

## **MDAA Virtual Transcript Way Forward for NATO Integrated Air and Missile Defense**

### **Mr. Riki Ellison, MDAA Founder and Chairman**

Good morning, ladies and gentlemen. I'm Riki Ellison speaking with you from the University of Southern California in Los Angeles at the Olin Engineering Hall. We are here with our SHIELD program, it's an academic program for Global space and deterrence. We have just visited Vandenberg Space Force Base and had the opportunity to be briefed on our ground-based interceptor NGI, Next Generation Interceptor, for ICBM defense and that is the proving test bed for our Nations and the only one in the world's ability to defeat ICBMs. We also had the opportunity to be briefed by the 377th test and evaluation of the Minuteman 3 that's done there in Vandenberg SFB where they routinely launch three a year in proving and making our ICBM capabilities reliable.

We're here for our 65th round table and this is on the way forward for NATO and IAMD. We hosted a conference in London last week that was sold out on NATO IAMD, and we felt that it was important to be able to share some of those discussions and some of the thoughts that took place a week ago on where we're going to go with NATO IAMD. Our panel discussions in London brought in the lessons learned from Ukraine in Ukraine over the past 12 months on the drone and missile defense against Russia. We also put forward a discussion on lessons learned and applications to NATO IAMD this year. Those courses of action last week were change of policy to enable a much more effective missile defense capability all the way from hypersonics, ICBM's, cruise missiles, down to drone defense. We also move forward on regional missile defense alliances of regions within NATO to be able to be more aggressive in their ability to test, develop, and deploy regional missile defense capabilities. We wanted to move strong on open data sharing, being able to share data, specifically early warning and tracking data common to all the Eastern Front allies in NATO. The Ukraine test bed, taking advantage of the Ukraine test bed through the duration during this fight with Russia. Lastly space integration of space sensors into the architect on this.

So that's where we're at and we've had a heck of a week. Obviously yesterday the Russians flew one ICBM my understanding it was six empty reentry vehicles, just metal. Interestingly that it targeted a Russian ICBM facility production facility in Ukraine. So that that was certainly a symbol that Putin is pushing forward to try and intimidate negotiations or intimidate our next President or our current President on that. We also saw President Biden on Sunday open up the policies to allow uh Ukraine to strike with ATACMS. They have struck considerably a lot. A lot more than what the Russian media reports as just five and their ability to shoot down. So, they have been very successful on that. We see this continuing to grow in putting the strength forward for negotiations that look to happen soon for an end to this war. So I think both sides are moving in in very positive, excuse me not positive, very intimidated or position of strength negotiations on that. It's important that our nation and our world does not lose resolve on this. This is a positive way to end this war soon and we're looking forward to good terms on this negotiation.

So, ladies and gentlemen we will start um our discussion with our panelist that was there with us, our MDAA Board Member Mark Montgomery. Former policy director of the Senate Armed Service Committee, former J-5 in Europe on policy and 32 years in the Navy. Just a great, smart individual, forward thinking. Mark all yours.

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

Thanks. All right well thanks Riki. Like you I was at the conference with Tom Goffus in London and we learned quite a bit there, you know some from Tom and hopefully we'll hear from him soon, but also from a lot of the other NATO General Officers and Colonels that were there speaking and the US acquisition Colonels that were there speaking. Look I mean, it's not lost on anybody that you know 2024 was really the year of missile defense. Which is to say we saw a lot of missile defense getting used, whether it was in Ukraine or in Israel, we saw a lot of this opportunity. Kind of more accurately was probably the year of missile attack from our adversaries. Adversaries like Russia Iran and then China and North Korea. But certainly, at the end, what we heard at the conference, is that Russia really does believe it has the upper hand now. Ukraine's struggling to stabilize some of its lines and while Russia does struggle with personnel issues Ukraine's personnel trajectory is even more alarming over time. So, you know this is rapidly moving towards an end point.

One other point I'll note closely related to missile defense is artillery. In my visit there I definitely could sense, could feel, the artillery ratio was still seven or eight to one. Seven or eight incoming [Russian shells] to one outgoing Ukrainian [shell] and this is because Ukraine in this fight, particularly in missile defense, is fighting four countries. They're fighting Russia, North Korea, China, and Iran. You know Iran is providing drones that, including a drone Factory, and parts for ballistic missiles. North Korea providing the artillery, they're providing troops that's a strategic messaging thing I don't think it's near as important as the artillery or the ballistic missile parts they're providing. Finally China is providing the microelectronics that allow the Russians to build their modern cruise missiles and ballistic missiles as well as backstopping the Russian economy. What we're left with because of this aggressive missile defense action across drones, cruise, ballistic, and missiles going hypersonic speeds (not necessarily hypersonic maneuvering missiles) is Ukraine has an insufficient number of effectors. Whether it's PAC-2, AMRAAM, for their NASAMS, PAC-2 for their Patriots, SAMP/T, Hawk, even Stingers for their FrankenSAM's, they are really struggling. It means they're going to have to make hard decisions on a portion of munitions and conserve munitions to protect specific high value targets and you know protect their critical infrastructure and their military assets. Which means other personnel and industry targets are going to get hit.

But overall, I think we've all learned a lot in the in the lessons learned and at the end I gave a brief on the five things I'd be attacking I'll go over them really quick. The first thing we need to leverage is innovation. We're seeing a ton of innovation on the battlefield there you know whether it's sensors like the passive acoustic sensors or AESA, small active searching

radars, you know there's an opportunity there. You see in Israel, sensors like aerostats, dirigibles, up with search radars, one's been damaged in fact, I mean you know the enemy sees the value in it. So you see this improvement sensors. We're seeing improvements in effectors, you know the Shahed drones are being shot down by guns either automated or manually operated you know [unintelligible] or Gepards you know 20, 25, 30-millimeter guns are shooting down a lot of these drones. So, you definitely are seeing a much more aggressive use of this and we need to leverage that innovation. I think I've said this a few times but as we start to envision JADC2 or Joint All-Domain Command and Control, not envision it we've envisioned it but actually produce it, we better make darn sure that our that our allies are in it. We can't build JADC2 and then build CJADC2 and think it's going be anything but a cluster right for our allies and partners. So first leverage innovation.

