

Aerospace Vectors for the Incoming Biden Defense Team

📅 Thu, 3/4 11:27AM ⌚ 1:10:39

SUMMARY KEYWORDS

air force, force, space, defense, services, aircraft, doug, assets, long range strike, people, capabilities, threat, general, mission, demand, question, air, future, cost, construct

SPEAKERS

Maj Gen (Ret.) Larry Stutzriem, Doug Birkey, Lt Gen (Ret.) Dave Deptula

- M** Maj Gen (Ret.) Larry Stutzriem 02:55
- Good morning, ladies and gentlemen. I'm Larry Stutzriem, Major General, US Air Force retired. And I'm director of research here at the Mitchell Institute of Aerospace Studies. Today, we look forward to understanding the vectors that the 46 presidential administration needs to take in a very much complicating and risk filled global threat environment. We're going to discuss Mitchell's newest policy paper and it's titled, aerospace vectors for the incoming Biden defense team. And we're going to do that with the author's Mitchell's Dean, Lieutenant General Dave Deptula. And our executive director, Doug Birkey. So to provide a bit of context, we drafted this report for a very specific reason. The Air Force and space force faced tremendous challenges at the very moment when demand for their capabilities and capacity is surging. The facts are that the Air Force is the oldest and smallest it's been with respect to its inventory in its history, and the demand for space force. Well, it simply does not align with its budget share organizational authorities, whether we're looking at deterring China in a Pacific checking Russian aggression in Europe, dealing with Iran and North Korea, or managing the continued instability perpetuated by non state actors, space and air power are prerequisites. There are prerequisites to defining any other requirements. That's not always the case. For the other services tanks don't float in the Pacific Ocean, and navies have limited bill abilities on the plains of Central Europe. space and air are by nature the most agile, flexible tools available to the nation's leaders when the unexpected occurs

and the US Unexpected challenge to us interest seems to be the rule of the 21st century. adversaries understand that our response speed is a central factor in their calculus. Carrier battle groups and armored divisions simply don't swing very fast from one place on the planet to another. So the Biden team and the administration's that follow them will invariably, certainly seek policy options, fundamentally underpinned by space and air power. Decisions the Biden administration and Congress make over the next few years will fundamentally shape the flexibility and effectiveness of available courses of action. We either get serious about investing in these forces, or when the unexpected happens, courses of action will be narrow in their feasibility in their suitability in their acceptability to defend us interests. So to kick this off, let's turn to the nation's two top experts on this subject matter, Lieutenant General Dave Deptula and Doug Birkey. Welcome, compadres. Let's start with a few questions about the paper and then we'll open it up to the audience for q&a. And as a note to our audience, feel free to use the raise your hand function in the zoom. And or you can submit a question in the q&a window at the bottom of the app anytime during the discussion. And I'll comb through those and we'll get to them and then second half of this presentation. So let's begin General Deptula. Let's start this discussion with establishing baseline. I spoke to it just a minute ago. But could you please set the scene for us walk us through the threat environment around the globe? And explain Air and Space power? How it empowers command choices in each theater? over?



Lt Gen (Ret.) Dave Deptula 07:00

Yeah, thanks. That's it's a great question to start with. So let me hit the wave tops of our threat environment around the globe as us. First, our defense strategy needs to contend with an economic and military powerhouse in China, an aggressive Russia, declining state, some with nuclear weapons, the increasing likelihood of nuclear weapons proliferation, and evil actors the most despicable nature, exemplified by dynamic web of tears. You highlighted those and those are the key threats in our current national defense strategy, national security strategy. Second, the pace and tenor of our lives have been irrevocably altered by the acceleration of change. Global Trade, travel and telecommunications have produced major shifts in the way that we live. As a result, speed and complexity have merged and they now permeate the conduct of warfare. So consequently, one implication for our future military is that it must be able to respond rapidly anywhere on the globe. That means more dependence on aerospace power. Third, we have to contend with increasing costs in limited budgets for defense. Therefore, the provision of flexibility of response across a wide spectrum of circumstances should be Foremost among the decision criteria we apply to our future military. That means more dependence on aerospace power. forth. in the information age, we have to acknowledge that deploying large numbers of US troops onto foreign soil to either occupy our nation build vise accomplish a mission and leave are simply counterproductive to securing

critical us goals and objectives. That means more dependence on aerospace power. Fifth, we've got to actively pursue invest in options we can use the counter increasingly advanced in access and denial strategies that our adversaries are likely to employ. And you guessed it, that means more dependence on aerospace power. Six, we need to challenge our adversaries domination of public perception. We've got to learn how to use accurate information as a core element of our security apparatus. We're woefully inept at strategic communications, and that needs to change. Finally, informations value also extends past the news cycle. Just as wireless connectivity and cloud based applications are revolutionising life in the civilian sector, these trends will also radically alter the way our military forces operate faster and more Capable networks and computing capabilities are turning information into the dominant factor in modern warfare. We need to understand that aircraft like the F 22, f 35, and B 21 are information machines as well as killing assets. So how does the Department of the Air Force fit into this environment? The strategic narrative of the Air Force is codified is providing our nation, global vigilance, global reach and global power. Now, the global initiative enabled by these tenants emphasizes not only the agility of aerospace capabilities, but also the flexibility they provide to civilian leadership. You mentioned that in your opening remarks. This makes it the nation's strategic hedge regarding future challenges. And that's highly desirable, considering that we're horrible predictors of the future. Regardless, no matter what challenges we face, aerospace capabilities are simply indispensable in meeting. Simply put, no Joint Force operation can be conducted without the Department of the airforce period that cannot be said about any of the other services. Let me give you a couple of examples. Aside from air superiority that's essential for any successful military operation. Long Range strike that's key to crippling key elements of any adversary and Air Mobility that's required to enable the entire joint team is the Department of the Air Force has capabilities that combined to provide intelligence surveillance and reconnaissance, global communications, command and control and weather information that all the services simply cannot operate without. Now underwriting our defense against our only existential threats, nuclear equipped potential adversaries, is the triad of bomber, land based and sea based nuclear weapon systems, all of which are in dire need of recapitalisation with the Air Force owning two of the three legs. So in a nutshell, aerospace power is the nation swing force. Because it's the most responsive and most lethal force that can respond quickly anywhere in the world. So the Air Force is the last force in which the Biden ministration should take risks, and in fact, should be plussed up as is the most leverage force in the entire department of defense. So let me stop there as I think that kind of frames are challenging.

