Virtual CRT What Is IBCS?

[Riki Ellison]
Good afternoon from a spectacular fall day here in Alexandria, Virginia. Just want to shout out a little bit to the Golden Dome dominance and defense of the Golden Dome, the one in South Bend, Indiana. I'm going to give a little love for that. We're here today. I'm Riki Ellison. I am the founder and chairman of the Missile Defense Advocacy Alliance. Our mission is to advocate and educate and push as hard as we can on the evolution, the development and deployment of missile defenses around the world and certainly in this nation as we go forward with Golden Dome to make the world safer, to make our nation safer. We've been engaged with this since 1980. MDAA formed about 20 plus years ago on it. This is our 86th virtual congressional roundtable. What is IBCS? We have some really great experts, balanced viewpoints on this upcoming discussion that we're having.

I want to just start off with, I've had some discussions with the Department of War over the past week here in DC, and I'm pretty confident that the Secretary of Defense, the Deputy Secretary of Defense, and even the President of the United States is revolutionizing our acquisition reform to change the way we spend and how we get weapons into the warfighters' hands across all our weapons systems, all our services. That is a central critical point.

One of the major programs that's going to be a lead for that, a pathway for that is the Golden Dome. The Golden Dome and its requirements to have capabilities up in three years is forcing this function. The Golden Dome has that unique opportunity of having these older legacy systems, which are going to make up maybe 50 percent or more of the current capabilities, and integrating them into the new way of innovation, the new way of moving fast to stay ahead of the threat. That's a balance that's going to be put forward. We're heading in that direction.

IBCS is a program that came together in 2004, the first requirements of it, and brought upon, and we'll have Charlie speak about that history, but it took close to 20 years, 2023, before it became an IOC, and there are two of the units for sure. I visited one in Germany last month that are going through the first stages of the operations of it. It took 19 years. It took $7 billion U.S. tax dollars, and it's going to spend another $7 or $6 billion by 2030 to integrate all the systems that the Army has. In the world today, you are seeing that any sensor, any shooter, and any C2 is happening at lightning speed. Look at Ukraine. Look at what they've done with integrating sensors and shooters.

This is a major stepping stone to go forward to understand what is good about IBCS, but why did it take 20 years? Why did we spend this kind of money, and how can that, IBCS, still contribute to Golden Dome? I think this is a serious discussion, but it's a discussion we're going to have counter views, pro views, and con views.

That's how you get the truth out. You have a conversation from different perspectives from the best people that we can get that can speak to this that don't have an agenda for IBCS.

This is why you've got four great speakers here today. We brought in Charlie at the highest level of the Army to have that perspective. It is also a perspective of going into the Pacific with IBCS and how the modernization of missile defense was there driven by that. We've also understood that we've been limited because there have been other capabilities. The IFPIC, the LTAMDs, and even all those were not allowed to go forward or to be deployed or go operational quicker because they had to wait until they got the IBCS in place on that.

We have the best expert in the world that's out of uniform right now on IBCS, and that's Colonel Tony Behrens, who's been with it since 2015, but was even with it prior to that when General Brooks and the Korean Peninsula were trying to integrate MSE PAC-3 into THAAD. He was one of the first guys that had to start with that problem. That problem has been so difficult. The Army gave it to MDA to try to fix that, and they did some of that integration with Patriot in Korea on that.

Then we have Mark Montgomery, who was during this time on Senator McCain's staff, understanding and seeing what was coming through on the Senate Armed Services Committee to see that kind of viewpoint as well as his expertise as a former three for Indo-PACOM.

Then you have Admiral Davidson and Admiral Aquilino, the PACOM Commander Senior Advisor for Integrated Air and Missile Defense Expert, JD Gainey. A lot of this has happened, driven in the Pacific theater. I think we've got some great views of two Navy, two Army and how we're going to go forward with it.

How does that fit in? That's where we're at on the discussion. I'm going to start off. I love Charlie Flynn, one of my favorites, former retired General Head of the Component Command for the U.S. Army in the Pacific. He's been a great, strong, strong leader, especially on this area in the Pacific on missile defense. Charlie?

[GEN (Ret.) Charles Flynn]
Thanks, Riki. Thanks again to MDAA for doing it. Great to see Mark and JD and Tony. Great to see you. Good lead-in.

A couple of things. I'm going to frame this because I think it's helpful and take my four or five minutes. This is lessons in complexity and a case study really for where we are today. What happened was, in my view, is a collision of ambition, urgency, and complexity. This is about the Army's Integrated Battle Command System or IBCS.

On paper, IBCS was supposed to be transformational. It would be the brain of the Army's air and missile defense enterprise. It was going to connect any sensor, any shooter, fusing radars together, launchers, interceptors, all into one seamless network. The idea was right. The vision was bold. The stakes couldn't have been higher. But in practice, in my view, I think the Army took on too much too fast and it did it kind of, I'll say, all at once. Now, I know there's a long time there, but the fact of the matter is, there's a lot of things that collided together to create these problems. That's where the story, in my opinion, begins to be very instructive, not just for the Army, but for everyone trying to modernize during a period of constant operations and growing threats because those were also variables here. And think

of where we are today with Golden Dome. So I'm kind of leading in as that with the end because we can't make the same mistake.

So this is a perfect storm in concurrency. So let me explain a few things here. As the Army began to develop IBCS with Northrop Grumman, it was also modernizing every other part of the missile defense force at the same time. Raytheon was building LTAMD's radar, a cutting edge capability, but still in development. Lockheed Martin was upgrading the Patriot and THAAD interceptors, rewriting the software, redesigning the components. JD and Tony were deeply, and Monty, all deeply involved in that. And of course, the Army was standing up. While that's all going on, they're beginning to stand up new short-range air defense battalions with directed energy. They're, you know, countering drones, cruise missiles, and a bunch of other organizational changes like the multi-domain task forces and probably too many others that I can go through at the tactical and operational level.