Secondly, we need to invest in nonstandard technology. I mentioned the Israeli sensor, but we need to really be looking at elevated persistent sensors. The thing about elevated persistent sensing, we had this. Not just JLENS, I know people think about JLENS, the Army system that protected the nation capital region, but we had 10 programs back in the 2000s for services at the time, Army and Marines [unintelligible] near space region but probably had a lot of applicability to today how you envision a Homeland defense using it down to things that were at only a thousand feet, really for battalion I mean excuse me brigade level defense. So, you know we got to get on this. I think the Army probably overreacted and Congress in fairness to the Army overreacted to JLENS getting underway and you know crashing in a farm. I just remember no one died and unfortunately, we have a lot of people dying aviation accidents and we don't cancel airframes. We probably should have kept JLENS going. I think the army is taking a turn on this and into the right direction and they're going to have something to say. I think as we think about Homeland defense NORTHCOM, and I'm sure their service agnostic about who does it, is going to be very interested in this kind of elevated persistence. So second thing is kind of investing in this non-standard technology.

The third area is high low mix. Much like we did in the offensive side, like I love LRASM, but I can't get addicted to LRASM and SM-6 at \$4 million a copy to sink ships. You know you got to pay for the Powered JDAM or something you know that's at \$40,000-\$50,000. Similarly in air defense you can love Patriot, you can love SM-2, you can love SM-6, you can love AMRAAM, but I just described everything in you know seven figures 1 to 4 million dollars apiece. We've got to figure out how to drive down the cost of air defense and maybe the IFPC second effectors are good, I hope it doesn't delay IFPC even more, but you know that's a third one.

The fourth one is moving beyond kinetic defense. You know we've thought about this, we just haven't invested in it. These are things like passive decoys. I remember as a junior officer going through the Kiel Canal looking out at the Rapier or Hawks defense systems and after a while I was like geez there's a lot of these missile batteries out here and finally the CO of the British ship I was on said "hey those are not all batteries". About half of those are balloons you know they're effectively balloons, they're fake or papier-mâché batteries that

they had installed to create targeting dilemmas for the Soviets at the time. If I were to ask how many F-35 decoys there are right now I think I would be fairly disappointed in the number. It wouldn't make up a squadron I'll put it that way. So, you know we've got to get better at this; we've got to make sure we're properly working on all the tools we need for aviation maneuver, you know the agile combat employment. Then you know we've got to also commit ourselves to active defense. We can see this in two areas. One we just finally allowed the Ukrainians to more accurately strike Russian airfields, Russian Logistics, and ammunition spots. That'll be helpful. But look we have the same problem ourselves the Houthis are shooting missiles at us on a daily basis, we've expended 1.4 billion in defensive weapons probably another 400 million offensive weapons playing whack-a-mole in Yemen. It's time to play hit the actual factory that's producing these for the Yemenis in Iran. Hit the port where the dhows are getting underway from to bring them across to Oman and hit the logistics tail in Oman coming into Yemen. In other words, apply pain to the people who are actually supplying the Houthis, that's what active defense is about. So, we got to move to that. That's what active defense is about. So, we've got to move to that.

And then finally, we want to think forward. We've got to think about fighting from space. You know, the United States eventually withdrew from the Intermediate Nuclear Forces Treaty because we recognized the Russians were violating it, were in violation of it. And the Chinese as non-signatories were not adhering to it. We hemmed and hawed and finally President Trump withdrew us, I think in 2019. And, you know, that was a big deal. It allowed us to begin, that's why we have the typhoon Army system now. And the final thing I'll say is hypersonic defense. You know, and you've heard me talk about this, Riki, but I'll give it one more pitch.

So, we need to be able to intercept in the glide phase. I think the Russians and Chinese realistically will have some glide phase capability, inbound capability, offensive to us by 2030. I don't think that's an unrealistic assessment date.

We just chose a glide phase intercept path that starts, the first missiles start in about 2035. And that assumes everything goes right for the next 10 years. And if you know that government missile procurement system, I'd like to meet it.

So, 2035, 2037, whatever it is, once FOC with, you know, full rate production way out there. That's a tough time for our ships, our sailors, our airmen and soldiers at bases, not having a capability to deal with a Russian or Chinese capability. There was a second system that was probably less capable than the one they selected.

They could have selected that. It could deliver by the congressionally mandated 2029 delivery. I'm hoping the new Trump administration, when they come in, says, you know, doesn't reverse their old decision to work with the one company, but then says, we're also going to fund the second effort.

Get two efforts going. And here's a crazy idea. We're willing to like let five, six, seven offensive systems go from all three, you know, from three multi-services.

As I've told you, I think the Coast Guard would do hypersonic offense if they could find a program manager. But on defense, we were like, nope, just one, come on boys, just one, don't overdo this. We need two.

And look, one's quicker and one's better. That describes almost every weapon system combination that Tom Goffus has flew or I've sailed with. There was good and fast and cheaper, and then there was better and more expensive, right? That's how we work.

And I don't know why we haven't. So, Riki, you know, the five takeaways from listening for two days in London were leverage innovation, invest in non-standard technology, drive a high-low mix, move beyond kinetic defense, and think forward. I've taken all the air out of the room, Tom.

**Mr. Riki Ellison, MDAA Founder and Chairman**

All right, Mark. Great. I want to pick on three of those things because I want to make sure everybody knows we're not very good on this high-low mix.

We got the high and we don't have the low. In NATO and even in our U.S. forces, that's got to be addressed really fast. And then the testbed that can only exist as long as this war exists, yet we've got to be able to share that data and share that information from someone else, which adds to the whole problem of really moving off of that and how we best use our stuff.

I don't know if we're going to go show our new stuff in Ukraine, if that's what you mean, by bringing new weapons from allies into that testbed, or we're just going to develop the Ukrainian stuff that they're doing to go into our allies' aspects of it. Those are two things we got to really

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

Yeah. Let me jump in on that.

First of all, on the high-low mix, you're absolutely right. Our procurement system drives you to the high with a zero defect rate, a zero failure rate. We'll spend more money, spend more time, and end up buying the more expensive.

