Virtual CRT Accelerating Missile Defense and Joint Lethality with R&E

[Mr. Riki Ellison, MDAA Founder and Chairman]
Good afternoon. Welcome to a rainy day here in Alexandria, Virginia. It's good to be home.

I'm Riki Ellison. I'm the founder and chairman of the Missile Defense Advocacy Alliance. We have been advocating for 40 years on educating and advocating for the deployment and development of missile defenses to make our world a safer place.

There's no greater time in the world than it is today to advocate for missile defense. This is our 66th virtual congressional roundtable. This is on accelerating missile defense and joint lethality with R&D.

And we can just start right off on how great it was yesterday on the Aegis shot, the MDA shot, the shot from Guam that we proved and demonstrated to the world to defend that island. I want to give a lot of credit, a lot of credit to John Bier of MDA, to Heath Collins of MDA, Lieutenant General Heath Collins and John, the architect of this, as well as Paul Mann, Lieutenant General Rob Rasch, to be able to accelerate that first block of our architecture for the defense of Guam. Just magnificent.

And what happened and the use of the new radar that they put, the TPY-2, TYP-6, and shot the SM-3 Block II is just phenomenal. I think that they did the bridge and I think they put the IBCS was able to get in there a little bit. And it is the block and the signature on moving forward.

So, I'm very excited about that as we discuss this today. So, we're in a world where new technologies and advancements are happening so fast. And our ability to move back quickly is important in our ability on missile defense, on joint lethality, on everything.

We're going through a cost curve revolution. And the research and engineering of the Pentagon, of the Department of Defense, is really the bread and butter of taking new capabilities from wherever they come from, from contractors, from ideas, from small companies, all over and take that through the valley, as they call it the valley of death, but they take that through to test it, to prove it, to make sure it's safe and sound, to work with our military on it.

And that is a critical component before they can pass it off to be actually acquired and sustained and put forward to the warfighter. So, where the challenges have been, especially in today's world, is our combatant commanders around the world are demanding for these new systems, whatever they are. And they could be high-end, what we just saw yesterday with Guam and what they did there, or it could be low-end, what you're seeing with the drones that are in our country and elsewhere.

So, that mixture has to be balanced. And we have to be able to put these capabilities in our warfighters' hands to be able to compete and outdo our threat or our enemy in those AORs. And we know how expensive the recent attacks from Iran and Israel are.

They are on a magnitude of hundreds, cost us more than it costs them. So, getting that in there, getting better capability, getting faster capability, getting cheaper capability, and getting exquisite capability to handle all those threats is a priority for the warfighter. And it is a priority for R&E to do all that.

But there is some friction between the warfighter getting the stuff that may take years and so forth, because you've got to go through the policies and the procedures to get that in there. So, we want to just take a look at that and see what the successes have been with R&E recently on what they're doing in supporting the warfighter. And we've got to look at the challenges and maybe some of those solutions to speed this process up so we can get the capabilities to the warfighter, our warfighters around the world.

We got to have this stuff. And we certainly have a tremendous requirement for missile defenses around the world for that. So, I'd like to start this discussion off with the warfighter perspective a little bit.

We're going to start with JD, and then we'll go to "Shotgun" Thomas Browning at R&E. And Shotgun is in a secure office, so you won't see his picture, but he will be able to communicate and listen to our discussion and add to it. So, I'm going to start off with JD.

JD is one of our board of directors at MDAA, but he's a retired naval officer with 26 years. And he specializes in Indo-Pacific security, joint military operations, integrated air missile defense, and command and control systems integration. In 2018, of all things, he spearheaded the initial defense of Guam.

So, it will be fun to talk to him about what his thoughts are on the test yesterday. He also initiated the Joint Fires Network in 2019. And he served as an aide to the commander, senior advisor to the COCOM commander.

I think he's been working with four of the previous COCOM commanders. So, he's well adapted to everything. He also was the captain of the U.S. Hopper Aegis ship that did a lot of MDAA testing with its SM31Bs. All right, ladies and gentlemen, I'm going to pass it over to JD. JD, it's all yours.

[Mr. JD Gainey, MDAA Board of Directors Member]
Aloha, everybody. Aloha, Shotgun, looking forward to hearing your comments in a little bit. Yeah, thank you for the introduction, Riki. A gentle adjustment, 2019, we called it integrated fires effort. It wasn't until what Indo-Pacon was doing to try to enhance decision superiority or how the commander makes decisions until it combined with Shotgun's program when it was the director of Applied Capabilities Office called Assault Breaker 2. And when the two came together, the formal JFM was born. And I'm looking forward to hear Shotgun's take on that and that Han Solo origin story. I'm just very privileged to be part of that from the very beginning.

So, you mentioned two big things that have happened recently that were 100% enabled by OSD, R&E, specifically missions capability. And I believe there's a recognition that it is well overdue by the larger missile defense community to Shotgun Browning and his team, how they constantly looked at solution sets from the lens of how can we get this not only

advanced capability, get access to it, but how can we put it into environment where it can be utilized?

And I don't want to get ahead of Shotgun, but what he started with Assault Breaker 2 and that team of engineers, how they approached the solution set by looking at it through the lens of, if we're going to create an opportunity to enhance decision-making, ultimately increasing joint lethality, warheads on foreheads, or even defense designs, we're going to do so from an architecture that is open, it is secure in nature, and is able to ingest and bring on different sensors and weapons.

And it's pretty remarkable because this is the first time from a joint perspective that was ever done. Normally it was, hey, we're going to go build a weapon system, and then once we build the weapon system, we're going to go and identify the sensors that we need to support it. And then once we do that, then we're going to put it on the tactical dialing and make it work.

And everybody knows that that makes your tactical dialing fragile when you're adding different types of weapon systems or content onto it. So that's one remarkable thing that he's done over the past. And by creating an open architecture, now you're able to dabble, to flex, to adapt specific objectives or specific goals combatant commands want to reach without going back and having to make major changes to programs or records.

The adaptability and the flexibility that this provides is the reason why the software community, these up-and-coming venture-backed IT Silicon Valley folks are satisfied or starting to become satisfied that they have a role to be able to enhance what we refer to as joint lethality. And again, I don't to that. The second thing is, we can spend a little bit of time, is the live fire event that happened from Guam yesterday.