Meanwhile, and this is key, the Patriot battalions were being deployed at an unprecedented rate across the globe, okay? They were just gone. And I know that from my time as the deputy commander of USARPAC, I definitely know that as my time as the G357 in the Army, and then again back out there as a commander of CG. And they weren't training for the next fight. They were already in it. They were deploying, redeploying constantly. They were sensing, they were intercepting live missiles, they were defending bases, they were sustaining an incredible operational tempo. And the human factor has to be, you know, brought into this picture.

So, what's that picture look like? New software being coded, new radars being built, new interceptors being tested, new units being formed in the global deployment cycle that frankly did not slow down. It was the definition of a perfect storm. Every piece, radar, launcher, interceptor software was moving on its own timeline, on its own budget, and with its own leadership team. And it was modernization by concurrency, not by sequence. And the result was predictable. Software instability, integration failures, and mounting frustration between industry, program officers, and the war fighters, operators, commanders in the field.

At one point, the system's hardware footprint was so large and so, I'll say static, just for the sake of this discussion, that it probably could not have survived the kind of distributed fight that we were being faced with in the Indo-Pacific. Eventually, IBCS made it to full rate production. We can go through that a little bit later. I think that's, you know, more in its lifespan, much more recently. But not before exposing just how fragile our modernization processes became when we tried to do everything, everywhere, and all at once.

So the broader lesson here, ambition, outrunning, adaptation. We had an ambitious plan and it just outran our ability to adapt. IBCS isn't just a story about technology, it's about institutional velocity. And I mean that for the joint force too.

We often move faster in our ambition than we do in our adaptation. Doctrine training, sustainment, adjustments, all while organizations, technology, and capabilities were changing. It simply could not keep pace with the speed of the engineering changes that were going on at the same time. And we also allowed industry's influence to shape integration more than the operational reality did. I think that's a key point here. Each contractor optimized for their deliverable, not the total system's effect. And as all of this unfolded, the

threat environment, hypersonics, swarms, saturation effects, and that's just to name a few, kept moving faster and they were moving faster than we could test or even field.

You can't modernize an entire missile defense force, synchronize multiple primes, and sustain nonstop global deployments without paying a price, and boy, we paid a price. 20 years, $8 billion, IBCS became that price. Delays, budget growth, and operators waiting on capability that was supposed to make their mission easier, not harder.

So let's look forward. And the Golden Dome imperative here. Now we're entering a new phase, the Golden Dome architecture. The system of system that's meant to link homeland defense, forward deterrence, and allied networks under one unified shield. It is definitely the right move, but it cannot be built on the same concurrency model that slowed IBCS. Golden Dome must be joint from inception, have an agile architecture, transport agnostic in its networking, and it has to be driven by operators, not by contracts. Someone must be in charge of this. If we repeat the same mistakes that I just outlined, fragmented development, overlapping primes, technology moving faster and engineers moving faster than operators, not doing things sequentially, then modernization is going to outrun our ability to actually put this together. We're going to find ourselves right back here again in a year or two years talking about the same broken trail that we went down with IBCS, only the stakes are going to be much, much higher and we have less time to adapt.

So let me close on a couple of questions, Riki, to pose for you and the team on the net and then your audience. And these are really to make sure we keep ourselves honest as we move forward. And I'd ask everyone listening, military, industry, policy, Congress, doesn't matter, to think hard about some of these questions.

Number one, are we sequencing modernization or are we still trying to do everything all at once?
Number two, have we considered doctrine and training as it evolves faster than our technology? Because there's humans that have to be involved in this.

Number three, is industry helping us integrate or are they simply keeping the program alive, whatever that program is for them?

And then the fourth one, are we holding our leaders accountable for the outcomes, not just progress reports?

And the fifth one, as Golden Dome takes shape, are we applying the lessons of IBCS or are we repeating them?

We have to ask these questions. We have to be true to ourselves and true to our partners. We've got to be accountable. And then IBCS won't just be this cautionary tale that will have been a case study that we look at and go, you know what, we can't make that same mistake. There's got to be a blueprint here for how this modernization effort is smarter, integrates faster, and it leads us with understanding and doesn't go to the emotion or optimism. It's got to be grounded in reality and very pragmatic path that we take forward, because we have to get this right. And it is about trust. So I'll just end there.

I hope that was a helpful opening for the discussion today. So thanks for again. And I appreciate you giving me an opportunity to do this because I needed to put my thoughts down on paper. This is too large a story and it's too long of a story and all of us come into it episodically. And so, you know, we have to paint the whole picture to have what I think is a more meaningful discussion about it. Thanks.

[Riki Ellison]
Thank you, Charlie. Hopefully those questions will be answered throughout the next 50 minutes. And if not, we will directly answer them with our group.

I do want to ask a question with you, because of the lack of frustration that I believe Mike Guetlein and Golden Dome in the position to create of any sensor, any shooter, any domain, any service, all data, C2, that they've taken it away from the service C2 providers. I think that's what's going on. And they're going to create a consortium of innovative new C2 data, small companies, or not the big six companies to get after it, to create an overall data collection, as we talked about, that goes right to the commander, the NORTHCOM commander, the president to make the decision, then back out to the effectors.

Do you see IBCS as the, can it adjust and do the whole thing for the U.S. Armies, all its data providing from any sensor, any shooter within the U.S. Army to pass it up to that consortium? Is that doable with what we've learned over the last 20 years with IBCS?

[GEN (Ret.) Charles Flynn]
Well, so command and a commander give me confidence. Consortium does not give me confidence. So again, I'm going to go back to some of the points I made.