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Maj Gen (Ret.) Larry Stutzriem 12:42

No, that's, that's fantastic. It gives us a great launch point. You know, Doug has worked a

lot on the assessing or the health of the Air Force in space force right now, in light of this demand signal you just described a very, very eloquently, I might have been dug out of it. I'm curious, what what grade would you give it? How would you assessed the forces right now.

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Doug Birkey 13:07

No, I appreciate it Stutz, you know, first off, you set it up front, we've got the oldest, the smallest Air Force aircraft carrier of all time. And it's at a period when demand is surging around the globe. And so our adversaries know this. And so, you know, looking for a committed in the Pacific to an operation in deterring China, reassuring allies, and then something pops off in Europe, like Russia's incursion, and you paint a few years back aurizona, we're gonna have to make a choice. And that's a really, really bad spot to be, because you either blow up all your trusted alliances and whatever interests you have, and Zone A to go to B. And maybe win and B, maybe you don't, but bottom line, you're losing and one of them probably. And so that's a very, very dangerous spot to be in, in general, the two highlighted, the demand for these assets is so small, are so large, and the assets, the quantity is so small, it's a lot of danger. And certainly true when you think about key elements of the force in a long range strike. If you look at where the inventory is, now, with the retirement to be once we're down to about 140 aircraft, you know, it's way below half of what we had at the end of the Cold War. And yet many ways demand signals is way more complex and and daunting. And then I look at a factor that we only have 20 stealth B-2 bombers, and B 21 is going to be great, but we're not going to see operational quantity of that until the end of this decade. And so how do we really manage what we have now to to mitigate risk and ensure we've got options for the cocoms no fighter forces no better only 20% of stealthy right now. And this is sustainable and think about the advantage we're giving to our adversary you know in Syria, it should keep us up at night, the Russians dropping a double digit Sam battery in there, and all of a sudden the vast percentage of our combat Air Force If they're ever to choose to use it and set it at 35, of 22 B-2. And again, it's back to you can't swing that force anywhere else now are you are you toss in the towel and where you're currently engaged, it's a horrible position to be. And then it's not just about the aircraft, it's about the people. So when you have so many missionaries that are high demand low density, when you look at the maintenance shortfalls, we have the experience maintainers, look at how packed Depo is all right now old fragile aircraft and be used card. You know, pilot shortfall is still a factor. And just mission demand is shredding people in their families. And that is something that is very, very concerning, because ultimately, aircraft and other mission aspects have to be operated by people. And then the situation is better space. And you refer to a tool referred to, you know, General Raymond and his team, they lack enough money. And you've now got two services packed into the space of one service budget. And then demit,

the demand for these things is really on the upswing. And so we've got to get our heads around that it's going to be a joint solution, you can't get one to patch up the other. And so those reforms are crucial. And, you know, General Deptula also said it's two legs of the triad. It's the bedrock of everything. And I just like to say if you think recapitalizing the triads expensive, try living without it, it'd be cataclysmic risk it would entail.

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Maj Gen (Ret.) Larry Stutzriem 16:30

that we'll set also, just a follow up on space force. Also limited authorities. I mean, that's something that's not fixed. It doesn't have a comprehensive yet, template of what it owns and doesn't owns and, of course, the Air Force, as last, a dedicated component that will define its requirements in space. And, and I know General Deptula has been a champion of talking about how, how together, the space and air piece are so intermingled, I wonder if you had any thoughts on that.

D

Doug Birkey 17:07

Now, the time for those reforms is now Personally, I think it should have been ironed out before we launched a new service, but but we are where we are. And so we need to streamline the the responsibilities for space, there are too many cooks in the kitchen is how we put it in the paper. And we really need to double down on getting real about that. And it also ties back to resources, you know, we can only afford so many levels of overhead. And the more dispersion there is less efficiency, we have to drive towards operational capabilities. And so I think it's going to definitely upset some people in the bureaucracy and various elements. But we have got to get real about streamlining the function to ensure maximum operational capabilities are delivered.

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Maj Gen (Ret.) Larry Stutzriem 17:52

Yeah, well, let me let me swing it. I've got a copy of the paper here. By the way, I want to remind everybody, you can download this from our website anywhere on our social media. General Deptula, it's pretty obvious that you know, as we've said, that resource are going to going to be highly constrained. With this economic impact of COVID-19 and some other choices down the road. All the services are going to be stretched thin. In the paper, you advocate for return to something called the planning force that we dealt with earlier in our careers when we're on active duty. Could you just describe what that is? And what is its relationship to what's being used now, which is the programming force?