This started, this conversation started, I think back in February 2023, if my notes are correct. And at that time, we're looking at issue papers for the budget starting in fiscal year 24. So, the fiscal year we just completed, we were talking through the initial Guam defense design at INDOPACOM and with Admiral Aquilino and the Commander's Action Group.

And we saw that initial baseline of Aegis being supported by MDA and Army, the IFPIC, and the Patriot configuration being then supported by Army. Now it's RCCTO overseeing the joint program office. As we're talking through about understanding not only money has been applied and we have a good idea of that cost and delivery, we figured out that there needs to be a forcing function in order to maintain integrity to that initial schedule.

Because everybody knows that working with the acquisition community, it's easy to push complex and complicated systems, keep moving that to the right and not really show initial capability until most of the technical risk has been mitigated. But I think that just speaks volumes about the confidence that MDA had in the solid state radar selection, the Aegis weapon system selection, the Mark 41 VLS and the SM-3 weapon that was used for the test event last night. If you look at normal MDA testing and evaluation programs, those things are two plus years in advance.

And John Bier and team, they knocked that out of the park within, I would offer probably about 16 months of planning. That's significant, right? Because we haven't let off a Roman candle that size from Guam.

In fact, I don't think we've let off any type of advanced anti-air or anti-missile weapons from Guam outside of a THAAD test when we deployed that battery with the task force TALON located on Guam. So this was a big deal, not just to buy down technical risk for the overall Guam defense system, but it also solidifies that Guam, not only do you fight for Guam, now we have the ability to fight from Guam. And something happened in the weeks prior to the live test that a lot of people don't know about.

And it was called a project slingshot. And this was essentially ran from the MDA-LNO, put on his back, the MDA-LNO to INDOPACOM. And what he did is he said, this is not about just shooting off a rocket and testing the effectiveness of that one configuration for missile defense Guam.

This was about an opportunity to look at the command-and-control functions and specifically how the data is being passed back and forth. Don't get me wrong, there's been tabletops, there's been nimble fires efforts and leading up to it. But until you're on island and you're in the field and you're under those conditions, it says a lot about using the people and the equipment to put it into essentially an operational evaluation of the command and control.

From my understanding, a lot of lessons learned came out of it. I think there's a lot of enlightenments on how missile defense should be moving forward in the future with respect to communications, decision-making, authority. There's concepts out there that you can't co-parent missile defense.

One system kind of needs to be the one overall in charge. So there was some enlightenment that came out this past week, past couple weeks from that excursion. Hats off to MDA to not just lighten this thing off to validate the weapons, but also we got this on Guam, we're going to use their infrastructure, we're going to use their connectivity, we're going to use existing facilities and bring in the surrogate IBCSs, surrogate agents.

I say surrogate because the Guam Defense Command and Control Center hasn't been built, but about 90% of it is going to go into it in some form. And going through the checklist to start enhancing what missile defense from Guam should look like. So there's a lot of fantastic things that happened in Guam over the past couple weeks.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Thanks, JD. Am I right that that's the first land-based upper tier launch outside of the United States? We haven't done this in those VLSs in Poland or Romania.

It hasn't been done, I don't think, from any other country in the world. This is pretty spectacular that they were able to do this in that demonstration on land and be able to start this process over. And I understand they're going to be bringing in the new radar, the LTAMs, they're going to be bringing the IFPIC in, the Patriot's going to come in.

This is the first step on the upper tier. And also that system has a terminal capability against hypersonic flight, though small, but it still has the capability. I'm talking about taking care of high-end threat or being able to tell the Chinese that you have an ability now to be able to have that high-end threat with you.

So I think that was huge on that.

[Mr. JD Gainey, MDAA Board of Directors Member]
Yeah, hats off to Army Missile Defense to utilize this opportunity with the funding and the concept of operations that the Defense of Guam is providing and reprioritizing, racking and stacking their integration efforts. So the IBCS main focus of effort, being able to have Guam Defense buy down some technical risk for the Army is fantastic. The Army does missile defense like nobody else in the world when it comes to land-based critical asset defense.

And not just me, but I think the community at large is happy to see additional money being spent to enhance Army missile defense. And I'll just pause right there. So, OK, so we did Aegis, right?

Fantastic shot. Still a long way to go. When you look at White Sands Missile Test Range Facility, that's 3,200 square miles.

Guam itself is about 200 square miles. So within, I don't want to say 16 months or whatnot, yeah, now it's time for the Army's systems and contributions for Guam Defense to come up, start doing some live fire in that same construct. So, you know, back of the envelope, just outlined what Guam looks like at White Sands Test Range, replicate the laydown areas for the Army systems and start flying some cruise missiles from different directions, pop in a ballistic missile in there.

And let's start trying out what that configuration looks like on our home turf. I don't think we need to do that overseas so much because Army already has a very strong showing for their minimum engagement packages with Patriot deploying all over the Pacific. UserPAC's Pacific Pathways, which is a large-scale joint and combined exercise programs, brings these type of capabilities out there every year, every couple of years.

So that messaging, I don't think we really need to focus on the messaging piece to be able to show that high-end capability west of the international dateline, but it will send a significant message if we're able to kind of replicate what Guam looks like, the defended areas at White Sands and then start lighting off some test shots with it. Over.

[Mr. Riki Ellison, MDAA Founder and Chairman]
J.D., I want to just shift a little bit back as an analyst for the combatant commanders that you were. What do you see are the biggest challenges? Is it policy or is it procedures on how to get stuff from R&E moved into acquisition and sustainment into the theater?

What are you seeing? Because it's not quick. Just give us a reflection on what those challenges are from their perspective and your understanding of why this is not going fast enough and what, from your perspective, what could be done to increase the speed of getting new capabilities into the warfighter's hands?

[Mr. JD Gainey, MDAA Board of Directors Member]
Yep. I would offer it's two parts. One is a result of the acquisition community and the models that the Department of Defense uses.