The thing gets higher and higher. I'm very certain LRASM didn't start out as a pitch to the Navy and Air Force as a \$3.2 million project, just like SM-6 wasn't pitched as a \$4 million project, or PAC-3 is a \$3.5 million project, whatever they are. They're pitched a little lower, but then the government gets involved.

I don't put all this on the defense industrial base. We are deeply involved as well in the failures here, and we end up with these things. What we have to do is allow for some failure.

Say, look, here, go for a cheap weapon system. Let me know if it works. QuickSink appears to work.

Let's take the chocolate of a powered JDAM, a long-range attack, and the peanut butter of a QuickSink, something that appears to detect and hit ships, put them together into a Reese's Cup of a powered JDAM with QuickSink, and put it on F-15EXs and F-18s and B-1, B-2s and B-52s, and go lay some leather at \$50,000 to \$70,000 to \$80,000 a pop instead of \$3.2 million. By the way, what's crazy is we pay all this money for an SM-2 or an SM-6 and then go, but our shot doctrine, and we drive PK, the likelihood of a kill to 96%, and then go, shot doctrine two. We've got to make sure it's 99.4%. You're like, you could get with a much lower-cost weapon, a PK of 0.8, and do shoot, shoot on 0.8, and I'll reverse the math for you, and you're left with about a 96% likelihood of hitting the target.

That's the math on a 0.8, 0.8. My point on this is we could do that. Now, to get it to Ukraine, I think you test Ukrainian stuff in Ukraine. I don't think we're going to put super-duper high-end whammy dime in Ukraine, but what we do need to do is start joint ventures with Ukrainian companies.

We need to make it much easier for U.S. companies to enter into joint ventures with Ukrainian companies, take advantage of their innovation, and as you said, their live, active test range, which is called combat, and then have the American companies backstop the supply chain. Look, lose as much Ukrainian labor as you can because it's a lot cheaper. When I was in Ukraine last time, a McDonald's number 7 was \$3.50, and here it's \$12.

The Big Mac Index is definitely in play in Ukraine. The Ukrainians use their labor, use their innovation, use their test range, use our supply chain and our manufacturing know-how. When they can't figure out how to get that electrical optical thing shaved just right, that's something you pull from the U.S. You know what I mean? Riki, I think it's absolutely a combination of what you're saying.

This is absolutely where we need to go, and we should be doing this right now.

**Mr. Riki Ellison, MDAA Founder and Chairman**

I'm going to give one more question for you, Mark, just to take a little heat off of Tom. Bringing that hypersonic glide and your BMD missile defense, which right now is in Poland and Romania, they just announced that's going fully operational and connecting it all together.

It's a policy issue. They're not connected right now. From your point of view, and also if you go back in the history of this, we saw the ICBM strike yesterday.

For goodness sakes, back in 2001, I think it was President Bush who wanted to move forward with putting ground-based interceptors in Poland. To deal with all of that, that was canceled. We went to EPAA.

Now, we have spent a lot of money, \$20 billion or so, ships, two land sites, all facing south, all facing an IRBM threat from Iran. Now, here we are with a disjointed integrated air missile defense that's not connected together across the board, and policies that are restricted. I know I'm going to talk to Tom about it, but I just wanted, from a U.S. perspective and your policy experience, you're not muted.

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

I want to give NATO credit here. They do use Leg 16 pretty ubiquitously, so they do connect things, but what we're talking about here is we're not bringing in, in an effective air defense, ballistic missile defense way, the Aegis Ashore system in Poland and Romania. Let me just tell you, the Russians aren't sure about that, so they sure as hell are going to strike them in strike one.

We better have those things ready to defend themselves against a strike from Russia. In doing that, I think they need to become part of the integrated air missile defense systems. Look, depending how many VLS fields you put out there, so they go Winchester, so they run it around, they'll be able to do a lot of damage to inbound Russian attacks, especially on cruise missiles.

I would absolutely pump up, I would connect the Aegis Ashore system into the broader integrated air missile defense system of NATO against a Russian attack. That's a policy decision. I think they can get there.

I think the Russians have demonstrated the requisite amount of thuggery and poor behavior to warrant that political decision. Then, I think, actually, the decision is how many VLS fields do I want to put out here? Because if you want to say, I want this thing to kick some butt, I would give it a lot of VLS fields, because then it can keep firing. The only thing limiting it, it's not going to be radar limited.

It's going to be effector limited. Look, when it's all out of weapons, if I were one of the 20 guys in there, and it is only about 20 guys in there, which is why it should have been the solution for Guam, whole different discussion.

**Mr. Riki Ellison, MDAA Founder and Chairman**

None of those radars are facing towards Russia. We don't have a major radar.

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

We can make adjustments. As General Riley used to say when he was pitching this, they are relocatable.

That doesn't mean you relocate them in an hour or a day. Here's when you can't do this. After Russia makes it clear they're invading a Baltic state, it's not the time to go, I wish that Polish system was properly facing.

I would optimize myself for a Russian event right now. If it means you have to make some modifications, you have to make some modifications, but it's well worth it. That is value return.

The VLS, as you know, Ricky, from our work with Defense of Guam, where we pushed hard for legislation that eventually resulted in a VLS launcher getting into Guam, it's only about

\$38 or \$39 million for a ground-based VLS launcher to be put in. It's one of the most cost-effective things in the government, shockingly cost-effective things in the government.

**Mr. Riki Ellison, MDAA Founder and Chairman**

They're testing that VLS next month in Guam with an SM-3-1, but it's only IRBM. It's not ICBM capable. I just wanted to put that out there for you, that Russia is launching ICBMs.

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

Allegedly. I'm not 100% sure what was launched the other day. We got to be careful with that. We'll see whether it was an IRBM or ICBM. It'll become clear over time. You're right. Again, when something's flying at you, when it's had its range deflated by an increased apogee, new intercept fields come into play. That's all I'll say. We'll leave it at that.

**Mr. Riki Ellison, MDAA Founder and Chairman**

Thanks, Mark.

All right. We have the Assistant Secretary for Operations for NATO with us, Tom Goffus. He was just phenomenal in our conference last week, Tom, and being able to distill what came out of that conference in courses of action and lessons applied directly from a year of what's happened with Ukraine.