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Lt Gen (Ret.) Dave Deptula 18:38

Yes, that's but and I'm gonna specifically answer your question. But first, let me set the stage. Will the 2021 anticipated 2022 or any future plan federal budget, allow the Department of Defense's satisfy the directives of the current or the anticipated new national defense strategy? And the short answer is no. They're too small to pay for the necessary capabilities and capacity to deter and if necessary, defeat the challenges that I identified earlier if they come to conflict or raise the level of conflict. Now, numerous defense leaders have repeatedly stated meeting these goals requires between a three to 5% real growth per year throughout much of the 2020s. Anticipated budgets, however, do not meet that target. nor will they. So we've got four plausible alternatives for resolving this discrepancy. One, we can increase the defense budget. Now that's not likely going to happen to we can lower the expectations of the defense strategy. That's also not likely going to happen. Three, we can accept the growing strategy resource mismatch. Which is potentially disastrous, or four, we can start evaluating defense capabilities in terms of the desired effects they contribute to meeting the needs of our strategy. Now, options one and two are pragmatically and politically unrealistic. option three is what we've been doing for the past two decades. But it's becoming more untenable in the face of the growing military capabilities of Russia and China. option four is going to be difficult, but it's entirely feasible. But first, leaders need to admit there's a problem and remain committed to highlighting the disconnect between budgetary resources that God is being allocated in the mission demand that's driven by our national security strategy, so that senior officials understand the risks that they're assuming. Now, the only way Congress will know where to prioritize additive investment is that they understand the magnitude of the problem. To their credit, Congress is the one who asked the airforce in 2018 just what it actually needed to meet the demands of the national defense strategy. The Department of the Air Force has proclamation regarding the need for 386 operational squadrons to meet those demands the demands of the actual national defense strategy. That's what we used to call the planning force, it's what's actually necessary to execute the strategy. Now that's up from the 312 squadrons that the Air Force presently possesses. That's the programming force. In other words, what we have, and this was a crucial step in the right direction. But Air Force leaders must remain committed to this construct. Just because 386 is not reachable and projected budgets, doesn't mean that it's valid. That's exactly the point that the Air Force is 25% below what's necessary to execute what we already have established as our national defense strategy. And by the way, that's for a moderate risk force, not a low risk course. Now, too many airmen and guardians focus only on what they're issued in terms of arbitrary budget guidance, versus what they truly require. And while this sought services are required to submit a balanced budget, they also have a responsibility to advocate and articulate what it is they actually need. conflating these two can be really dangerous, giving Congress false confidence that missions can be met, no matter how bleak the budget might be. So historically, the Air Force and all the services by the way used to have a planning force, what it needed in a programming

force, what the budget allowed, the space in between is a tangible measure of risk. Now, I would tell you, it's time to reinstitute that process. Because in that way, the Congress, the administration, and the American people will better understand the difference between what we have and what we need to meet the demands of our own military strategy.

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Maj Gen (Ret.) Larry Stutzriem 23:41

Thank you. Now, just as a follow up, there's almost, you know, we've been around this use of programming for so long, there's almost a culture of it's it leaves decision makers in the Pentagon in a mental framework where they go, that's all we can, you might say planned for. So do you see that changing anytime soon? Would a programming approach be easily adopted right now?

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Lt Gen (Ret.) Dave Deptula 24:09

Well, that's what's happened over the last 20 years. Well, the reason that department defense got rid of the planning force is during the first crunch of budget reductions. I mean, it takes time and effort to develop that planning force. And kind of the attitude was, hey, we're never going to get to it anyway. So let's just stop spending the effort doing this. And so we got rid of that process. And now all the department turns out is a programming force and being typed triple A personalities in general. You know, the military is want to say, Hey, you know, I I Sir, we can make it happen with what we have. But the fact of the matter, like I said is that's not correct. We can't make it happen. Now, I would tell you that That all the services to a degree. I mean, the Navy is perhaps the best at it in articulating the fact that they need more, but even the Air Force, the former secretary and chiefs, over the last two years have been up on the hill talking about the fact that there's more demand on the Air Force, then there are resources to be able to accomplish that demand. So I think it's getting better. I think you see, our new chief, General CQ Brown, reiterating those points, but sometimes, at some point, we're just gonna have to say, no, we're not going to be able to fulfill a combatant commanders request. And you know, there's going to be all of a sudden the realization that holy smokes, those capabilities don't exist, I just hope that we're able to correct the situation, before we're faced with a critical contingency circumstance where we end up not winning as a result of too few resources, or we're put in a situation like Doug described earlier, where we've got to ship from location A to location B. And now an adversary takes advantage of our departure from location A.

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Maj Gen (Ret.) Larry Stutzriem 26:20

Right? Well, we'll come back to this I'm sure. By the way, we've got a pretty vigorous q&a is

coming in right now. We'll get to those shortly. Let me swing a bit to Doug, you wrote a paper last year on cost perfect assessment. And when it comes to deciding how, or in what to allocate limited budget dollars to get best value, could you talk about this? Why it may be very useful to the Biden team to think in terms of cost effective? Perfect.

D

Doug Birkey 26:53

And I appreciate that question. You know, it all goes back to the premise that budgets are tight mission demand is going to grow. And so what we've seen in the past is that you just kind of do random peanut butter spread cuts, and in arbitrary reductions, or you focus on reductions, and stove types, too much, you're making false choices, you're actually killing Grade A options while while living with with Grade B. And here's here's an example of that. When sequestration was enacted with Budget Control Act, we tried to kill the a 10, at the very same time that we were buying new Apache helicopters. Well, in a 10 is way more effective, efficient, deployable, survivable, I don't care how you put it, asset in the close air support mission in everything else, where we're an Apache or a 10 would be employed. But because those cuts were issued in such a stovepipe way, the the comparison was never made. And I can look at this time and time again, across the board, you know, could we not afford to really fix, you know, 17 b ones, and do defense modernization upgrades on B-2? at the very same time, we're spending billions elsewhere. I mean, so we need to get more real about what are the fundamental combat effects we want to attain? What are the different pathways, how you do that through all the different domains, all the different services? And actually, you kind of start with realizing the effect and you back it out from there. And so let's say I'm looking at taking out a target. If it costs me X number of aircraft for a strike package. Well, you know, first comparison would be Am I using a stealthy strike package? And fifth Gen, which is Ew, and, and high information on ability to to get in there with it with a small group and take out that target low risk, or am I doing a strike package? That could be dozens of aircraft large? And then how many takers does it support to do that larger strike package? How many bases all that stuff, you can also look at, you know, if I'm doing standoff, if I'm firing a missile, that cost, you know, 20 \$30 million. And if you look at some of the pricing, where we're going for future options, it might be many times more than that, all of a sudden, you know, really, is that the best way to go, especially when that kind of expenditure once you use it, it's done. And so I think that's really where our intent was. And we've seen this across the board, where it's just the focus on unit cost cost per flying hour, it completely misses the entire point of what realize is the best value, and we only have so many dollars, so we need to ensure that we're focusing them where we're going to get best bang for the buck, we're going to get the attributes that are most broadly applied and really fit with where we think we're gonna have to employ. Otherwise we're going to spend ourselves spending a heck of a lot of money but on capabilities that aren't going to best meet need. And so it's, I would say