So the acquisition community is responsible for procuring, testing, evaluating, and deploying this capability. Well, more times than not, that capability still requires about 5% more effort to have it adapt and tailored to that combatant command's operating environment. We see it often at INDOPACOM because we're the only combatant command that's maritime focused.

So a lot of the resources coming from the services, we have to be able to flex that capability for operations into our maritime environment. There's no money for that. So organizations like R&E, DARPA, SCO, now coming up with DIU and CDO, they have two-year money that has been able to kind of bridge that gap for us.

What Shotgun has done with the acquisition community, specifically with Dave Tremper and his competitive acquisition program, they took an evaluation, a technical evaluation of the JFN first week of December 2023, and it became a program of record 41 days later. So that program of record is being handed off to Air Force's C3BM for sustainment beyond. So Shotgun has found ways to use the acquisition community against itself to be able to deliver that.

I would offer that it hasn't happened very much, but it has been done. And this type of leadership and understanding how the system works to deliver capability to the warfighter is critical. And the other part is there's really no money to bring in Army, Navy, Air Force systems under the same umbrella to work.

And so that's something that from a joint force commander is responsible to go find how can I have mechanisms and money to be able to bridge those gaps just between the services and those different operating concepts. So the Marines, MLR, Air Force's Agile Combat, Army's Multi-Domain Task Force, Navy's Dynamic Maritime, all of those have some type of interdependency with another service, Space Force, as well as Special Operators, and you can bring in cyber. All those have interdependencies with each other.

There's really no money that goes after those interdependencies to be able to explore technology to bridge that gap between. So from a consumer of these resources, the combatant commands, those are the problems that we deal with. Over.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Hey, JD So the land COCOMs have a little bit easier because of those components, like you said, have bigger, can get into the commands quickly. Can you, you know, we're stuck with an acquisition process that you can probably take all the way back to McNamara back in the 60s to where we're at today. We now have a new person in charge of government efficiency, the DOGE.

What is your prediction or thoughts on cleaning of what that efficiency is and would that be breaking down some of these processes and bureaucracy layers in our acquisition system? I'm just giving you a speculative because that's going to happen in about a month. Start to happen.

[Mr. JD Gainey, MDAA Board of Directors Member]
Yeah. So that's a new question. There's some things in the acquisition program that have to remain in place.

The test and evaluation piece of it, the implementation of it for warfighter intimacy and understanding, those can't go away. But there's some other components where you can buy down technical risk in areas outside of operating environment. So we have laboratories, we have accelerators.

So understanding what is acceptable risk to, excuse me, deploy some of these capabilities is, but we'll be there. I think if you go after advanced modeling and simulation and federating the ability to evaluate through the same lens that R&D test and valuation folks do in the acquisition community and proliferate those metrics, I think you'll start seeing a lot of content to go through those wickets and to be verified as worthy of entering the acquisition program. Again, I don't want to get ahead of shotgun.

I know Shotgun has been working on that. I can't recall the name of the program. I think it's called Big Bet, but making the, like for missile defense, making the SM-6 models for anti-air and hypersonic or sea-based thermal defense available for people that are trying to enhance lethality instead of bringing it into a stovepipe.

And then once it's in a stovepipe, it waits its turn for evaluation. I think that's one of the major efficiencies that can be done, that can be enjoyed by some of those changes. But we can't just throw away DoD 5000 X-series.

But what we need to do is look at it through the lens of, with respect to time, with respect to technical maturation of the content, some of those things need to be prioritized or accelerated. And I think those things can be federated, different laboratories throughout the US. Over.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Thanks, JD. And that is taking more risk. I think that's where he's going to go, as you stated.

[Mr. JD Gainey, MDAA Board of Directors Member]
Yeah, kind of. So just a gentle reminder to the audience, Pentagon manages fiscal risk. The warfighter has to manage operational and admission risk.

And then the two don't always come eye to eye, right? So you ask somebody in the Pentagon from a joint program, what's your major issue? They're like, well, we need to be on time, on budget, on schedule.

You ask the warfighter, what's your issue? It's like actually being able to use it, applicability into the warfighting construct. So it's two different types of risk that's being dealt with.

[Mr. Riki Ellison, MDAA Founder and Chairman]
I'm going to ask one more question, then we'll move to Shotgun. Over in Europe, I've been engaged with NATO and the NCIA, their C2 challenges, but it is a layers and layers and layers of policy that has inhibited or stopped the ability to move fast at all. Do we have the same

problems as they do in terms of policy to shift directions faster, quicker with our acquisition process?

[Mr. JD Gainey, MDAA Board of Directors Member]
Oh yeah, absolutely. When you say the word policy, there's like levels of bureaucracy of why we can't do things. So policy can either provide constraints of which you have to work in, or policy, in my opinion, should give you the latitude and the leash to go out and do things.

Just don't cross lines one, two, and three. Two different approaches to policy. What I have seen with my partnership and my support to PACOM is policy has started to constrain what type of resources and actions can go out of.

People have to have discussions and meetings about delivering capability to our partners, as an example. That doesn't make sense. Why don't we go and identify capabilities that we both can utilize, compare it to, you shall not do the following, or red lines, and implement it out.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Well, thank you, JD. Our next guest, and to me, he's one of those game changers, and he won't say that. But in my visits and my briefings around the world with our COCOMs that want missile defense capability fast, they tell me to go meet with Shotgun.

Shotgun is revered to our COCOMs on being able to move capabilities fast to them. So, he comes with some great accolades. He is the Assistant Secretary of Defense for Mission Capabilities under the authority of the Office of the Undersecretary of Defense for Research and Engineering, the Honorable Heidi Shyu.

We had a chance to see her yesterday as she brought her team together. Prior, he served as the Director of the Adaptive Capabilities Office at the Advanced Research Projects Agency, DARPA. He's a 30-year Air Force veteran.

He's got 3,500 hours on the F-15A/B/C/D and T-38 aircraft. He's a great one. Ladies and gentlemen, Shotgun, Tom Browning.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Hey, Riki, I appreciate the invite. You guys hearing me okay? Yeah, we got you.