We're honored to have you here. We'd love to have you give that summary that you gave us at the end of last week in London, but now we add what's happened. President Biden's opened up policy for ATACMS.

We've got an ICBM, one strike into Ukraine. You've had a busy week, obviously. This is important.

I'm saying we don't lose our result. We don't lose our result. We don't get intimidated.

We don't get scared. We go forward in a positive, strong way, because that's what you're going to have to do to negotiate from strength to have a good deal with this Ukraine settlement, which we believe is going to happen. Tom, the floor is yours.

**Mr. Tom Goffus, NATO Assistant Secretary General for Operations**

All right, Riki. I'm not going to do a total reprise of what we did in London, because I thought that was pretty well done and we covered a lot of ground. I would like to go through after listening to the last part and apologize.

It's been one of those days and getting everything up and running is hard. Let me start with IRBMs versus ICBM. My gut feeling, and it was so loud, was it was an IRBM. It might have been one of their development IRBMs. It's expensive. It's limited in the number of capabilities they have.



And I think it was more about political messaging than operational effect, when you look at the operational effect. So if it's that, that's just my going in assumption, then what NATO needs to do and what we're going to do is a calm, resolute response. Here's the good news.

What I think happened was the ATACMS, liberalization, got through to Putin. He reacted. And I think we ought to look back at the last three years and go, what gets through? I actually did this with the hybrid center of excellence in Helsinki today, was I said, I looked at a study. Tell me what works with Mr. Putin. There were some F-35s that went to Bulgaria towards the beginning of the war. And Ukraine changed its posture on the Crimean Peninsula.

Because one, they don't know what the fifth gen fighter can see and sense. And two, they don't know what it can get through. That was a message, even though it's freaking five tactical airplanes, that sent a message that they went, huh, we need to react.

To me, almost those IRBMs is a victory in the sense that it got through to Putin. He knows it's serious. It means almost we did the right thing.

And this is the active offense that Mark talked about that I think is really, really important. And so calm, meaning we don't freak out and go, oh, my goodness, can you believe what he did? Resolute. Our commitment to the support of Ukraine is unchanged. From my perspective, the U.S. did the exact right thing. That's a NATO hat there more than a U.S. hat. The folks that are really worried about escalation are losing their minds right now. I'm worried about it. I am. I think we need to calibrate. We'll see what pops out of that.

The big message was, I'll use nukes. The disincentive for him to use nukes remains what it was before this happened. That is, if he uses nukes, China knows they're now in the game.

They're fine with a Ukraine war if they're not in the game. Nukes bring them into the game and they know it. I think Putin probably is thinking about, if I use a nuke, what happens to India and China and all the support I'm getting from them?

I don't know the answer to that, but I will say that I think Putin is calculating that. That's the IRBM threat. I think it's political messaging, not operational effects in terms of, it's not a game changer. Let me put it that way.

Innovation. I'm big on this battle lab idea. I do think that we could get more on the battlefield from innovative companies, big and small, if we had a more systemic approach to, how do I get this to Ukraine? If I donate, I get data back. This is from London. I've said it before. I believe it. A week on the battlefield is worth a year on the test range.

You're not simulating combat. You're in combat, both the operators and the atmosphere. You can't get that everywhere. It's different in a test environment. So this is rapid evolution. One of the things that I think is so perfect about this, I met about a year and a half ago, I think is when I met one of the originators of the acoustic sensors.

The first time I met him, he looked like he hadn't slept in three months, because he hadn't slept in three months. The reason for that is he was tweaking the algorithms every night on their system to get them to good, to keep them to good, to stay ahead of the threat,

because the game changes that fast. The reason why I tell you that is this is where we have the innovator connected directly to the operator.

That is the key for innovation. The innovator connected to the operator, not an innovator, some really smart engineer or PhD or something like that that works for a small company that then works for a prime contractor that then reports to DoD and then goes through the joint staff to combatant command to an operator. You take that whole middle string out.

That's how you do rapid innovation. I think it's possible here. It's worth the company's investment, because they get it.

When I was working on The Hill, it was Microsoft, I think, and it was a CEO. All of a sudden, they were working on, I think it was a night vision device working with the special forces. I go, I thought that wasn't good, that innovators hated this.

Gen X and everything else hated working things that could make things go boom. He said, well, yeah, but he's working directly with the special forces soldier that wears it and then says, dude, I couldn't see anything over here on my right side in the right 60-degree angle, and that's important for me. The innovator takes that.

That's pure gold. They're really moving the ball forward. It incentivizes the whole system whenever you can do that.

I think that's what a battle lab solution should do. I intend to pursue that with my Ukrainian friends to see what we can get done on that aspect. That's number two on innovation.

I think that there's a move afoot that says this thing that the Aegis assured doesn't really address anything but an Iranian threat. I think it's going away. There is some political impetus to get that righter.

Let me put it that way. I don't know how far we can go with it, but at the very least, it's a sensor. I'm not concerned as much about the limited number of shooters that they have or the effectors because the numbers are limited, but at the very least, we ought to have the sensors there.

By the way, I worked on the European phase adaptive approach, which is the two Aegis Assured sites right now. I worked that with Dr. Bob Bell, who just passed away, unfortunately. The way he and I saw this, the purpose of this thing wasn't even necessarily the two sites.

It was to build a backbone for a command and control system that other things could then plug into. That never happened. It's a bit of a shame, but that was the original intent.

This was a deliverable for the 2012 Chicago summit. That's when we started working on this. Here we are still in search of an air C2 system, which I think is critical for NATO, and we'll get there.

Link 16, data sharing. I broaden that to data sharing. Yes, NATO has essentially a black box that helps the control and reporting center, CRC, send their information up in through the link 16.

It might be link 16 light. It doesn't really matter because it's passing important information. It's called CSI, and it does the interface.

My simplified version is it lets your coffee maker talk to your toaster, which is something Ukraine needs. I flew one of the earlier versions of the F15C that had data link. It wasn't straight up link 16, but especially when we flew at night, it was a game changer.

It was like clubbing baby seals. They had to change the rules of the exercise because it was so overwhelmingly dominant when the AWACS and ground stations can share with an airplane what they're seeing and vice versa. I don't have to talk to my wingman about what I'm seeing.

