

BOWMAN: Well, thanks to you three. Thanks for sharing your insights and your decades of expertise. I really enjoyed it. I hope you have as well. Thanks to Ambassador Edelman for his intro. Mark Cancian, Diana Maurer, and Mark Montgomery. For more information on FDD and the latest analysis from our Center on Military and Political Power, I encourage you to visit fdd.org as well as on Twitter @FDD. Thank you so much, best wishes.