Yeah, I'm coming to you from inside of a classified area, so I'm not able to send pictures, but I'm not all that good looking anyway, so we're doing good. And, J.D., I only captured your last few words, so if I repeat anything, I'll apologize up front. Let me just start off kind of explaining what I am and what I'm doing in the Pentagon right now, and we'll go from there.

So, as Riki mentioned, I'm performing the roles of the Assistant Secretary of Defense for Mission Capabilities. That didn't exist two years ago. And I was actually hired, and this position was created based on a realization that the way we buy things in the Department of Defense – hey, you still hearing me, Riki?

[Mr. Riki Ellison, MDAA Founder and Chairman]
Yeah, we got you. You're good. Okay.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
I got dumped on the MS Teams, but I got you on the phone, so I'll keep going. I lost your guys' pictures and everything. Anyway, what we woke up to while I was working at DARPA was the realization that the way we buy things is no longer keeping pace with what's needed in the future military.

And there's three things I like to always touch on. One is this concept that the civilian world's grasped onto that the military hadn't quite, which is DevSecOps, or that idea of doing iterative, very rapid spin on development. The historic military way is someone writes rigid requirements, throws it all over the wall to somebody who pays for it.

They turn that into money speak, throw that over a wall to a company who's expected to build it. And five years later, that company throws the product back over the wall to that original person. And frankly, half the time, a lot's lost in translation and the world has changed, and so they don't tend to get what they need.

So this idea of changing from a very transactional process to a much deeper iterative process is something that we felt needed to occur. The second one is just the physical speed of development in the world, what I like to call the democratization of technology, which is industry has caught up with the DOD. And frankly, good guys, bad guys alike can create new capabilities really, really fast, again, outpacing the historical way we did business.

And then the final one, I heard JD talking about this a little bit, but it's probably my biggest passion. And that is, back in the 90s, dividing the world into things that airplanes affect, things that people on the ground affect, and things that people on the water affect, meaning aligning missions very specifically to air for Air Force, water for the Navy, and land for the Army, is no longer the way to look at that battle space of the future. And I think missile defense is actually one of my favorite examples.Cyber is probably a close second. As our potential adversaries get very long-range weapons and very long-range UAVs, you're at risk if you're on a boat, you're at risk if you're in an airplane, you're at risk if you're on the ground. And expecting every service to dream up and fix that independently doesn't work.

And expecting a single service to magically decide for the good of the DOD to take on these what I call joint challenges doesn't necessarily work. The Honorable Shyu figured that out. And she reorganized R&E and created mission capabilities.

So the purpose of mission capabilities is to work really, really, really closely with the technologist and really closely with the warfighter to find ways of accelerating our ability to get new capabilities out to the warfighter with a really specific lens on this idea of joint capabilities, meaning those capabilities where like missile defense or cyber, you know, every service thinks they own it, but no service necessarily owns it for everybody.

Or like joint command and control, where absolutely nobody really felt like they owned it. So our office is contrived of a group of offices who follow a process, and it's kind of simple, but it's identify, incubate, and transition. And the idea is that if we have a methodical process for very rapidly determining what the warfighter needs, very rapidly exploring potential trade space and technology, prototyping that technology using modeling and sim

and advanced analytics every step of the way to accelerate us, that we are much, much, much more likely to create a product that is transitionable.

And it's, you know, you've heard the term, the valley of death, we exist to take on that valley of death, which is that challenge of getting a successful technology into something that men and women are able to, you know, to prevail in conflict because they're using it. And it is my very strong opinion that most people call that a money problem, that gosh, you know, we just didn't have enough money to do that. And my very strong opinion is that it's really an information problem, meaning we didn't collect the right information.

And it's funny, back to that idea of throwing things over the fence, I call them Christmas presents. You know, we ask the warfighter what they want for Christmas five years from now, and we try to translate that and build it and give it back to them instead of working hand in hand every step of the way as we go forward. So I've got three offices, and I'll go through this pretty quick, but I've got an office called Multi-Domain Joint Operations that is meant to be the eyes and ears that is that what I call the magnifying glass between the warfighter and the technologist, where they're taking those warfighter needs and focusing them on the technological community and taking those technological capabilities and then focusing those back on the warfighter. The second office is an office called Mission Integration, and I heard J.D. talking about this a little bit, but I am a deep, deep, deep believer that we are not leveraging technology enough in the area of modeling and simulation to help provide us the information to make very rapid, good decisions. And the Mission Integration office is chartered with helping better describe and execute kill webs or kill chains. I think you guys have probably heard that term, this idea that I may need an Army missile with a Navy command and control system with an Air Force sensor, and that I need to be able to do that seamlessly. In order to do so, you need to be very methodical about engineering that architecture.

The next part that's really important that's executed through our prototypes and experiments that I also think was lost on the department for a while is this idea of professional experimentation. For many years, I think we've been really good at doing demonstrations where I merely take a new technology and prove that it works and give myself a high five and go on to the next technology, when in reality, there's a second question, and this gets to J.D.'s point, that's actually more important than the first. The first one is, does it do what I paid the vendor to make it do?

That's interesting. The part that's compelling is, when it does what I paid the vendor to do, does it actually have the effect that the warfighter needs it to have? And what that requires is a really professional design of experiment where we bring in all the right pieces, be they live or virtual, where we bring in all the right people, where we collect the right data, and then the term we use is a body of evidence, to collect that body of evidence so that I have the information that helps create a compelling argument to rapidly transition it.

I'm going to go rapidly through a few other things just to kind of lay the foundation. We have tools within my organization to help us accelerate this process. Two of them are, I think, some money to be able to address less technologically ready components.

It's a program called DIA, Defense Innovation Acceleration. It allows us to bet on products or companies to try to accelerate them so that they can be ready to demonstrate with a warfighter. The next slightly more advanced one is a program called the Rapid Prototyping Program, RPP, and it is focused on more advanced technologies that just need maybe 12 months of tweaking in concert with a warfighter to get ready for that series of experimentation to get that out the door.

A third one that's a little unique, and it's one that Riki and I have been working on, is a program called Foreign Comparative Test, or SCT, that actually, in reasonably small quantities, allows us to reach out to our allies and partners and find capabilities that they may have developed that would very rapidly be able to get them in the hands of the men and women in uniform in the U.S. to help us get stuff out the door very fast.