He sees the same thing, and he sees who I'm targeting. I think that data sharing is absolutely at the vital center of what we do. That's number four.

Active offense, I already talked about the IRBMs. This is deep strike. Let me put unattributable, a little nugget on the table. Deep strike might be the wrong way.

Long-range strike is probably more accurate, whether it's deep into Russia or even just into Russia, and tell you that this is politically fraught within the alliance. We went through the whole Cold War without getting a policy on long-range strike. Allies just couldn't agree.

It's too controversial. Oh, my goodness. To the point where we restrict what SACEUR can do in terms of targeting preparation.

We're trying to get past all of that right now, but this is going to be a hard, hard fight. It's absolutely essential though. Like I said at the beginning, what the IRBM or ICBM, whatever Russia used, was Putin whining.

This sucks, and I don't like it, which part of me says that means we did the right thing. I think it's critical, as Mark does, but we're not there yet. On the high-low mix, two things for you on that.

One is Stinger missiles and launchers. With the Stinger system, MANPADS, I believe Ukraine, with the addition of the low-cost, the low-mix acoustic sensors, when you can cover a country the size of France, meaning Ukraine, for less than 50 million euros from surface to 1,000 meters, what that tells you is this is a game changer. And they can connect that to the Stingers and move the PK of a Stinger from 0.25, meaning you need four of these to take down a cruise missile, to over 0.9. And with the right number of those, Ukraine, I believe, can take out 95% of the cruise missile threats. And in a war of attrition, the cost curve really, really matters. And so if you don't have to use NASAMS or Patriot or SAMP-T to take out cruise missiles, and you take those out with Stingers, you help change the cost curve. Then those high-end systems are only used for leakers.

Because if that leaker is going to take out your 20 million euro, \$20 million transmission station for the electrical grid, then it's probably worth it to use one of the high-end pieces. Then the cost curve changes again. This is how dynamic that is.

And the Ukrainians are trying to do this. The other thing the Ukrainians are trying on the battlefield right now is AM9Ls and Ms, which shocked me, because I think I flew with those back in the day. And they're relatively cheap, and they're using them to take out threats on the battlefield.

Ground-launched, they've done it sea-launched. This is innovative. It's just an IR missile.

But if you can point it in the right direction, then you get some good bang for the buck out of it. And these are legacy systems. There are a lot of them out there that they're sitting.

The good news is they have hermetically sealed containers that they live in, so they're coming out of the good shape. So, again, that's the high-low mix. I entirely agree with Mark.

We need to go there. Hypersonics, NATO's looking at it, but it's a little touchy-feely right now. It's nowhere near what Mark talked about.

And I agree with him. Five offensive systems and one defensive system, we need to look at that. That's pretty clear.

I'll put one more thing on the table for you. And this I stole from a guy. His name is Tim Roxy.

He did a famous letter to the Ukrainians. He saw the war coming, and it's called the February 6th letter, and it's about the electrical grid. And he saw it coming.

He did the analysis. He's an expert in nuclear power plants and the electric grid. And he carved things up, and maybe this is just a construct for you on how to think about this, which is he sent them in the letter and said, here's what you need to do now.

Don't wait. Do it right now. Here's what you need to do soon, meaning after you get done with do now, do soon.

And then here's what you need to do when you can, or if you can, if you still have an electrical grid left. I think that's going to apply to integrated air and missile defense. Some things are going to fall into each of those categories.

I don't have the full thing sorted yet, but I'm starting to use that intellectual construct to address the issues that MDAA is looking at, but also what nations need to look at and what NATO is looking at to get it to good. So a whole bunch of things on there for you, kind of more reaction than anything else. But we're working on this.

We just got the first 20 million euros worth of funding support to help provide more acoustic sensors to Ukraine, including acoustic sensors that can be placed on buoys, which is much more complex, given the environment that it will be in. And I think, though, if you think about it, you're trying to protect a port and you have buoy sensors, absolutely huge, another game changer that's in the offing. So, Riki, I'll go ahead and stop there, but I think we're going in a good direction and we're finally getting after it.

And I'll tell you that at NATO, there's momentum. What we do with that momentum is absolutely critical at this point. And that's why I need you and Mark and this group to help

us figure out where to steer the momentum, because it took us about two years, you could say 32 years, because we did 30 years of underinvestment to get the momentum.

Now we need to vector it in the most smart ways possible. Thanks again, Riki.

**Mr. Riki Ellison, MDAA Founder and Chairman**

Okay, Tom, great, great explanation. Just an off note on that, Tom, the 20 million that you're doing in Ukraine, they're going to do a demo in Hawaii next month. We're going to do a demo with 11 Pacific allies doing both, I believe, on water and on land, off the base.

So, I do want to go back to, if things go right, you only have a short period of time to leverage integrated air missile defense for NATO, because you have tremendous momentum. We saw that. You have more momentum.

The policy briefing that I got from NATO was the most positive I've ever seen in 20 years on missile defense. So, if you have a short period of time, A, what can you get done in a year on policy? And B, if this deal happens, good deal, if Ukraine joins NATO and Russia gets a little bit of Ukraine, does the momentum leave integrated air missile defense?

Does all this just go away? Does the technology testbed that you see that is so valuable, does that just go away? And I'd like you to talk about just the dominance that the Russians have on production with their small economy, on just overmatched by hundreds and thousands.

And if you give up, if you have a little ease in this negotiation, the advantage is going to go to them. How do we get that going? And then taking advantage of regional—we didn't talk about this a little bit, but regional, where the more aggressive countries in NATO that are seeing Russian drones on their territory, being able to be ahead of the rest of NATO in terms of doing production within themselves, testing within themselves to do that.

So, there is a great opportunity here, as you know, but I don't know if it's just short-winded or how do you take advantage to continue that policy breakdown to allow you. And the worst policy thing I think that you've got is your inability on the C2. The acts no longer exist.

You're not able to bring in open architecture, non-military architecture. And if you look at all these sensors in Ukraine, they're not on bases. They're across the country.

And so, we're going to have to get to there. Everybody's going to have to get there to be able to do non-military sensors in civilian areas and link that in. And you've done this.

I mean, Ukraine's done it, so it's leading the world on this. But that's how you're going to have to win. I don't see a path so far where you can share data like that.