the planning tools, the programming tools, they're lagging on this. And in many ways, if you look at where we're going with a JADC2 world, they'd be a mess mosaic warfare, we're looking at far more distributed kill chains, smaller elements that are going to compose and decompose to net different effects. All of a sudden, this isn't an F 86, over the aaloo, chasing after a big 15, where it's kind of a simplistic construct for pricing, you're looking at very complex webs, how we get there, and all the tools need to update to speak to that. And so again, it goes to cost perfect, how are you going to do it? What does the team look like, if we don't do that, we're going to spend a heck of a lot of money on the wrong things. And when our cards are called, we're not going to be able to deliver.

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Maj Gen (Ret.) Larry Stutzriem 30:50

That's very well said. And, Doug, I understand on behalf of the Pentagon, you're you're looking to peel back a layer on this discussion here in the coming months. Is that right? Is that right?

D

Doug Birkey 31:01

Yeah, it's always good to know somebody occasionally reads these things. No, we've gotten a lot of follow up requests from Hill, the Pentagon, where people want to understand a little bit more how to apply this. And you know, the answer is, it's not science, if somebody comes up with a mathematical formula, guaranteed, they don't get the concept. This is more art than science. But it also isn't impossible, like I said, you just kind of look at what are a range of options you want to achieve? And then how do I attain those in different pathways and just compare your mission cost? And you also need to ensure what is the total life cycle here in play? if, you know, is it realistic to say, a top Tomahawk missile cost x, when in fact, a bunch of destroyers and support assets might be floating out there for a couple months, I mean, there's a price to that. And so those are all things that that are very important. And that's where you know, as a b 21, expensive, well, if you can keep using it time and time again, and you're dropping ordinates that is a fraction of the cost of a long range standoff weapon that has some survivability based into it. Now. It's, it's the best investment you can make. It's why f 35 should win hands down in the current debates. And why you know, the media exploded and past weeks about oh, my gosh, fifth Gen is dead. Are you kidding me? right now is and you need to double down on that investment. Because you're not going to get a cheaper option. And if you go to something lower tech, then you better resize your entire training pipeline, because the attrition we're going to take in pilots your production pipeline, because the aircraft that can be lost. That is huge. We moved off that model for a reason. We need to wake up to why that occurred, because it's back to

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Maj Gen (Ret.) Larry Stutzriem 32:44

well, you bring us to a great discussion, I want to swing to General Deptula there's been a lot of talk recently about the future, the combat Air Force, you know that that fifth Gen versus fourth Gen, the future the F 35. As Doug just pointed out, these are all issues the Biden team will have to adjudicate. Can you give us a state of play as you see it, I'd like, you know, specifically on the bombers and fighters to focus please.

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Lt Gen (Ret.) Dave Deptula 33:12

Well does the bottom line up front is it the Air Force needs to direct its finite acquisition dollars toward technologies that yield the best value in an increasingly dangerous world. That This means the Air Force's business case needs to be driven by what it costs to achieve a mission objective or cost per effect, as Doug just talked about, rather than the lowest lifecycle cost of individual aircraft absent operational reality. And in short, what that means is stepping up procurement of the F 35 and the B 21. not buying more non stealth aircraft. Money is too short. And the adversary challenge too great to buy capability we already have in abundance, and will continue to have well into the future in the form of F 16, f 15, ees b 50, twos, a 10s, and so on and so on the mission imperative for still in fifth generation technologies clear. China and Russia invested in systems that can easily target non stealth aircraft, they learn the lessons of Desert Storm, especially the need to hold us aircraft at risk to prevent overwhelming offensive strikes. Unfortunately, the US went the other direction. In seeking a peace dividend and becoming too focused on counterinsurgency. We radically curtailed the B-2 stealth bomber and the F 22 buys at 21 and 187 aircraft respectively. So here we are today, with the Air Force ratio of non stealth fighters to stay butters at 80% non stale to 20%. Still, that ratio needs to be adjusted to achieve a greater balance. That means the airforce does not need any more non stealth aircraft, they need more stealth aircraft. Because against modern threat defenses stealth is a prerequisite. It's like wheels for a car. Stealth absolutely required for successful air campaign operations against a pure adversary or any lesser adversary equipped by one. Why do you think we sent f 20 twos into Syria because they had deployed an S 400. Now there's no such thing as an equitable trade between new and old airpower technologies. Here's why. It can take about 10 to 20, or even more legacy fighters to accomplish the same effect achievable by handful f 22 or F 35. And if we're talking about striking targets, b 20 ones will hold an even more powerful advantage given its range and payload attributes. So the Air Force should not trade away even a portion of such obvious mission value to buy less effective aircraft under the assumption that they are less costly and almost as effective. These two supposed attributes are of absolutely no value, that the aircraft gets shot down as a result of their enormous radar, and infrared signatures regardless of how good their ew equipment is. To succeed against peer threats, will require the combination of stealth, electronic warfare and integrated sensors. One or

two out of those three simply won't be good enough. So there's no question that the aircraft bought over the next few years will be flown in combat. And the consequences of this stealth versus fourth generation procurement decision will weigh heavily on the outcome of any future conflict. So today's leaders need to make sure they're equipping tomorrow's airman with what they'll need to fly, fight and win in future conflicts.