And then the final one in the development chain is, let's say I've developed it and we decided to buy it. Wouldn't it be great if we had some money to be able to throw against getting those initial products to the warfighter very rapidly? And that's a program called APPFIT, Accelerating the Procurement and Fielding of Innovative Technologies.

I know we're horrible with our acronyms in the department. So I've got this ability to work on things that are less technologically ready, to work on things that are more technologically ready, and to pay for them once we've decided what to buy. There's a final program that wraps all this together called RADER, the Rapid Defense Experimentation Reserve.

And the purpose of RADER is, on a two-year basis, to find those most critical problems that J.D. was talking about with the warfighter, very rapidly come up with a significant, I think between, you know, two and four hundred million dollars worth of activities that we could execute very rapidly to get new capabilities to the warfighter. We do an entire 12-month detailed experimentation campaign integrating those capabilities together to then walk with the services to the Department of Defense to try to get those products across the finish line. And the keys on that are, number one, again, we're focusing on those things that the joint combatant commander or the joint warfighter, you know, as J.D. was talking about, the warfighter out in the Pacific, find out the things that they need that the services aren't necessarily doing. Again, missile defense tends to be one of those that falls in that category. And then work with the technologists to come up with the solutions and work with the services to not only get them to understand that this is a technology we want to field, but, and this is, I'll end on this part, is J.D. brought up a really good point, which is we can't throw the whole process in the trash can because the services aren't well aligned and try to build something new. So instead, look at RADER and look at my organization in general as working to find those areas where we aren't meeting the warfighter's needs, where they are misaligned with the services.

And then we actually partner with the services to try to change what that alignment is. So think of it as incrementally fixing that misalignment so that then I can ask the service to go do it because I fixed that and they can continue and iterate on that. So hopefully that at least gives you a little bit of the touch, Riki, and I've used up my 10 minutes.

[Mr. Riki Ellison, MDAA Founder and Chairman]

Oh, you're good. You're good. Just, Chuck, and going back to the speed of the civilian capabilities to adapt and dual use using those capabilities, whatever they are, they just seem to outperform the DoD in being able to put capability out fast.

And obviously some of it's not military, but why can't we go as fast as they can? Or is there a way where we can use dual civilian capability and software that could come in? How do you do that?

Because you always seem to be behind civilian technology.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Yeah, you know, it's a really, really good question. I will tell you that, you know, I had an interview with somebody who asked me this question before, and they actually were taken aback by the fact that I kept using the word prototype. And they went, you know, it's already out there.

You just need to go buy it. And while I know that is true for a lot of things that the department needs and where we are, you know, being stupid, not just going out buying what's in the commercial industry. When you look at, you know, the unmanned aerial vehicles tends to be an easy example, which is it isn't true that you can go to Walmart and, you know, thank goodness, it's not true you can go to Walmart and buy a lethal UAV.

So what's true is industry is well ahead of the DoD on the underlying commercial capability. And where I agree with you wholeheartedly is I think we can iterate on those capabilities very, very rapidly, and bring new vendors into the fold supporting the department. But I actually do think more often than not, it requires a partnership in taking that not perfectly right or not quite right dual use capability and iterating on it very fast so that we can make it more closely aligned with a warfighter.

And that's what I think is missing is I think a lot of people are looking at this as an either or. I go through a laborious process to invent a military thing, or I just go out and buy something off the shelf. And through Rader, our expression is there's a third option, which is find those things that are really, really, really darn close.

Get them in the hands of the warfighter to figure out where it's misaligned, pay the money to put that extra, you know, 5% into that product that really aligns well with the warfighter, and then collect the evidence that helps us rapidly transition that. So I think this idea of a more meaningful and direct partnership with industry is the key. You know, and again, this is something JD touched on that I got a cheesy word for it, and I call it the triumvirate.

And what I believe is if you really want to transition a capability fast, three competing entities actually have to work together. And that's the user or requirer, back to JD's point is, you know, for what this capability needs to do, what's most important is the entity that's going to use it. So I have the user, I have the acquirer, which is the person in the Department of Defense that's expected to use the money to buy it, and I've got the developer.

And what has historically been true in the department, again, is that's very transactional. People throw documents at each other through Rader and through what I'm trying to push in this idea DevSecOps in the department is integrating the three as one common team that is limited by time, that is limited by money, and is limited by what the warfighter wants. But all of those are trades that I argue if you work together, you can make decisions that satisfy all three most rapidly.

So I 100% agree with you that we are under leveraging, you know, the awesomeness of the nontraditional industry. I just get scared when people make it an either or that I develop something or I go to the grocery store and buy something. And I think there's a middle ground that we're really leaning into that I think is valuable.

Does that make sense?

[Mr. Riki Ellison, MDAA Founder and Chairman]
That makes sense. One more question, I'll pass it over to JD. As the shepherd guiding through the valley of death that you are, Shotgun, what are your best your best wins on accelerating missile defense and joint lethality that you currently are doing that are crushing it?

Is it JFN? I mean, what are the ones that are and you got a great team, I've seen them work, they're phenomenal. What are your prize sheep going through that valley?

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Yeah, you know, it's funny because I'm going to translate missile defense pretty broadly. You know, I was a F-15 pilot for a long time. And that was that was my life when it came to cruise missile defense, not necessarily ballistic missile defense.

But so as you look at the breadth of it, my opinion is there's not a huge leap between the significant amount of attention being placed on defense against unmanned vehicles. The difference between that and you know, localized missile defense, I would argue is, you know, frankly, the weapon that you use at the end might be a little different, but they're very similar. And where I've got to be really proud of my team is a couple fold.

One is when the Secretary and Deputy Secretary came up with replicator, which I think everybody has probably heard of, but it was a very aggressive move to get out unmanned capability. The vast majority of things that were selected, actually were ready to be selected because of my team. Replicator two came out recently.

And again, I think you're aware is focused on base defense, which again, is tantamount to missile defense. And what's interesting is, again, the work because we're working so closely with the warfighter, we actually addressed started addressing this issue more than two years earlier. So under Rader, in our 20, what we call our 2024 sprint, so think of that as existing from the beginning of fiscal 24, through the end of this year, through the end of fiscal 25.