You got three major companies, three primes, right? We have three, we have three headquarters in the same fence line in Huntsville, Alabama with, with PEO Missiles and Space, SMDC and MDA. You got multiple headquarters with, and now I'm talking service headquarters where funding streams come in. And then you've got the test and evaluation community. I guess my point is consortium doesn't give me confidence. Somebody's got to be in command and there's got to be a commander that operationalizes this. If that's Mike, great. But I don't think that's what his title is. So, you know, there's got to be somebody that's giving feedback to another commander so that that information gets to the secretary of defense and deputy secretary of defense somehow, some way.

I mean, for all of its warts and, and I know, you know, Monty's time out there and Tony's time in Korea and JD's time. I mean, I guess the point is like, somebody's got to be in charge of this thing. So pick a COCOM and pick a service component to say, you're giving us feedback on how this is integrating. And just getting to that will be a major, major decision. But I don't think when I look at the program office that Mike has, I'm like, well, where's his operational command to do this? Who's he turned to, to say, run this test, run this experiment, do this integration, give me feedback. I don't see that. Somewhere that's got to be in this equation. Otherwise you're going to get that case study that I just outlined all over again. That's, that's the short of it. So consortiums aren't going to work. Commanders and commands work.

[Riki Ellison]

Thank you, Charlie. I think Gooey, the NORTHCOM commander may be that person that you're talking about that would be that operational. You're talking about underneath Gooey? Or are you talking about that parallel position?

[GEN (Ret.) Charles Flynn]
I'm hesitant to say because they got day jobs, but I just, there's some commander that has to be, that has to be given this problem set so that the command can give feedback to the apparatus back in Washington, DC, where they're going to, you know, be asking questions because Congress, you know, and the department are going to want to know what's the status. And, you know, I mean, like, just look at the three primes that were that I outlined here with Northrop, Lockheed and Raytheon, like they're building different things on different timelines. Just, again, I'm not knocking them. What I'm knocking is everybody again, you know, ambition collided with urgency and technology, and we just, we screwed it up and we ought not do that and use it as a case study to make sure that we don't screw it up again. We don't have time and we, and that time is money. It's also lives.

[Riki Ellison]
Thank you, Charlie. Thank you.

Okay, we're going to go to JD Gainey, who is an IMD expert for INDOPACOM for our highest COCOMs. He knows integration, he knows the technology behind it, and he's advised our COCOMs on that. JD Welcome.

[JD Gainey]
Thanks, Riki. Great to be here with this fantastic panel. Yeah, we could probably spend a couple of hours just answering General Flynn's questions. So maybe we put a pin in it and we'll do another one in a couple of weeks.

My contribution to this segment is focused on joint lethality and joint operations, right? Though I was in the Navy, I do have some biases on what rights should look like with respect to IMD, and I don't want to talk about that. This is about, and what General Flynn kind of alluded to is at the end of the day, this is going to be a joint function and joint dependency between sensors, effectors, understanding the environment, deployment, it's going to be across the board.

So, there's three terms that are just abused in the DoD, right? Absolutely abused. One is joint, one is integration, and another one is architecture. Well, IBCS, unfortunately, you get all three of those, right? I'm going to paraphrase Princess Bride. I think that word means not what you think it means. You can apply that to joint integration and in architecture. General Flynn alluded to it. Integration within IBCS, integration with respect to what? And the Army was focused on getting their air defense systems under a system synthesis so they can all work in harmony.

Mission creep comes in, you get assigned as theater air defense commander.
Now you're responsible for theater and regional air defense, but the tools you have are not designed for that. The tools you have is to support the force protection defense design of those localized ops that can defend critical areas. To be able to expand that was yet another burden put on the Army air defense community that General Flynn was discussing.

I would say from a joint perspective, when we were looking through capabilities to be able to bring the holistic defense design at the regional and theater level, IBCS, good at what it does, it wasn't fulfilling all the other things in play. So just real quick, blocking and tackling with respect to joint integrated air defense for the audience. You have, you've got different functions within functions for joint IMB.

You have surveillance areas that merge into classification, identification and engagement planning areas, and then into engagement areas. Well, IBCS does a really good job within one function of the engagement area. The engagement area has multiple functionalities within it.

You have upper tier in outer space and lower tier with the air breeders. Those are different engagement platforms, requirements and lay down. Within like the missile engagement zone, you have another complexity.

You have to bring in air defense assets with aircraft. You have to bring in missile defense coming from launchers located on land or in ships, and in between you have joint engagement. Each one of these complexities require independencies upon the other.

And those are the gaps that at the joint perspective, but we were trying to get after and solve and create bridging mechanisms between holistic situational awareness areas down to who's going to zoo. Do I understand what the threat is? And if I do understand it, what do I have available to go reach out and create an effect?

IBCS was the Army's interface to that larger design. The Navy has theirs, the Air Force has theirs. So what we saw with IBCS was an over-reliance on its own organic Army sensors and lay down, which is good, but with respect to the larger theater and larger regional area, those interdependencies and bridging mechanisms weren't addressed in the program of record.

They've been on the ticker, right? They've been on the prioritized list, the one through 10 integration list forever, but the resourcing, the prioritization of testing evaluation, it seemed how it always did kind of demoted. So the concern is not necessarily IBCS with respect to Army missile defense is the applicability to the larger regional and theater pieces, right?

Can it scale, right? And so that was something as we look at the future on how do we want to shape not just Golden Dome, but the output of Golden Dome was DOD at the enterprise level. What is missile defense should look like?

All those functionalities from understanding the environment, situational awareness, surveillance area, classification, most of those platforms are going into space, right? And the pace of which space-based sensors, space-based data distribution, as General Flynn alluded to, it is quickly outpacing some of the other programs that are dependent upon those things. So you do have a gap in a bridging need, with respect to time, how some of these capabilities come online.

One of the hardest things with respect to joint integrated air defense is not a common operational picture, but a common actionable picture. That's when the operational picture

and the tactical picture and the intel picture all combine into a single pane of glass, right? We thought Guam defense would be the forcing function for the IND enterprise to go down that path and create that single pane of glass.