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Maj Gen (Ret.) Larry Stutzriem 37:20

I'm, I'm curious just as a follow up on this about the rate of by to get to that swap and ratio of stealth versus non stealth fighter, what do you see what's happening within in terms of that rate of by its it seems to be very low, that needs to be boosted?

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Lt Gen (Ret.) Dave Deptula 37:41

Well, in our informed opinion, we do believe the 35 ramp rate should go up. It's a very, very complex subject. There are concerns about sustainability and sustain a sustainment operating costs. But like every aircraft program, those come down over time, and the F 35. O and s paws are ramping down over time. And so, you know, there are discussions ongoing about just what that cost is. But the fact of the matter is, we're suffering from a geriatric Airforce, I've talked about this for 15 years now. And we're approaching a period of time where we're going to have a bathtub in terms of capability in the 2020s. So the quickest way to alleviate that bathtub is not by designing some new airplane that won't come into the inventory until the 2030s. But by increasing the F 35 production rate now, understanding that the OMS operating costs is going to go down over time. You know, the most of the predictions are it'll get down below some of the current fourth Gen platforms by 2025.

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Maj Gen (Ret.) Larry Stutzriem 39:03

Yeah, very good, Doug. Let me pick something out of the paper that I think people should really read. And you describe a phenomenon that's unique in the Air Force. And it's an attitude of program. Next, it's a trap. Could you walk us through your thinking on that?

D

Doug Birkey 39:22

Yeah, this one's going to be really problematic, because there's going to be tremendous pressure in the coming years to save cash and to really dial back on current programs. Because immediate savings are required, given everything that's in play with federal budget. And so you save money really fast if you kill current production lines. But the problem is, you know, the Air Force has deferred modernization for three decades now.

And we've had multiple efforts to modernize it. But every time they hit turbulent air, whether it be technological hurdles, schedule, slips, cost growth, you name it, people have vilified the program, they've killed it. And they said, we've got this future thing that we're going to go point to, and we're going to go do that. And it's going to obviate every problem we had with this, and it's gonna be better. Well, you know, every program is a unicorn, if it's on PowerPoint, it can be anything to anybody. But the reality is, at the end of the day, you got to get modern iron on the rent. And every program, I don't care what it is, is going to have those problems that I described. And so the dumbest possible thing you can do is to sink tons of money in research and development, testing, early production, on all that stuff, initial basing, and then cancel the program, which throws away all of that sunk cost. And you're going to have to spend money on sleeping your existing infrastructure, you're going to have to have more risk, because that doesn't really align with the current demand. For the capabilities you needed, you're going to capacity crunches, you're going to have all these small fleets that are bowtique, they're very hard to sustain. I mean, there's there's that article out the other day about having to reverse engineer some B-2 parts, because the supplier chain has atrophied. I mean, that's a bad spot to be. And the Air Force, whether it was smart or not, ended up with a ton of modernization planted right in the 2020. And this is the point where we're going to see a lot of the challenges, because you're going to see turning a lot of r&d projects, early production stuff into operational quality assets. And there are hurdles or turbulent air with that stuff. But we're in a zone right now, where we either have to finish these programs out or you're going to sunset missions, because a legacy force is done. You cannot stretch old iron any longer. You've done it time and time again, people should look at the 15 See, the B one. Other assets you see going on with big wing, Asr, those assets are not going to be viable from a structural standpoint much longer. They're already irrelevant many ways from capability perspective, but there's placeholders. But it's a zone where we've got to complete these buys, the cash has been sunk. And you don't look at what happened in the 80s. Reagan didn't actually invent much of the technology he bought, he just produced what was online. So the F 15, the F 16, the F 117. You know, KC 10 v one, you name it all that was largely developed in the 70s. He actually just produced it volume to a point where the force was stable, which then allowed the elasticity and the ability to take risks to go innovate. So if we want to go try things like ABMs jets, etc, mosaic warfare, all which are fantastic concepts and should be prioritized, we have to double down on stabilizing where we're at today. So that we can actually buy those innovators as scientists some room to fail to discover, to go down paths that reflect new discovery that we need to do to make those successful. But if the current force is so fragile, that these guys at the new solutions effectively guns at their head that you have to make this work now, it's not gonna work, that's the only guarantee. And we're really going to be in a square corner. And so people think they're saving cash, but they're not by canceling these programs prematurely. And I've never seen a perfect program. I don't know what it looks like, you know, you can go

back and look at press articles about the B 52. In the 50s. And people hated it. It had problems galore. You can look at F 15 in the 70s and they couldn't get them in the air because they didn't have engines in him because the F 100 was having huge problems at the time. We get through these things. We come through the other side people adapt they innovate. You know, I for one would like to have had the 200 and first f 22. I haven't met a an airman that would in its we've got to get real on the commitment. People for 30 years have been way too fast to chunk things over the transom. And here we are. It's a pretty bad spot.

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Maj Gen (Ret.) Larry Stutzriem 44:24

Well, let's, let's swing a bit here. General Deptula I want to talk about spaceforce. Here at Metro we're committed to making this space force a success. I wonder if you could explain the opportunities and challenges facing America's newest armed service.