One of the two sprints that we elected to do was base defense in Indo-Pecan, and that's base defense for large islands, you know, think Guam, for medium sized facilities, think and

you know, an Okinawa or a base in a in a allied nation, or Marines on a small facility forward. And so we have a list of 12 projects that we are undergoing right now in Rader, where we're already a year and a half into action, that that address the command and control associated with missile defense for base, the whole lot of work. Now a lot of it's classified, but a lot of work on integrating both active and passive sensors.

And then mostly focused on that, that last mile, my Marines who are out in the forward islands, we've got some work on in game effectors. So what's kind of neat is we did a pretty good job of looking across, you know, from finding the potential weapon coming against you to command and controlling deciding what to do and then taking action. We've got programs that are running across all three of those.

Joint fires network you mentioned is an incredibly important part of this. And it goes, you know, JFN in a in a note goes back to what I said up front, which is, we've historically commanded and controlled by service, you know, you have an air operations center for the airplanes, you have a maritime operations center for the ships, etc. And in this future fight, we really need to put all of those domains together and look at it from an integrated, you know, when I'm doing missile defense, more than anything else, I need to include weapons that are on ships as part of your inventory weapons that are on aircraft weapons that are on the land, I want sensors that are in space sensors, and I want to tie all that together.

And joint fires network is about building the very honest got the very first architecture in DoD that starts at the very, very top. So what is what is that joint commander need to make decisions? And how can I integrate the absolute best information you can get in the world?

And that is very likely very classified information, how can I use the best capabilities, that very likely incorporates very classified capabilities. So creating a system that gives the commander the best information to make the best decisions to ensure that we have the highest likelihood of intercepting any threats? Does that all make sense?

[Mr. Riki Ellison, MDAA Founder and Chairman]
How far along are you shepherding the JFN in the Valley of Death? Is it promising? Is it going to come out?

Or is it?

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Yeah, this is the you know, I jokingly call it Mr. Shotguns Opus, because it's like Mr. Hollens Opus is one of the ones I'm proud of. So the commander of commander of IndoPACOM actually yelled at us, and I'm happy he did.

And this gets back to making sure you're listening to the warfighter in April of last year, that everybody's doing experimentation about command and control. He needs to have something right now for a war and no one's listening to him. So within a week of him crying for help, we created the concept for the JFN, and I was able to attain initial funding.

And again, this is April of last year. By December of last year, we did an operational demo of a prototype for him that was very successful. Based on that, we were given the resources to go through a very and again, this gets back that DevSecOps, a very rapid process.

I have an operations manager, a technology manager and a transition manager who work together every step of the way. This week, the team is in IndoPACOM demonstrating the final checklist for JFN 1.0, which will deliver to the warfighter this month. And then in the next 12 months, we are completing a second spiral of JFN 2.0. The part that excites me the most is in a meeting about six months ago, the Vice Chairman and the Deputy Secretary of Defense agreed to make JFN a full program of record and task the United States Air Force to be that transition partner. So back to JD's point earlier in my point, not only did we build this thing that IndoPACOM needs, we're working hand in hand with the warfighter to create it. The first operational prototype is going to be across the table at the end of this month. And we have changed the very nature of which service does what by having the United States Air Force tagged as owning this role through an office they call C3BM of continuing to mature and provide the Joint Fires Network capability to the warfighter.

So in under eight months, we presented the first prototype. In another 18 months, we have a fully funded program of record for the Department of Defense and realign the roles and missions of the United States Air Force. And I think there's, you know, hundreds of people in your JD and many different roles have been part of this who are part of it, but it shows that we can do something pretty big and audacious and go crazy fast when we're all working together.

And we're balancing the resources versus the operational need versus what technology can bring to the fight.

[Mr. Riki Ellison, MDAA Founder and Chairman]
That's huge. That's huge. What a great one.

That's a victory there for everybody. I'm going to pass it over to JD. JD, I know you were part of this in the beginning, but please engage Shotgun a little bit on some of the questions you may have.

[Mr. JD Gainey, MDAA Board of Directors Member]
Right on. Shotgun, great to hear your voice this morning. We were talking about that conversation you had with Adam McAleenan, who brought back some memories that I can't help but not laugh about.

So I appreciate that. I think after that meeting, you pulled me aside and said, man, let's figure this out. And, you know, we had champion summits.

We had, you know, you know, senior leader meetings and that alignment was tight. And you went off and did the glory that you did. Just can I get your perspective on as you've laid out a foundation that facilitates advanced technology being accessible and implemented?

And we're talking within, we're talking within months, right? Of you taking over programs or taking capabilities put into a package that can give to the warfighter to start messing around with and tweaking. What, from your perspective, and maybe you can answer this with

respect to mission area, which ones have been the most complex and the ones that you still need some support with?

And I say that with, you know, our advocacy hat on, how we can support you in spreading the news. Over.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Yeah. So I'm going to make a mistake. I'm going to admit this up front and talk about something where I have pretty limited latitude that I can talk about.

And so if I leave anybody in the dust, it's my fault. And I'll take the blame up front. But if there was an area that I think is really important, and this pertains very much so to missile defense, it is the trade space and integration between non-kinetic effects and kinetic effects.

Meaning if I had the ability to jam an incoming missile or had the ability to shoot it down, how we make intelligent decisions on who owns those, the non-kinetic or non-explosive way of addressing it, and who owns that explosive way of addressing it, how do I prove that one works versus the other? How do I get them to work together? And in the department right now, the people who do, whether it's electronic attack or cyber, are just crazily different people than the people who create lethal weapons or kinetic weapons.

And the command and control systems right now are completely different worlds and disconnected. Now, I will promise you that in JFN, we are taking that on this year, is that integration. But this ability to make intelligent decisions on which to spend money on, and then how to balance...

Riki brought software up before, but how I can balance that trade space between better software and better hardware. And then the final one I'll say that plays into this is... And this is something I was...