That's no longer the case. The Golden Dome effort, that needs to go down that line where intelligence, where fires, where logistics, where sustainment, where protection all come underneath a joint function and joint single pane of glass of perspective. So when we look at capabilities and where we want to progress, there are things outside of the engagement area.

A lot of contractors love talking about the engagement piece because that's money, right? Big time monies with the missiles and big time monies with the sensors, but the stuff in between, to be able to merge all that information to a synthesis to inform the commanders and so the commanders can make the right decision is what is lacking, especially at the larger scale.

I just opened up for questions or comments for you, Riki. When we look through some of the questions that General Flynn opposed, the migration to outcome, measuring outcomes, objective based outcomes should be the mark. And we're at a technological age where we can go through six month, nine month sprints and be able to evaluate the outcomes of either software design or hardware designs, hardware in the loop testing.

We're at that place. I don't think it's necessarily a technical perspective. It's more of a governance and organization perspective. Because once we get that organization in place, where we define the relationship between the technical world, the operating world and the sustainment acquisition world, then we'll be able to start smoking all these interdependencies out. So I'll pause right there for questions from you.

[Riki Ellison]
Thank you, JD. Very technical. How best can we leverage what IBCS? Is today to move it forward? Is it, like you said, is it to integrate it with other weapon systems? Is it to go make it go faster in software? What can we do with it to make it better than it is today? In the next three years, the next five years?

[JD Gainey]
Yep, So with the introduction of technology and commercial use technology that some IBCS components are bringing to the fold, you're seeing a rapid integration piece of it. As example, the in-flight update target system for Patriot called RID 360. That was a concept in 2019.

A lot of internal investment from a prime was dumped into it. 2021, it was available for testing and it's already been demonstrated success in live-fires. Same thing for the passive help system that they have.

These were concepts that were identified back in 2018, (20)19. The technology was applied and successful prototypes were within a year. It's just somehow this gap of being able to bridge that successful prototype outcome into the larger integration apparatus.

But one thing that IBCS has always said is its favor is the network that it provides, the A-kits to interface with the IBCS B-kits. In principle, I couldn't agree more with that. But for some reason, either through the digital integration or the way that the systems were being integrated, it's taken a lot of time and it's taken a ton of money to be able to interface some systems into other systems.

I'm sure Tony's going to be able to speak more to that. But when you look at the full body of work and you're looking back at the $7 billion or even most recently the $1.7 million over the past three years, what has been the output with respect to integration of other systems? An Army colleague of mine said, hey, it's just coming out.

You don't know. We don't know what it's going to actually look like. I'll say, yeah, that's fair, but it's still coming out as opposed to when it should have been deployed and when it should have been operational.

The missile wars with Gaza and in Iran, what was IBCS's prominent part of that? Or what could have been if prioritization happened and we accelerated some timelines or focused on some modernization on the front end? Could have been more of a holistic engagement approach.

I don't know. We don't know. It's just one of these things that it's coming, it's coming.

And we're at the point right now, as General Flynn says, that time is not on our side. So a decision has to be able to be made in the near future. What are the best of breed that IBCS brings and put that into another portfolio with other best of breeds from space-based, to maritime-based, to cyber, the invisible warfare piece of this.

How is that all going to merge into a joint integrated battle management or joint integrated weapons control, single pane of glass construct for that command? That's what we should be looking at for what success looks like.

[Riki Ellison]
Hey, JD, is IBCS a closed system? Is the APIs free and open?

[JD Gainey]
Well, there you go. Everybody has different terminology with respect to architecture. You talk to a data scientist out there in commercial world, the answer is, nope, not at all.

You talk to military joint interface control officers, the answer is, yeah. They have the ability to quickly interface. So I think the record stands for itself.

Just for those two mentioned a little while ago between Alps and break 360, that's all software stuff. If you ask a data scientist from a software company, they're like, “yeah, I can knock this out in probably months.”

Here's another example: The integration of talk like integration of Aegis weapon integration of C2BMC, that is a program of record not to be a fulfilled initial operating capability until 2030. And it's software. 95% of that is software.

Integration. So those interfaces, those applications, those system interfaces, yeah, there's more efficient ways to go after it. And it's only going to keep getting more efficient and faster as we start bringing in different tools within tools that help you with the design, help you with the coding and all that.

So all that's just going to get quicker.

[Riki Ellison]
All right. Thank you. It's great to have Tony on our virtual.

I go back with Tony a long ways. We've been, I think, to 800 base visits, about 500 Patriot bases or so. Tony goes all the way back, I believe, as a Patriot, in a Patriot battery.

And he has had some phenomenal jobs. He was with JIAMDO. He is the guy they chose to lead Guam. Rick Doe to be in charge of the modernization of the army in Guam. I mean, significant confidence and significant power given to him to make this happen.

So I know, Tony, you got a lot of, there's a lot of criticism, or there's a lot of stuff that's out there that hasn't been as positive, but would really like to hear your viewpoint and some of the positive of the IBCS system as you see it from your eyes and your professional ability and command of the system and understanding it for the 20 plus years it's been around. So, ladies and gentlemen, Tony Behrens.

[COL (Ret.) Anthony Behrens]
Hey, thanks, Ricky. And gentlemen, great to see you again. Appreciate the opportunity to sit with you and kind of talk about this.

It's a really important topic. It's been very important to me, personally, since I commanded a Patriot battery in OIF-1 in 2003. And the reason I think that the viewpoint or perspective I took from that was even back then, there was a significant need for integration of our capabilities, and we couldn't do it.

We couldn't do it in the army, and we certainly couldn't do it across the joint force. And I think it caused us a lot of issues. To be honest with you, I think that we would have avoided some of the grave mistakes we made as an ADA force back in that time.