L

Lt Gen (Ret.) Dave Deptula 44:45

You bet studs. Although I really wanted to tell a story about shutting down engines after having engine stalls airborne in the middle of a flight. It really wasn't that big of a deal. He just shut the engine down and started back up again and start fighting. No those times In this,

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Maj Gen (Ret.) Larry Stutzriem 45:01

I did that once in the F 16. By the way,

L

Lt Gen (Ret.) Dave Deptula 45:03

yeah, probably only one since it only had one engine.

M

Maj Gen (Ret.) Larry Stutzriem 45:06

Correct. It's very quiet.

L

Lt Gen (Ret.) Dave Deptula 45:10

Well listen back to the spaceport. The primary reason that we now have a separate service that organized train and equip for combat ops in space, is due to the growing threats from China and Russia to peaceful Space Operations. However, the space force is currently underfunded, undermanned, and it doesn't have the authorities to consolidate

other organizations with a role in national security space activity. Now that the space force is a reality, actions need to be planned and taken to set it up for success. But there are many challenges ahead. So let me elaborate just a bit on those three points that I just made. The first and the greatest is it to meet growing and grave threats to both our civil and military space architectures. The space force requires growth and the resources allocated to it to design develop and build the capabilities to defend and then if necessary, defeat any aggression against us space based system. Now the second challenge the space force has to deal with is personnel. The new service was created essentially by renaming the Air Force Space Command as the US space force. That was inappropriate move. However, there's a lot of space expertise and the other service. to capitalize on it in a unified way there needs to be a plan and there is to bringing those elements into the space force as well. But also remember that the Department of Defense also reestablished the US Space Command as a separate combatant command in 2019. And we shouldn't forget that the Air Force still needs to stand up its own space component to provide its representation to US based demand, like all the other services except the Air Force hats. So we're all these people gonna come from this personal challenge is one personnel challenge is one that needs to be addressed is a priority as there simply are not enough train space personnel to cover all these additional new military space organizations without having to double or even triple hat, some personnel in all three organizations. Now the third challenge is bureaucratically a hard nut to crack. But it's the need to consolidate the nation's fragmented multitude space organizations into the space force. The best way to describe this is by citing a Government Accountability Office report that noted that some 60 stakeholder organizations in the department, defense Executive Office of the President in the intelligence community, all have a role in this security space. A Gao his conclusion was that too many cooks are spoiling the proverbial broth. and former Vice President Mike Pence said it best when he said that spreading the national security space program so thinly undermines our combatant commanders, and puts our warfighters at risk. So if the nation serious about dealing with the threats facing us in space, at least some of those more than 60 government organizations need to be integrated into the space force. So additional resources, more personnel, and greater integration of God space organizations in the space force are the next steps required to set it up for success.

M

Maj Gen (Ret.) Larry Stutzriem 48:49

Very good. Let me just gently tell you that we'll go to some Q and A's right now, but you're actually answering a lot of the Q and A's that are coming up. So you really hit the mark here. Let me continue with a few more questions, then, Doug, for you. There's a lot of focus on new operational concepts, avms Jad C to, of course, mosaic that we're deeply involved in with DARPA, this serves that we're really pushing hard on these things, but Congress is

resisting committing funds, in a serious way, walk us through the current state of play on these advanced concepts.

D

Doug Birkey 49:31

Yeah, first, I'd say it's really important to say these concepts are the future, we have got to realize, in the modern environment, the ability to understand the battlespace to understand where the threat is where to position yourself to avoid that threat, how to team with other assets to net an end effect that is greater than what any individual asset can attain to look at more simple function systems. times, they can give you certain advantages. All of that is the way the future, and we've got to get there. And it's going to involve faith on individuals, you know, throughout the enterprise. But there's also another side, it's, these are all still very early in their development. And a lot of technology has yet to be proven. And even when we attain them, these pathways, and these networks in the processing power, and the collaboration, they under themselves do not close kill cheats, they do not necessarily net the end effect. And so you need effect doors in in our business as their assets in space, and their aircraft. And so that's the balance that has to be struck here is that you need both. And so you know, if you if you want an example of the power of this sort of thing, just look back in history, in the Battle of Britain, you have UK with far too few aircraft. In fact, you know, they had to Spitfires in the entire RAF when Hitler went to Czechoslovakia. And so they were behind the curve, like none of and when the Battle of Britain kicked off, the constraints upon them were tremendous. And they were able to successfully realize their objectives, because they knew where the threat was, they could target fighter assets to it through the sensor network and see to network. And they realized a very efficient air defense operation. And in many ways, we're there now how small and and constrained we are, in many regards, we've got to get to and to equal five, the only way you're going to get there is through some of these new constructs, especially when you play with things like the physical expanse of the Pacific. When you look at some of the complexity of the volumes of targets in play, potentially, I want to look at some of the threats, it's very, very challenging. And so this really is a false choice to say I'm either going to do one or the other. And it's a false choice to say, Well, I'm going to take my foot off the gas here on on selling new airplanes, because people are automatically get that, well, if you look at the oldest and the smallest Air Force inventory and history, I'd say they don't get it. So you can't relax there. But you also have to double down on why these constructs are very, very important. And you need to allow yourself some breathing space to realize them successfully. And so that's back to us check that earlier, don't run your margins, so thin on the solution sets that you currently have that, hey, they might not be the best option. But it does work. It's what you have. Or it's the best thing you have. Because these future concepts are going to take time to realize and there's going to be a learning curve, there's going to be a version one, there's going to be

a version two, I mean, you can look at what was air to air missile functionality in Vietnam not so great. Obviously, we came a long way expect these these constructs will be very similar. But it means we have to have elasticity in in other options. And this is also very important when people talk about coming off of the 386 requirement for the Department of Air Force based on new concepts, maybe some time in the future. But those concepts are still largely theoretical. And so until they're proven with operational reliability, then you can't move off of the force sizing methods that speak to what works here now. And can you project in the future? Yes, but it should be conditioned based. If I get this, this little functionality, okay, then I can move other elements the force structure here. But until I realized that I've got a I've got to kind of, you know, walk and chew gum at the same time. And that's tough. I'm in it, the service also needs to do a better job of articulating what these constructs are. It's not easy, we struggle with it too. If there was a silver bullet, people would have done it, but we can't stop and simply raising the voice tenner after we failed. Year after year on on getting Brexit funding for these isn't going to work. We do need to think about new ways to explain them. Because early approaches and clicking right now,