And you know this, JD, but I'm pretty proud of on JFN, is the architecture that we have is full government purpose rights. And what that means in English for folks who want to be part of it is if you have a subroutine, you've got a piece of software, you've got something you want to bring into it, we can work directly with you and bring it straight in. We don't need to go through a DOD prime and have you sub to them or have them buy you out or whatever else.

So for the ability to integrate these different things without an open government architecture, it gets... Again, it gets really, really, really hard and really confusing. So I think for me, we're making a lot of progress on non-kinetics.

We're making a lot of progress on kinetics. But in how to both tie those together and then make decisions between the two is a really, really, really challenging problem right now.

[Mr. JD Gainey, MDAA Board of Directors Member]
Yeah. Thanks, Shotgun. You had the incorporating invisible domain and the visible effects to guide us to see things in action.

I think that's more of a mentality in the whole say-do gap, right? You have to show them what right looks like and then start making believers out of folks. There's no doubt the architecture you establish will facilitate that.

I just want to just quickly thank you for some support with the demonstration we had on Oahu last week. It was under your foreign competitive test, FCT. I think if I misspoke, I apologize.

I just compared it. Comparative. Thank you.

Yeah. Your team went out and essentially within under three weeks identified some sensors from Ukrainian Sky Force capability from sensors and their BMC compute and their server architecture, shipped the stuff out to the United States, get it inspected, then forwarded to Oahu where we set it up and we did some test runs all within the three weeks. I'll just offer you, without that support, we would still kind of try to understand what does like a section of allied sensor integration looks like.

So, from 2019 on, the Indo-Pacom commander has always had a priority of how can I take the good sensor, the good input, legitimate and incredible content that our allies are providing, like Japan, JADG, Australia, how can we grab that information and bring it into our decision-making space? And what last week facilitated was mechanisms to do it differently. And we utilize the Space Forces program of record of the UDL to help with that because we're talking about passive sensors for tipping and queuing, larger missile defense stuff.

But really ultimately getting to your JFN for decision-making. All that stuff happened not only quickly with respect to time, but from detect on the sensors, going halfway around the world for processing assimilation back to the United States and ultimately into JFN and measured in seconds was absolutely fantastic. I don't think it's been done before, at least from my perspective.

And I've been looking at stuff for a little bit. And the reason being is because the approach to open systems architecture, the interfaces that what your team has been building enables that rapid interface and publishing of data. So I just want to give you a shout out to that.

I don't think you realize, but from our perspective, I think you changed the game for Allied Sensor Integration for that piece. Over.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Thanks, JD. And I'll tell you what, I'll do a shameless advertisement here. But yeah, my prototypes experimentation team who executed that for you are amazing.

They've created a line of experiments in the United States that we call T-REX. It just stands for technology readiness experiments. And we try to publish those pretty openly.

Our most recent one occurred in October. But what it allows us to do is bring things like Sky Fortress to an open range in the United States. A big part of our work is in partnership with the Indiana National Guard, which is pretty neat.

But we're able to bring technologies in, be they US or foreign, put them in the hands of the warfighter, work through integration interconnection activities. Our last T-REX, Sky Fortress absolutely played. About six or seven of our radar projects played, but we actually had 95 technologies there.

So we had industry partners who were able to bring, back to Riki's point on dual use, who were able to bring technologies to that T-REX, let us really rapidly iterate on, get the vendor feedback and get it out the door. My team absolutely deserves that. It would be a praise you gave them for getting it out the door last week or this week.

It wouldn't have been possible, number one, had we not had Riki as a little birdie on my shoulder making us aware of the availability of the technology. So thank you. But also the ability to get that out into a range, put it in the hands of professional evaluators and work through some of the quirks.

And there were quirks and challenges up front to make sure that something like the event on Oahu could be a success. So thanks.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Thank you. I turn it over to you. Yep.

Thank you. I just want to go back a little bit on the JFN because the other side of our COCOMs are using an anduril lattice and all that. And we've got all these different C2s.

Does yours overlap that or are they separate or is it a competition or is it still in development? What can you say about that? Do we need different C2s all over the place or do we need one and which one is the one?

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Yeah, that is a painfully fantastic question. So let me start with the easy part. And I'll try not to ramble on too long on this, but it's a fantastic question.

So humorously, when I was at DARPA, we were, my team at DARPA were the people who highlighted the challenge of advanced command and control that became the what we call JADC2 revolution back in April of 2019. So we started the whole thing. And our argument was we don't have the right tools to fight the way we would fight in the future.

But probably the most important and intelligent decision we made was we don't even have the tools to allow us to experiment. So one of the things my team did was they developed an architecture that JFN is leveraging. We put it in Hawaii, it's called the VFCC Vanguard Force Command Capability, silly name, but the idea was to build a facility where I could run a fake war and let the warfighter try a lot of different ideas.

And because we own the underlying technology stack, also play with a lot of different vendors tools. And so the part that I'll say up front is absolutely it's going to take different tools for different kinds of conflict, you know, what we need to support Ukraine today, what we need to support Israel today, and what we might need for, you know, World War Two, if

you will, are really, really, really different, yet complementary tools. You mentioned Anduril, I think anduril and Palantir both have just amazing suites of tools out there.

I would argue they don't do what JFN is doing exactly. There are areas where they are an absolutely better selection of a tool depending on vendor and location and time. There are certain capabilities where I would argue there's no question that without something like JFN, you couldn't do it.

So what is what is really neat is we are currently working with both of those companies. So both Palantir and Anduril support the Joint Fires Network, have from throughout varying times of the of the architecture. When we did an experiment in, gosh, it was during Northern Edge, so say four months ago, I may be off by a month or so.

What was really neat is the warfighter, so the individuals who were fighting that war using our system, were able to use Lattice. So Lattice was installed on our system and allowed them to use it. Part of Palantir's smart systems was on our stack and allowed the warfighter to use it.

So kind of in a cool way, they were in that instance, very, very complimentary and were able to use their tools on our architecture. However, they both have in their own right, really incredible standalone architectures. And so what I believe is true is as we all evolve, but just as importantly, as the warfighter decides what they really need.