But the concept was there. The concept was there. It existed already.

But it just needed a bit of a push to lay out really what the true understanding of the requirements were. And I believe at that time, the requirements really kind of outpaced the ability for technology to serve those requirements initially, at least. I think there were some challenges as we started to kind of develop that concept and then moved it into an actual system capability.

And a lot of that has to do with process. The bureaucratic processes that we have and capability development across the department and all the services really lead us to a Title X focused kind of view that doesn't allow us to think or develop capability jointly very easily.

F-35 is another good example of that. That was probably another good case study to look at. This one is valuable because I think the overall intent of what the Army was trying to do, and

I'm speaking from the perspective of an operator who served the last decade or so in continuous modernization assignments. And purely now as a retired, as a veteran, really my personal opinion and only my opinion, but we have troops in contact right now.

And the air battles that they're fighting today are still not the air battles that they need to be able to fight with, as J.D. was saying. And we really do lack the joint integration. But what I'll tell you is it's not because there's been a or focus on laying out what that concept is, what the vision is, what the requirements are.

That's all been primarily done across the joint force with service interest and equities involved in that. And so we have a pretty good concept of what we need to be doing. We also have a pretty good understanding of where the problem is.

And from a joint perspective, the problem is everyone is continuing to build flight control systems that are not designed to interoperate or to integrate. Whether those words are overused, which I believe J.D. is probably right, they probably are, but lack of any better words. What we have is we've conducted several experiments where we put these operators alongside each other in the same room during experiments, throw a PRC threat at them as if they're in Guam.

And because their systems are not integrated, even though they're sitting right next to each other, they cannot coordinate fires fast enough. They can't handle the task saturation that the operators are seeing. And they're over-engaging.

What I mean by over-engaging is one operator sees a threat, that operator fires at the threat, another operator sees a threat from another weapon system, another C2 system, another service, and does the exact same thing. And we run out of interceptors, kinetic interceptors at least, far earlier than we should. We're also firing very expensive interceptors at threats that probably don't need them.

We need better firing doctrine to be added to how we operate. We're still kind of in a simplistic area here because everything is really kind of algorithm focused. So from an IBCS perspective, what I'll tell you is I agree with J.D. in a sense that the Army is kind of on the right track. It's trying to pull all these disparate systems together. One of the challenges is when you start to ask about, well, “why did it take so much time?”, is that the systems that it initially was trying to pull together were not designed to work together in any fashion. They were designed to operate very much in a stovepiped fashion.

In some cases, because we allowed it from a department perspective, from a DoD perspective, we allowed it. And that's where I think sometimes the money is made in terms of when industry can deliver something. When we started to work on the integration of Patriot and THAAD before we had IBCS available in Korea, when I served as the Army Capability Manager, we were really focused on solving very specific problems against very specific threats.

That's one reason why I think that went a little faster. We weren't biting off the entire thing, as General Flynn, I think, talked about a little bit. And so we were able to accomplish some things.

Now, as we look at the joint fight, and as we kind of look at what IBCS can provide, and we look at joint environments and architectures that we want to be able to do this in, such as Guam, we have to raise the level of coordination to be able to leverage all these fire control systems without changing them too much. Because if we try to change them too much just to integrate them, that adds more time, more money, more of everything. I think, Riki, you said $7 billion for IBCS. I'm not sure that's accurate, but I get the point, which is a lot of money, a lot of time. Time is money, too. And it's not just about the system.

It's about all the .mil PFP integration and synchronization that costs money, the training development, the doctrine development, even the policy, which is not there yet either, to be honest with you. You'd think you'd start with the policy. You'd be able to do a lot of these things.

But the operational development piece of it comes into play. And I think what sped us a little bit up on the IBCS side as we were doing things is we added in exactly what General Flynn was saying, which was operational involvement in the development, troop feedback in the development of the capability. We put the system in front of actual troops, and we got their feedback, and we adjusted based off of that.

IBCS was the Army's very first agile software development program. So you also have that in play, which is trying to bring something that agile where you can update it constantly and then provide an update, kind of like what we get on our iPhones, to something that's a military system. The culture of those two things don't really match very easily, I don't think, right now.

And so there's something there that I think that we need to look at in terms of how the culture of DoD, and I think we are really starting to evaluate that to a degree. Because I think that that really impacted us as we moved through a lot of this. So IBCS is, just a quick review, IBCS is a C2 system intended to integrate other systems across the Army, but also joint systems. The Army has a plan to integrate systems from joint capabilities. F-35 is a good example. It's done a lot of good integration work and shown a lot of success in doing that.

But trying to take something that has existed for many years, that took almost as much time to develop. When you talk about the air defense systems that the Army has been employing, THAAD took quite a bit of time to develop. It wasn't quite ready in the late 90s, and we had to kind of take it back into redevelopment a little bit, and then didn't field it until 2008-2009 with the first battery.

Patriot was really kind of starting its path in the mid-70s, but we didn't field it until later in the early 80s. And so when we developed those systems and we put them in place, they also didn't hit everything, every requirement that we had. And so I think it's important to kind of just understand that this is a really hard thing to do.

And when we're talking about integration, integration now has become the pacing effort of what we're trying to do with all these systems. And trying to share their measurement data from one system to another, from one radar to another, really takes some focus across all the services and from a joint perspective. I really agree with General Flynn in the sense that we need an operational overseer that can look at all of this.

And whether it's just for Golden Dome or it's global IAMD, which I think may be a better approach also, something like a SOCOM model, from my perspective, where all the IAMD forces are part of that and then can be leveraged and can be tasked to bring their systems together and do that. We try to do it in experiments like Project Convergence, but again, those are experiments. They're not operational units necessarily doing that and providing that direct feedback.

The key components of IVCS include the network, as JD said. I think that's a very valuable piece of it. And the piece about the network is that it is so many times more efficient and a sweeping change from what we've done in the Army than what we had in the past.