That's a lot. I just want to throw a couple of those things at you.

**Mr. Tom Goffus, NATO Assistant Secretary General for Operations**

All right. So, I take it, Riki, it's a good question. What can we do?

Before you said it, you know, I wrote down a couple of ideas on what can we do with the momentum we have now, assuming it's a limited window. And I don't know how long this

window is going to last. And even that, I think by next year, we'll have a million casualties on the battlefield.

And if Europe and the U.S. aren't paying attention now, it's not going to happen. So, the number one thing I put down was air C2. And I talked to General Hecker today exactly about this.

And there is established at NATO an integrated program office. And it's designed to get at the air C2 piece. And I'm going to advocate to both my counterpart that does this, which is a different division than ops, which is almost shocking, right?

But, you know, MDA started out as just development. It's in the name. And then it drifted into ops.

And now it's drifting back to development. We need to do that at NATO, I think. And we will get there.

But the idea is open architecture, standardized messaging, C2 system. And I'm talking the window I need this in is 18 months to two years max. We're capable of this.

It doesn't have to be the whole enchilada. It just has to start to be the kernel and the functional kernel, just like a phone with apps on it, where you can add capability to it as you go. So, I would say that's number one.

And the next year at NATO in the independent program office that does air C2 is absolutely critical. It's the right time. It's the right thing.

And that was a result of SACEUR and the Secretary General both pushing together. When are we going to get that kind of momentum again? Hell, I don't know.

But that would be number one. Number two, the whole concept that IMD and ballistic missile defense are two separate things. And most of you probably think it's the same thing, because that's what I think of when I think of IMD.

It's not true at NATO. Doctrinally, it's different. So, you switch C2 systems.

And, you know, I could just see somebody, you know, sitting there as 150 threats are coming at them and going, nope, nope, nope, pull out the BMD manual and the C2, and then pull out the cruise missile or the drone. That's absolute baloney. You know that.

I know that. I think everybody has recognized that. And we need to ride that wave to get that policy out.

Where's that going to come together? Oh, by the way, the air C2 system is going to address both. And if it doesn't, we've made a major mistake.

So, that's a policy thing that we need to get to good right now. Three, the ability to share data, and that includes non-military, if you will, sensors. And really what the military needs out of those non-military sensors is the data.

So, this is about data sharing. It's about an open architecture C2 system, but it's also about, I believe, moving to the cloud, where you can share data. If you will, some call it, because it's unclassified, they'll call it dirty data, and assimilate it, ingest it, fuse it, and push it back out.

That's the cloud. That's also associated with the Sky Fortress system. It's not the same thing, but it's a part of leveraging that, and I believe that's really important as well.

One of my favorite topics, defense industrial base. This is one of the top three or four priorities, and I would say I can make it three because it's related to the other two. One is Ukraine support.

Two is deterrence and defense. And three is partnerships. Those are probably as big three right now. You can parse them and sort them different ways. You have three or four different ways. But part of deterrence and defense and Ukraine support is getting the defense industrial model right.

NATO's got two things going on. We went, oh, hell, we underinvested in IAMD for 30 years. And so that demand signal is out there to the defense industrial base, as well as we need to get stuff to Ukraine now. And that's the same. Either one of those would have overmatched our defense industrial base capability. And so we need to get on it.

We need to get the stick going. Here's the sad part of this, which is what Riki was referring to, which is Russia has the size of economy of Belgium and the Netherlands put together. And yet, for the entire NATO alliance of 32 allies, half the world's economy—so this is Belgium and the Netherlands against half the world's economy.

And the Russians produce in three months what it takes half the world's produce in one year. This is not a capacity issue. This is a priority issue.

This is a political issue. And when I look at this, what models do I use? Well, what I would go back to is in COVID, we got into the supply chain.

And I say we, and that includes the government, which is, you know, it kind of goes against the grain sometimes when you grew up American and went, that's defense industry. We don't touch that. But they got into the zeros and ones and figured out the supply chain and fixed it.

We've also done this with the 155 ammunition, especially the U.S., and they're investing in industry in specific places that will help shorten the long poles in the supply chain. We needed to get into that level of detail with things like patriots. Why do I say that?

Why would I say something like that on patriots? Because every CEO comes out and they yell at us and they go, we need long term signal that government's serious about this. And you go, what's the long term signal?

And they go, sign contracts. And then Riki, with \$2 billion in his pocket, goes to Raytheon and says, I need a patriot. And they go, thanks, Ricky, get in line.

The line starts over there. And it'll be eight to 10 years before you get a patriot. Is that not long term commitment?

And so it tells me that it's not that, because otherwise, if they increase their ability to produce, they would be able to crank these things out. It's somewhere in the supply chain. And I believe the government's going to have to get into that in the middle of that and try to figure that piece out.

And I know Dr. LaPlante knows this. He's experienced it. We know it's possible.

Do we have the will to do it is kind of the question on the defense industrial base. This is a priority at NATO. So the Secretary General is personally pushing on this thing as hard as he possibly can.

So I go from there to Riki's kind of pieces. What if peace breaks out tomorrow on whatever terms? Does this all go away?

Hell to the no. And here's why. When the fighting stops, and I sure as hell hope it stops on terms that are beneficial to Ukraine.

We don't know that answer yet. But I sure as hell hope that Ukraine is able to negotiate from a position of strength. That's the only way we get to something that has any chance of being a lasting peace.

And even if we get there, one thing I do know, Putin's on a wartime economy. Like I said, with the economy of Belgium and the Netherlands, he outproduces 32 allies, half the world's economy on a scale of four to one. That's absolutely nuts.

Do you think he's going to, day one, he's going to go, oh, we're not at war anymore in Ukraine. We've peace is broken out. We'll stop the wartime economy.

No way. He's going to continue. And so now what's the threat that we're looking at, both from a NATO perspective and Ukraine perspective, is now we're taking the same threat that we're worried about today with Russia, only they don't have Ukraine taking them in the shins and beating the hell out of them every day and reducing their capabilities.

They're going to stockpile cruise missiles, drones, ballistic missiles. It's going to go through the roof. And the other thing we're going to need to do is we need to keep supplying Ukraine because we're trying to prevent the future war.