And again, the key to this, it hurts, maybe hurts your brain a little bit, is we never fought wars the way we think we need to fight them in the future. So we're developing the tools, but at the exact same time, the user is actually deciding what they want to do. And that's going to drive different tools.

So what I think in fairness to our commercial vendors, there could be a future where everybody's using, you know, an underlying government stack with variable software. There could be a future where a single vendor, you know, takes all the cake and is leading out front. There could be a future where, you know, where we have alternatives.

And I think if you made me pick right now, that's the sweet spot. So, and we are in partnership with DIU, we're in partnership with CDAO, where what we're trying to do is leverage and empower our industry partners to run on, to run aggressively with the systems that they possess. And at the exact same time, run really aggressively with JFN.

So what I think is true is we have built something that's a little bit unique for the fires portion of a very high-end conflict. And I think it's needed for the fires portion of a very high-end conflict. But the men and women in the military are involved in operations across the entire world that span many, many, many different levels of conflict and sizes and shapes.

And so I think there's more than enough opportunity space that doesn't require us to down-select just yet. And I also think it's healthy that we're all, you know, pushing each other to continue to get better. So, yeah, so an interesting way, I don't know that I want us to select.

I want us to have a healthy ecosystem. But I do think the, I think the tools that exist today are complementary and not duplicative. And, you know, so if I could say anything, it's for those who, you know, who care about resourcing, that making sure that we don't down-select too early and that we don't feel the need to pick a single path right now is probably my biggest recommendation.

Does that at all answer your question?

[Mr. Riki Ellison, MDAA Founder and Chairman]
That does, that does. And it's what makes America great and what makes America better than everybody else, because you can bring in the diversity of the different thoughts that you've got and you're not down-selecting. It's awesome.

The only catch a little bit is that with JADC2, the same thing, how long is it going to be in PowerPoint until it becomes real, a real capability? Is that, is it real?

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Go ahead. JFN is JADC2. I mean, you know, so think of JADC2, you know.

Yeah, I mean, no, just think of it this way. Think of JADC2 as a lowercase noun, you know. It is, it is the act of us figuring out this new way to fight and making sure we're giving the warfighter the best tools in the history of the world to do that fighting.

JFN is a mature, now transitioning instantiation of how we do JADC2. So JADC2 is kind of the function and the concept. JFN is a really amazing example of us actually getting it off of PowerPoint, getting it out of the laboratory.

And like I said, before January 1st, you know, the first iteration of the Joint Fighters Network is going to be operational in the hands of Endo Pickham.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Thank you. Your team, Shotgun, is spectacular. I got my favorites, James and Pete, but we've been in Germany with them.

We've been in Ramstein. We've been in Jumo with them. They're awesome.

So thank you. And I saw Heidi with all of you yesterday, and you've got unity, you've got diversity, you've got a hell of a team to do what you said today. We're going to wrap it up a little bit.

So I want to pass it over to J.D. to have any final words, and we'll go to Shotgun, and we'll close.

[Mr. JD Gainey, MDAA Board of Directors Member]
Yeah, hey, thanks. Yeah, Shotgun, I don't know if you heard or saw the remarks from Secretary Austin at the Reagan Defense Forum this past weekend, but he was going through the things he's proud about and talked about some victories. And sure enough, Joint Fighters Network is one of them.

So shout out to you, shout out to the team. People are still trying to understand, it's French, je ne sais quoi, what is this Joint Fighters Network? Pretty soon, over the next six months, JFN is coming to a theater near you, and that's just because of the incredible content you guys are cranking out.

Looking forward to be able to support in any way, bringing in the missile defense stuff into it, because you know, it's hard, but it's not that hard. But it is complex. But I just will say that back in April of 2022, we were writing an issue paper for FY24 funding for the JFN.

We asked for $180 million for 24. And I think you got maybe like 10 or 12 million that you passed the hat around, and you found enough money to be able to do the prototype 0.5 year ago. And then everybody saw the awesomeness that y'all were cranking out.

And rightfully so, you got the funding, support, and the backing, and now culminating with the Secretary making you guys street legal with his words. So fantastic, and congrats on that.

[Mr. Thomas "Shotgun" Browning, Performing the Duties of the Assistant Secretary of Defense for Mission Capabilities]
Thank you, JD. Hey, thanks.

And again, Riki, I want to thank you guys immensely for the opportunity to chat with you today. Yeah, if I had a thing I want to leave you with, so Rader, a good example, again, our Rapid Defense Experimentation Reserve, this trying to, as a department, look at those areas that the services aren't necessarily paying attention to, obviously runs against the grain. A lot of, you people call me Don Quixote sometimes because I keep tilting at windmills, but fighting against the grain is hard.

It's really hard without money. And so one of the things that we've got to be willing to buy into new ways of attacking the problem, and you got to have time to get the wheels on the ground and get running. So I would say as we start looking at how we address issues like missile defense, we've got to look at that through a joint lens.

We've got to look at that through a whole of DOD lens. And that takes some innovators. It takes some innovative thinking.

But it also takes, and I'll leave, JD said this, so I'll kind of leave it with this. We are at a point where we've really got to accept risk, and risk in the sense of trying new ideas and new concepts and doing that very quickly. And the cool part about DevSecOps is you buy down that risk iteratively very rapidly and bit by bit, and it gives you the opportunity to pivot.

So this idea of leaning into really addressing joint challenges through rapid prototyping and rapid iteration, I think is the key to the future, and we need obviously support to get there. So thank you.

[Mr. Riki Ellison, MDAA Founder and Chairman]
Thanks, Jack. Don Quixote, dream the impossible dream. You've got it, buddy.

You're making it happen. It was great. It was great to be able to open up and clearly articulate a very complex situation and a complex environment and how you guys are doing

something about it, how you've thought through it, and you're producing and you're putting capability through that Death Valley, great capability to make our country better and make this world safer.

Phenomenal. We've got to keep the dream going, buddy. On it.

Thank you, JD, for coming up from Hawaii to be part of this, and really appreciate you, Shotgun, for taking the time from your secure location to speak with us. We're in great hands. Thanks for what you do as well.

Thank you. Thanks. Okay, gentlemen, great discussion.

Thank you. Goodbye. Thank you.