The network is required, though, to be as fast as the interceptors need them to be. And that's what sets IAMD apart from other C2 systems and capabilities, and why those systems and capabilities may be able to go a little faster on their development than the IAMD side of development when it comes to C2.

The joint integration and the broader picture of things, I think, you know, in 1996, the Deputy SecDef tasked the services with putting the Navy in the lead to develop a capability that would do joint integrated IAMD C2. That became CEC. And then the components of CEC that provided the Navy's IAMD capability.

The services over time kind of walked away from those and chose to do other things. And I think that's where we kind of find ourselves is we really got to go back to this history and really take a good hard look at everything that we've done. But from my perspective, what I'll tell you is my excitement about a system like IVCS, or now you have TOC-Light in the Air Force.

You have CAC 2S in the Marine Corps. You still have a good base with NIFC-CA and CEC and Aegis Weapons System and the Navy. Great development from MDA as the IAMD integrator.

We're now starting to see these stitched together through a protocol called the Joint Track Management Capability that MDA has developed. And once you lay that over top of these systems, they all of a sudden start talking to each other in a lot better way. It's really a language translator between them.

And they can start to share that data. That's in development. They've shown a lot of success. They've got some further ways to go. But what I can tell you from a Guam perspective is that we really started focusing on the Joint Engagement Coordination. We called it the Joint Integrated Battle Manager, JIBM.

And I know that right now they're actually working through contracts and evaluating potential proposals for prototypes to do exactly that, which is to provide joint management over all these systems and engagement coordination between the systems so that when we fight in a place like Guam, we fight in a place like CENTCOM, or in Europe, that each service isn't fighting alone and trying to do what I did in 2003, which was coordinate fires over a phone call or over mIRC-chat, which is exactly how we're still doing it over 20 years later,

which is, from my perspective as an operator, extremely frustrating. So that's my perspective, I think, from what I'm looking at.

There's been a lot of successes with IBCS, a lot of flight tests that have happened. It's made it through a successful – it struggled in its limited user test in 2016, went back into development, came back out in 2020 when I was the ACOM with a primarily successful limited user test with operational focus, then later went into an IoT that was pretty successful, all had flight tests associated with that and integrating sensors and shooters, and now is really just putting the polishing touches on its final operational test and evaluation, and recently had some really good success there. So I think we're getting there.

Is it going to be 100% whatever a unit wants in every single COCOM at the time that it gets it? No. But none of our systems have been.

And that's where the iteration comes, that's where the software development comes into play and why we have to move faster. I do agree with everyone so far, is that when you start thinking about Golden Dome, and let's just kind of compare it to Guam, we started Guam effort probably before 2019. It's 2025 now.

Guam is 19 kilometers by about 42 kilometers. It's not even the size of some of the limited area defense areas that we're going to have in Golden Dome. Cost us $6 billion so far for the system.

It's going to cost us almost $60 billion for the infrastructure, and that's for Guam. So you start to compare that across the rest of the country, I really think we have to evaluate and really, really be very careful and focus on how we're going to do things. Back to you. Thanks.

[Riki Ellison]
Hey, Tony, that was a great, great explanation. We are not doing Guam in the Golden Dome. I know that. That's a fundamental movement from the White House all the way down to force innovation much quicker than what happened there. But Tony, great stuff. What's the best way forward that you think for IBCS, taking risks? I mean, what is it to get it fully engaged in the next three years in its own mission set, but also for the Golden Dome?

What needs to be done? Is it more money? Is it more policy? What is it to make that best it can be to contribute in a real positive way to the defense of the United States of America with the Golden Dome and for our troops overseas? What's the formula here? Are we just going to sit and wait or is there something that you would highly recommend us doing?

[COL (Ret.) Anthony Behrens]
Well, that's a great question. We started fielding the system now. It actually was fielded to Poland first before we started fielding it in the U.S. And we're learning a lot of good lessons from what they're doing with it in Europe. We obviously prioritized fielding it in Europe and into PACOM as well. And I think we're going to quickly learn some things. But I think what we really have to focus on is we just need to get it out there.

We need to get it in the hands of actual war fighters who are actually in an operational environment. And we need to continuously take that feedback and then update and create

a baseline capability that we can use from a joint perspective. It's got to plug into the joint architecture.

It's got to be part of that. And so if it's not, it's not going to serve Golden Dome well, because you're just going to have all these separate stovepiped areas, again, across the U.S. that aren't talking to each other. So that's what we really need to focus on from a fire control perspective.

[Riki Ellison]
Okay, great. Thank you. Thank you, Tony.

Okay, we're going to extend time to make sure we have a good discussion after Mark presents. But ladies and gentlemen, Mark Montgomery, former J3, former SASC. I'm good.

[RADM (Ret.) Mark Montgomery]
Yeah, that was great. That was a good discussion so far. Here's what I would say.

My thoughts on IBCS are, at some point, you ever hear like the banks that are too big to fail? I think we've gotten to the position where IBCS is too big to fail. I'm not sure. I'm with Tony. I do think it's 15 to 18 years since we first envisioned it. I don't know if it's really 7 billion because there's programs in there that are going off left and right, but it's a lot.

And it's too big to fail now. So this is eventually like, do I think eventually IFPIC will work? I always say it's the Phoenix Suns of air defense.

It's two years away from two years. Eventually, one day, it will be two years away from being two years away. And then one day, it'll be one year away.

And then one day, we'll say, “oh, it works!” And look, that'd be great. I'll be happy for that day because we freaking need some low cost, although we're now at the point where it's not low cost enough and it's intercept. It's $600,000 a piece. So now we're looking for something lower. But IBCS, I think it now has to succeed.

Now look, and we don't need to go through the trail that got us here: tech delays and software blips and things. It's where it is. What's important now is exactly what Tony said, which is about the joint track management capability.