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Maj Gen (Ret.) Larry Stutzriem 54:29

yeah, no good. That last point is a core how do we how do we express to Congress and the public what these things are about especially highly networked and information eyes concept? We one last question to tie this up. I really want to take advantage. General Deptula in your paper with Doug, you you really do highlight in a very easy to understand language, these issues. And it's no it's no secret. You're no When eclipses you, General Deptula as an advocate eloquent advocate for air and space power. So if you were to advise the new civilian leadership coming into the Defense Department on how to best net their objectives, when it comes to dealing with the entire department of defense with Congress with the broader DC community, what would you give them as far as advice?

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Lt Gen (Ret.) Dave Deptula 55:27

Okay, so that's first. Yeah, I'm a strong advocate for air and space power. But as a former Joint Task Force Commander, I'm also an extraordinarily vocal believer in the virtues and values of our joint construct of operations. If we're going to maintain our position as the world's sole superpower, we need the strongest Navy, Army, Marine Corps, Air Force and space force in the world. But being joined means that, you know, service leadership need to actively advocate for what their service components can bring to that joint force equation. Now, as for the new civilian leadership coming into the department, the best way for them to garner fast and lasting efficiencies for the Department of Defense, while boosting combat capability for the nation is to conduct a comprehensive and complete

roles and missions review, using cost per effect as the baseline measure of merit. However, I'm also pragmatic, and having been around and participated in the last full roles and missions review the Commission on roles and missions and 9495. I know the incredible resistance by the services to conduct any sort of roles and missions. But what I am hopeful is that the new defense team, what they'll do is the institute cosper effect is a means to evaluate investment across service lines, to achieve the most cost effective solutions in an era of constrained funding for defense. Now, for Aaron spaceports leaders, they should expand their efforts beyond making internal zeros some trades inside their allocated budget and strongly advocate for additional resources to meet the demands that the national defense strategy imposes upon them. They also need to explain the cost of coming up short. every set of defense leaders come into office determined to do the very best that they can. However, the current state, the Department of Defense enterprise indicates that it's clearly time for a significant refactor in the terms of the decision calculus used by defense to ensure that the resources spent on defense result in optimal value.

M Maj Gen (Ret.) Larry Stutzriem 58:10
Very well said

D Doug Birkey 58:11
well Stutz I want to jump in with

M Maj Gen (Ret.) Larry Stutzriem 58:12
Yeah, go ahead. Go ahead.

D Doug Birkey 58:14
One trend that's occurring a lot right now, as you see elements like the Marine Corps, they're tossing the towel on their tanks, you see, you know, we've got a lot of, you know, lowercase air forces in this country. They are divesting assets, and they're getting patted on the back for being heroes being innovated. The problem is, you know, the Marines can get their tanks because you have 1000s of them still residing in the US Army. The Air Force in the space force are the fundamental backstops, there is nobody else. So if we're down to 140 bombers, or if we have a fighter fleet with the ratios of 8020. I mean, that's it, there's no backstop. So I think they need to dial up articulating that piece, because there's no plan B after we run some of these.

M

Maj Gen (Ret.) Larry Stutzriem 59:04

Well, gentlemen, thanks so much. For this q&a section. We're going to go open the session to some questions from the audience. And we may extend about five minutes here. They've been listening to the conversation, you've actually answered a lot of the q&a that came in that were typed, I just asked if you want to ask a question, use the raise hand function on the zoom app. And when I call on you unmute your mic, and please state your name and affiliation. I've summarized about five of the questions here that that came in chance on long range strike. And and some of them touch on what you just said about roles and mytchett missions General Deptula. Basically, the question is, in two parts of these five or so, one is what do you think about this concept of outside force. And then the comment by the vice chairman, about a, all the services can have long range strike, where are you at with that YouTube?

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Lt Gen (Ret.) Dave Deptula 1:00:16

Doug, you want to go first you want me to go first.

D

Doug Birkey 1:00:19

First off, it is good to have diversity of options out there. And so all things should be weighed. However, the cost per effect measure has to be used, because there are very finite dollars available. And especially when it comes to long range strike, we have very few options, we need to plus them fast. And so if you look at, for example, the Pacific turns fund, they came out with some news on that the other day, and the amount of money that is being directed to ground based long range fires, well, you need to hold a cost per effect assessment to that, if you are launching missiles that are darn near approaching the cost of an F 35. On that is a really tough trade off to make for something that is single use. And you also need to weigh in, you know, the the calculus here that we've done here on ourselves that ammunitions in small engagements, whether it be Kosovo, Libya, whatever. And so if we're launching things that are the size of SpaceX rockets, there's going to be quite a production lymphatic process logistics deal. And, you know, with the sensing grid that the adversary has people always talk about the vulnerability of aircraft are moving several 100 miles an hour, am I protected by ew and stealth and the rest of it? Well, if you're sitting on the ground, and it's kind of obvious where you are, and people can sense it real time, I'm not sure how that's going to be much more survivable. So I'm up for considering diversity. But we really need to get serious about comparing the cost perfect before we commit real resources.