2008 in Georgia, 2014 in Crimea, 2022 full-scale invasion. Just do the math, plot that on a graph and go, okay, in six to eight years, if peace broke out tomorrow, they'll be back by 2030. And what we're going to need to do is arm ourselves and arm them.

So this defense production capacity problem is not going away. It will only get more acute when the fighting stops. And our need for the high-low mix will only get more important, not less important.

And then finally, Mark brought this up and I failed to mention it the last time, is space. Right now, senior leadership at NATO is working hard to move the needle on space at NATO. About what we've got on space at NATO is tens of people focused on space, well less than 100, let me put it that way.



And space has broken out all over in the sense that commercial space has accelerated to the point where it's taken out the assumptions on space that most NATO allies had are all wrong now. It's too expensive. That's not right.

Bulgaria just launched a nanosat for maritime domain awareness. Bulgaria, they launched a nanosat. NATO is behind the curve on this.

So it's not too expensive. It's not too classified if we can figure out this data sharing piece, and it's not a national responsibility. This means that space is a collective defense responsibility and can play an integrated air and missile defense even more than it's playing in now.

You have nations with a bag full of money. We have Poland is spending over 4% on defense, and they're showing up at space comms door and knocking on the door and going, hey, we got money. We need space capability.

And the answer right now is, you know, this is where we are. We're in the crawl stage for sure. Well, what do you, you know, I demand, we need space capability.

Well, what space capability do you need? We need to know what space capability we need to develop. Right now, NATO gives target capabilities.

Here's how many ground-based air defense batteries you need. Here's how many ships you need of this size and this shape and this capability. Here's how many brigades you need, heavy brigades, light brigades.

We have no space capability targets that we're doing yet, but that's on the horizon. And this will do nothing to help integrated air and missile defense move forward. We need to get on the space thing.

We're working on it. I'm looking for deliverables. Our next summit is kind of like finals when you were in college or university.

The summits are a driver of deliverables. And so we're looking at what can we produce by the summit that will be in The Hague in June, where all the world leaders come together, commit to things. And the idea is we're not going to fix space at NATO by then, but we're going to help begin, set the trajectory, just like at the last summit, we began to set the trajectory for IMD.

So that's where we're going with those things. Sorry for the long-windedness.

**Mr. Riki Ellison, MDAA Founder and Chairman**

No, no, it's great. Tom, it's exceptional. I know we're a little over, but I want to, I want to go over a little bit because it's too good.

And I want to give Mark a chance to respond. But I want to follow up with you, Tom, one more question on it, because it is political will. And it is political will within these NATO nations to increase their defense budgets, as you mentioned, to fight this fight that's going

to be much greater to them than with the Ukraine settlement, out of that settlement with the Russian movement.

I just, from your perspective, from a NATO perspective, does the new president, it looks like the new president and our current president are collaborating because these policies are opening up for attack. And there is some unity in that to get this thing over with. And how does someone like Musk, who's going to attack the efficiency of our government, would that be looked on in the European NATO theater as a way to create much more efficiency in what we're doing?

And that political will, is that going to get everybody upset or not? Because they're going to obviously get, the US is going to come after our allies to increase their budgets on it. Just give me a, for the audience here to get a perspective from a European viewpoint on the new president and maybe a collaboration that's happening between the two.

**Mr. Tom Goffus, NATO Assistant Secretary General for Operations**

Thanks, Riki. I think Europeans will see the need for Europe to step up. And that will be, you know, my message to European allies is you need to do more.

That is just very clear to me. I'm pretty sure, you know, our message right now is 2% is a minimum, it's a floor, not a ceiling. I think we're going to go higher.

I have no idea how much higher. I would say that to do the defense capabilities that we have in the plan, meaning what the plan needs, would be a sustained probably over 3.5% per year. Now, if we're really smart through innovation, things like the acoustic sensors, and through buy together, build together, meaning you buy in bulk and you set long range demand signals, we might be able to get that to 3%.

I don't know. But I don't know what the number is politically that allies will agree on. But pretty much, I see a very strong, it's more than 2%.

And so with the new president coming in, I think that will be part of what message they take. I also believe that space is a great place to go. Who considers himself the father of space would be President Trump, with his sidekick, Elon Musk.

And so if NATO puts emphasis on space, that's a sweet spot. The other thing it does is clearly China is outpacing Russia in space. Our closest competitor is not Russia, it's China, and certainly for the future.

And so you have this sweet spot of space in China that I think will incentivize the president to go, yeah, NATO is adding value here. Because that's essentially the value proposition he puts is, show me how NATO is adding value. All of that goes into the equation of leverage.

This is how the president sees things. He's a negotiator, right? He does real estate deals.

What's important in any kind of a deal, in any kind of negotiation, is leverage. And it's not about the dealmaker's evil or anything like that, which is a change for Europeans. They've done things value based before, and this is more leverage and number based.

So they're going to learn that the numbers don't lie, and that the president is looking at this very closely. We're on track to move towards, in the 10 years since the Wales Pledge was made, and in the middle of that, President Trump was in there, to a trillion dollars more since we've done that into defense, including from the Europeans, from non-US allies. And so there's a good story to be told here.

There's a lot of worry. But what I would say is having worked in the administration under Secretary Mattis for President Trump, there's a constructive way forward. Due to some of the unpredictability, it is more work for a policy geek, because one, you got to do the policy, and then two, you got to go, how is this guy going to look at it?

He's not a standard policy guy. But you have to put it in terms that he can understand, which is, out of that trillion dollars, how much of that goes to US industry? A really big, north of 50% of that is going to US industry and US jobs.

And sometimes, to lead the horse to water, you got to go, what we invested, and this is country X, I'll just put country X, they converted what they spent in the previous year to 1,000 jobs in Dallas, Fort Worth, Texas. And you got to make arguments in the terms that who you're working with can understand. So again, what I would say is, one, if there's going to be a negotiated settlement, I think that President Trump will understand he doesn't want Zelensky, or him for that matter, and that means Zelensky, to negotiate from a position of weakness.