If it can't work, it will not be—every once in a while, when you hear the prime discuss it, it's the integrator. It will not be the integrator of the other services systems. In the end, it will be an important participant along with them. And I think that the joint track management capability is going to be part of the integrator underneath a JADC2, which is still pretty amorphous, but will, I think, evolve into being a joint track management capability on steroids that distributes it, that has some redundancies and some resilience in it and gets it out.

I do think Tony's right. The original sin is no service represented here. It was conducted by the Air Force and it had to do with CEC. A long, long, long time ago, CEC was going to be this—and JD and I know this in our careers—I have fired multiple times on tracks I couldn't see.

Way before we thought about these issues in other senses, we were shooting on remote tracks and launch on remote and launch on LOS as well. And so, in my mind, it was a great system and this was not the Army's fault. It was not the Navy's fault.

The Air Force, for a variety of reasons, walked away from CEC. They even convinced the Japanese not to put it in their E2C, in their first six E2Ds. The Japanese Navy told the Japanese Air Force, "what's wrong with you?"

And eventually it's in there. But this is an original SIN because if we'd had CEC, then we wouldn't even be having a discussion of how does AEGIS talk to THAAD and Patriot and IVCS. It wouldn't just be LINK16.

We would have a fire and quality track data exchange program going on. So, now that I've gone to church and said the original sin and set aside, how do we go forward? We go forward with exactly this: creating fire and quality track data transmission lines that go between Air Force, Navy and Army systems.

I recognize in the end, someone becomes the service lead, someone becomes the PEO, and it tends to become that service's project. We have to make sure that all our projects can talk and transfer this data smoothly and efficiently. If we're going to pay way too effing much for every missile and every system, then every missile and every system ought to be accurate as shit.

And here's one other thing I'll give you. One thing that's going to happen is the cost of effectors is going to change dramatically because we're going to eventually, we collectively, the service is going to say, you know what? We're not paying for a 96% solution anymore.

And that's what we all want. All of our offensive systems are 94 to 96%. All of our defensive systems are 96 to 98.

What I mean is we want that missile to work 96 to 98% of the time with the sensor rate it has. Pretty soon, we're going to have to say to ourselves, "no, we want the 80% solution." And here's why.

The 80% solution built with additive manufacturing and a bunch of companies Charlie and I talk to all the time can produce an 80% product for about 20% of the cost, maybe 25%. But two 80%s—as Tony, me, and JD know, and Charlie knows when one of his guys help him—two 80% solutions is a 96% solution. You know, it's 0.2 over 0.2 multiplied by 0.04 directed, taken from one, 96. Now, that's important. Drive down the cost of effectors. Now your sensors, which are expensive, and your C2 system, which is reasonably expensive, it's got to be perfect because you want those 80s to work.

You want your shot doctrine to be "shoot, shoot, look, shoot" with two cheap interceptors. And the way you do that is a ubiquitous fire control solution being distributed across every joint sensor and then every coalition one. So the final thing I'd say, Riki, is the allies better be tucked in right on our six, right on this.

See, every time a flag officer says JADC2, she or he should be tasered for not saying CJADC2. Now look, who's in the sea isn't everyone we know. Who's in the sea is the countries that

we're comfortable transferring firing quality track data with: some of NATO and some of Asia, and Canada. And those countries need to be brought alongside with us. And then you have a coalition and joint data transfer—every sensor, every shooter data transfer system.

I only say: I've seen this, it's a weird thing in the Navy. If you're an AEGIS guy in the Navy who had CEC and an E2D, and the E2 Hawkeye squadron with CEC, you've been watching this for 25 years, you know it can work. And believe me, if you can make a 45 year—and I know Norfolk government can do this because they built the damn E2D. Right? So I know that IBCS and the Navy and the Air Force can operate successfully in this environment. So that's what I'm excited to see.

I accept, I'm frustrated with how long IBCS and how much it costs. I'm frustrated that we didn't just jam an AEGIS Ashore in Guam, that's a whole different discussion. But I am not frustrated about where we're headed.

But what we got to do is, we've got to pick elements to drive down the cost on. The place I'd go is the effector. The way I do it is to make sure my sensors all talk to each other.

It's hard to drive down the cost of sensors as much as it is effectors. So let's get the effectors driven down, do what we can on the sensors, and do it. So, I'm excited about where we're headed, Riki.

I think Mike Guetlein is going to have a lot of tools. But boy, I think Mike has said publicly, getting command and control right is my first task. He's a damn genius, because he better get command and control right off the bat.

If he doesn't—the services, we're like a fleur-de-lis—we would like to separate from each other. He's got to pull us back together into an engine output.

And that's Mike's job. So I'm excited to see him do it. All right, that's what I have, Riki.

Pass it back to you all.

[Riki Ellison]
Great, great, great, great thoughts, Mark. Going back to what you were saying, would our IBCS or our C2 data collection from our sensors be so good that we wouldn't need the expensive discrimination and targeting stuff on our expensive missiles and just get rid of that and have some dumb missiles that we can just—isn't that the future where we're going? Or is that way out there that we can reduce costs?

[RADM (Ret.) Mark Montgomery]
No! We're seeing it. Now we're seeing it on the offensive side. Charlie and I see companies.

There's this thing called ERAM that we're giving to Ukraine. It's a poor man's JASM-ER for about $250,000 to $300,000. We're seeing this all over the place.

Additive manufacturing builds the body at a very minimal cost. 3D printing plus aluminum paint. I'm joking a little bit there, the aluminum paint chips. But we can get the body down, get the sensors down. We're already on the offensive side driving—and I see it with some Anduril products, some other products, not just them, I don't want to sell a company here—

I see this cost driving down. But Co-Aspire was one of them on this ERAM project. There was an L5 project. They're driving down the cost. We just need to do the same thing on the defensive side.