Lt Gen (Ret.) Dave Deptula 1:01:50

I think what Doug said is, is very well put, the fact of the matter is we need to introduce discipline into service roles and functions kind of interesting that people are saying, oh, let 1000 flowers bloom in the context of long range precision strike, but in other areas, not so much. So I think that, you know, without getting into the different perspectives of the different services, look, right now, everyone's chasing after the shiny object, and the shiny object is long range strike, simply driven by the vast distances that are involved in the Pacific. But you know, what we need to look at then is that cost per effect, and cost reintroduced effectiveness into the cost effectiveness equation. And the difference of reusability versus probability of 100% of a missile once it's shot, it's gone. So if you're building some of these exquisite concepts, like, you know, hypersonic ground and sea launch missiles, that, at least to some of the estimates that are floating around a cave, in army futures command and 50 to \$60 million a shot, we've got to come to realization and ask the question, if that's really affordable in the context of limited budgets that we have. So back to your first question, there does need to be a balance between outside and inside forces. Because we need a spectrum of capabilities, we can't put our eggs all in one back basket. But there is an enormous value. And what people have forgotten over the last 20 years, because we've been involved in countering insurgency to a large degree operations in Iraq and Afghanistan, is when you're looking at a major regional conflict. Last one that we had was Desert Storm 30 years ago, you're looking at 50 6070, upwards of 100,018 points. You You don't do that with outside forces, you need a combination of both.



Maj Gen (Ret.) Larry Stutzriem 1:04:14

Good question here, Doug, for you. Talk about on a monkey and loyal wingman in terms of cost per effect. What do you see the value of those concepts?



Doug Birkey 1:04:29

I think it's gonna be really, really powerful for a number of reasons. First off, to have an unmanned asset that has the ability to fly certain range of combat missions. Like, you know, you don't need to train these assets, you do a software update, and all of a sudden everybody's at the same baseline. If you find a better way of doing something, and so you're really reducing your training requirements. the sophistication of some of the mission profiles are able to fly I think is going to be very positively surprising. Um, I think the force multiplication element where you look at what are the positive elements of what a person in the cockpit kit can bring, whether it's an F 35, and it's going to be 21 or B-2, teamed with unmanned assets? And what are those strengths? And then I would look at, you know, where are we spending our cash? Do I want to spend my cash on recent talking

points of a, you know, Gen five minus? Or am I better off putting that cash on a, a manned unmanned teaming construct? You know, I favor the latter based based on what I've seen with things, I think you're going to get a lot more effect, we certainly need more capacity out of the battlespace. That's just obvious. And so I think it's gonna be a really smart way of doing it. I think the discovery though, of how we apply these things, and the range of missions are going to perform, I think we're going to be surprised about how effective it is. But I also think that man and Luke are in the zone, however you want to put it is going to be very important because there are certain functions and elements, especially when the adversary is really trying to degrade our options that that the human brain is still pretty powerful.

M

Maj Gen (Ret.) Larry Stutzriem 1:06:12

Here's a good question for either of you, on the low end of the threat spectrum, and it goes by about like this, it says, we talked a lot about fighter bombers fifth Gen. But we haven't talked about that low end. An example is mq nine, Reaper coke calm say they can't get enough. And the Air Force is apparently soft on whether it needs that or whether it needs to replace it. How do you see the Air Force in space force covering that low in the threat spectrum, which will always be with us exclamation mark?

L

Lt Gen (Ret.) Dave Deptula 1:06:49

Well, let me jump in here, I already addressed that to a degree, we've got lots of low end capability, we're gonna have F 16. with us. For decades to come, we're gonna have b 52 is where this their service life extends out to the 2040s. We're going to have mq nines that are enormously cost effective resources to target in these environments, and guess what they have the added virtue of not exposing a human being to being to the vulnerability of threat engagement area. So we already have a panoply of options. And we need to focus on them. And in in consider that portion of the threat spectrum that allows us to operate these kinds of systems in permissive airspace. But this is going to get more and more difficult. As advanced air defense threats proliferate. Outside of the peer nations, we've already seen the example of s 400 being moved into Syria, it's not going to take too much of an imagination to understand how advanced surface to air missile threats will be, well, we can use the Russians look, all you got to do is go to the internet, if you got enough cash, that you can buy an S 400. So that needs to be included into this equation as well. But bottom line, the points a good one, you know, 99% of the conflicts that we'll be involved in, are going to require a robust set of forces, but we already have that force. And frankly, we ought to consider retaining more of the cost effective piece of that force, which are our mq nines. And then as we move forward, greater investment in remotely piloted aircraft.

M Maj Gen (Ret.) Larry Stutzriem 1:09:04
It's well, we go ahead, and

D Doug Birkey 1:09:06
I think we need to get away from this, this construct where people are so focused on how we've used these things, also, for the past 20 years, especially with MK nine and focus on how can we use it in the future environment, because there are a lot of missions that this thing can pick up, whether it's space defense, you know, maritime sensor shooter roles, you name it, where we can then flow higher end assets further forward. And that's where I think we need to get a lot smarter. And I think the more we explore that space, the more we're going to reflect that these investments been made. We need to retain them in the force because the value they bring is huge. And again, we have finite front end capabilities at the high end. Those need to go as far forward as possible.

M Maj Gen (Ret.) Larry Stutzriem 1:09:51
Very good. Well, jets, General Deptula Doug Birkey. Ladies and gentlemen, we've come to the end of this discussion. It's been great Once again, I remind you that you can download this paper and read it off our website or any of our social media. It's when you get there, it's at the top of the page under publications. And I just want to thank again, General Deptula and Doug Berkey. This is a tremendous paper giving advice to the administration as it gets started. And we look forward to more work in this venue. So, I'll bid you get by and from all of us and Mitch wants to have a great aerospace power day. Thanks, Jeff.

L Lt Gen (Ret.) Dave Deptula 1:10:35
Thanks Stutz, well done.