That leads to a bad deal. And if he gets a bad deal with Mr. Putin, you could say President Xi's little brother, and he wants to negotiate with President Xi, why would Xi go, my little brother kicked your butt, and why would I negotiate with you? So there's a lot at stake here in the Ukrainian, you know, as you said, the Ukrainian settlement, where it's going to go, I don't really know.

But what I do know is, one, you want a good deal out of that, that everybody understands is a good deal. And two, as I said, when the fighting stops, whenever that is, our job, and what we need to get to Ukraine won't change.

**Mr. Riki Ellison, MDAA Founder and Chairman**

Tom, that was awesome. And one thing, I believe that he will change space policy, space policy is going to change. And that's the sacred cow that has not been changed.

And with the request going back to 83 on SDI, space is already weaponized. But I think that's going to enable your ability to do stuff cheaper, more efficient, and more effective up there, and we have to do it. So I want to give it over to Mark to ask questions to Tom.

**Rear Admiral (Ret) Mark Montgomery, MDAA Board of Directors Member, Senior Fellow, Foundation for Defense of Democracies Former Director of Operations, U.S. Pacific Command**

Let me wrap it up, because we had a great 35 minutes here from Tom. That was good. Two thoughts.

One, as you say, space has been weaponized by the adversary. And now it's time for us to take action. And I might not say, it might be weapons through space, weapons from space,

weapons guided by space, whatever it is, we're going to have to play a much more aggressive role that way.

Let me just say that in reality, I think the other thing, you know, probably it's easier for an American to say this. The other thing that Trump has to do, you know, I read the art of the deal. I'm not sure I should have paid for it, but I read the art of the deal.

And one of the key chapters in there is on negotiating from a position of strength. You want to negotiate from a position of strength, you provide all this assistance, you provide the maximum weapons release ranges. And then most importantly, I think for the United States, it's time to really knuckle down on these oil sanctions on Russia.

And that means sanctioning the shadow fleet more effectively and efficiently. The United States has done a weak job on that, some might say, so that we didn't drive up gas prices prior to the election, whatever the reason, it's time to get serious about it. I kind of thought that was going to be the first step before the extended ranges on the weapons.

But if it's the second step, that's great, too. And then I do believe we're going to hear the words drill baby drill nonstop, right? And the implication that I'm, you know, we're actually backs, we are drilling quite a bit.

But the idea of opening more leases will have an impact on oil futures and drive down the likely prices of bread to get natural gas. This is the kind of stuff that is going to crush. It's often been said my boss, my old boss, Senator McCain used to say the Russian economy is a gas station, you know, a mess as a nation state.

Never has that been more true than today, where they have a hyper fueled economy going on oil and natural gas sales. That's funding 30, 35 40% hard to say, you know, GDP on defense. This is out of control.

And, and if we can cripple the economy, we will absolutely shortchange the war fighting effort and have the maximal impact on Russia. Look, that's the point, by the way, which Ukraine needs the best missile defense, because I don't think Russia is going to go with a whimper. They're going to go with a bang.

And we got to make sure that they have the effectors they need to handle this winter, as both sides start getting economic crunches. So I just take everything Tom said and add that little corollary and say, that's what needs to be done. If we're going to, if we're going to get Ukraine into a favorable negotiating position, which is what they need to have, they're dealing with an authoritarian thug, who would sell out 3-400,000 of his people dead, you know, 200 now probably another 100,000, 3-400,000 maimed, and 600,000, you know, immigrated from the country for good.

That's what he's willing to sacrifice. You got to come in hard at the negotiations. That's all I'd add.

And I think, Riki, we really handled this issue well. We captured the conference as it was orchestrated by you. Tom, you played the key role.

I will say, after you left, the NATO officers there said, well, I wasn't going to comment on this. But since the Assistant Secretary was so open, boom. And it's nice, because it caused other people to talk effectively, the American PEOs and others.

So we really had a good, effective discussion and really value your participation. Ricky, appreciate you hosting the conference.

**Mr. Riki Ellison, MDAA Founder and Chairman**

Thank you. Thanks, guys. Tom, you want to close with more remarks, or are you good?

**Mr. Tom Goffus, NATO Assistant Secretary General for Operations**

I just want to say thanks to Mark for highlighting that. I had a discussion today about this, too. There's 300 billion in frozen assets in Europe.

The EU needs to release those to the Ukrainians. One, drill may be drilled, you bet. And if we can get some of our partners in the Middle East, Saudi Arabia can open the spigot.

They don't even have to drill. They've already got it. They just have to open the spigot.

The combination of those two things would really do something. Here's one of the things that we're going to explore, which is, in terms of the Shadow Fleet, if you close the Danish Straits, most of the Russian oil is no longer going through pipes. It's going on ships.

And if you close those Straits to the Shadow Fleet, that would be the game changer. And then you squeeze exactly what you did say. And then if the EU does a full up trade embargo on Russia, it's all the vectors that you need to do.

That's beyond NATO. But I think those are absolutely critical. And here's the one other bonus you get from that, is China gets cheap gas.

This is a potential to split China and Russia, because they're not going to whine about all that. They're going to sit back and collect all the oil and gas they wanted at half the price they paid for it before. I'm 100 percent with Mark on that.

I am also enjoying that. Please protect me. I'm giving you very open and honest things, just like we did at the London conference.

But it's frank, and you need the frank stuff to move on. And so you're getting both barrels, I think, from Mark and I. We see eye to eye.

And we've got to do something about that gas station masquerading as a nation state. And what we're hoping to do is these are the kinds of things that you do. Thanks again for including me.

I really do appreciate it.

**Mr. Riki Ellison, MDAA Founder and Chairman**

Thanks, Tom and Mark. Truth to power. Truth to power here.

And this is what we're doing. And no greater time in the history of mankind for missile defense than this next 12 months. The momentum is here like it's never been.

And we've got to move on. Policy, we've got to move on, all that aspect of it. And Tom, I do want to go into the heart of it, because I think that C2 issue is still a tremendous issue in NATO.

We need to do one of these conferences next month to get this thing right, because you can deploy all that stuff, but you don't have the ability to command and control it. It doesn't mean anything. So we've got to get a hold of that.

Hey, great. Love the Dartmouth shirt. I've got to put my beat UCLA pin on here.

But thank you for taking the time, guys. Really appreciate it.