The problem with the defensive side is the cost of the seeker head is harder. So we got to get it. It's going to be a little harder on the defensive side. But that's what I've seen, Riki. Listen, I'm excited about this. I got to cut out, but I want to tell you, Riki, this is good stuff.

[Riki Ellison]
Yeah. Last thing for you, Mark. If you were in Mike's position right now, how would you push IBCS forward into your architecture?

Or does it need more conditioning to go forward with this? And if you're going to have these legacy systems—which apparently we're going to have as part of this architecture—wouldn't IBCS, you're playing with the players you got, be critical in bringing those legacy systems together to deliver in that data to the consortium?

[RADM (Ret.) Mark Montgomery]
We're going to have a legacy underlayer. You know my theory: drive it down to 20% to 30% of cost max, put 70% into space in your C2. Look, the Army is not reinventing IBCS for him.

He's got IBCS. The Navy is not reinventing Aegis. The Air Force isn't reinventing the [] and all the stuff that goes on with the F-35. That stuff's delivered. His job is to find that integrator, the joint track management thing's already getting him a little bit of the way there. And then how does he distribute it rapidly? And how does he build that into a resilient, redundant system that's pretty ubiquitous?

And then the beauty is—if we have to fall back, if we're taken down—I'll take the US military fighting without mission command over them because of the way we've trained our officers and senior enlisted to lead. I'm not worried. The beauty is we're all integrated. We're fighting up there. If it starts to degrade, we know how to fight.

And I'm told, I believe Tony and others, that IBCS will work. Okay?

[Riki Ellison]
Okay. Hey, just one more.

Mark, do you believe in what Charlie's saying that we have to have a Golden Dome task force guy in charge of this? Not Dewey or not Mike, but it's got to have someone.

[GEN (Ret). Charlie Flynn]
We need an operational—he needs to turn to some operator. Right now, he's got nothing. He's a program officer.

[RADM (Ret.) Mark Montgomery]
He has too much remit for PEO-only authorities and alignment. So he's going to need some help. I would pick one of the three-stars leading them.

I'd probably be an army three-star and one of their operational commands and get them dual headed over. I'd pick Gainey, but there's a lot of other people out there. Not JD, the others.

But there's a lot of choices out there, but I'd get one of them in there helping them. I got to cut out Ricky, but I looked at his description and I agree with, especially what I heard from the other three.

[GEN (Ret.) Charlie Flynn]
One thing that Monty said that I do want to—I think I'll just say, you know, sensors, effectors and software. Yeah. On the sensors, I think he's exactly right.

You're not going to get a cost change on that. Just take the sensors and keep making upgrades on them. On effectors, we do need to drive their costs down and he's exactly right.

That seeker is going to be hard, but on the other hand, that engineering is what you're paying for. So just accept the fact that you need a little mass up there to defend. But I do think on the joint track management capability and IBCS—I think there is some software gains that can be made very, very quickly by pulling a couple of these things together and getting the software in the right spot.

And you know what, that's going to be cheaper than some of this hardware stuff because it just takes too long and too expensive for the engineering.

[Riki Ellison]
Okay. Do you have any questions amongst yourselves, JD and Tony, in response to the discussions that we've just had?

[COL (Ret.) Anthony Behrens]
No, you know, I'll say—I think the question as we move forward in doing what we're doing is: part of this is a culture issue. And we don't really operate as a joint force in most cases in the way that we envision ourselves doing so. Right.

And I don't know that we're going to fully accomplish what we're trying to do unless we really start to reorganize ourselves, that allows us joint commanders to make these types of decisions that I think are really necessary that General Flynn's talking about. There's a lot of value in putting operators, actually embedding them with a program office—such as in my case, I'm an operator, I'm not an acquisition officer at all. I might dabble a bit in the last 10 years, but my value to the Joint Program Office for the Guam Defense System wasn't to lead the acquisition effort. It was to operationalize that effort for the combatant commander and for the joint program executive. So, from that perspective, I think they're going to follow a similar path. I think we'll see soon.

But we need to find a way to actually organize a force that can actually do this. And my personal belief is that while a homeland defense mechanism is really good to drive this, we still have global IMD requirements. And we're always going to have that.

And so I really think that from a joint perspective, organizationally, we got to look at it from a global IMD commander kind of environment. I think we started to do that a little bit as we

started to put the 32nd AAMDC and the 263rd AAMDC under SMDC. I think that's a good start.

But I even think the AAMDC should be joint organizations because they're serving in joint roles. And so if they're providing that type of feedback, it can't just be from an Army perspective. That's my thought on it.

Thanks.

[Riki Ellison]
Hey, Tony, by the way, I'm going to be in Guam two weeks from now. So we will do something from Guam. I know Mark will be part of that.

We will do something from Guam. But thank you. Hey, J.D., you got anything on this?

[JD Gainey]
Yeah, it's like one of the biggest lessons learned as we look back on this IBCS voyage is a lot of discussions and currents with respect to how we communicate across systems. I would offer the joint track management capability has been around before 2016. And if you look at the as-is program, their estimate is not going to come to avail 'til 2030.

I think our point is we need to go out and formally compete that interconnectivity using weapons system logic to be able to expand the reach of the sensors and the effectors to provide true engage-on-remote with remote launch capability. From my understanding, I have not seen that type of capability to be competed. So if we are at a place right now where we all agree the means of which we communicate across systems to extend our lethality, we need to go out and compete that.

And I think that's one of the first things that General Guetlein needs to get at.

[Riki Ellison]
Charlie?

[COL (Ret.) Anthony Behrens]
I'm sorry. If I could just insert one example.

The joint track management capability, again, is not an actual system. I want to be clear about that. It's a capability that allows systems to share measurement data so that those systems can fire off that measurement data from non-organic sensors.

In Project Convergence Capstone 4, we showed a capability that was able to do that. And we shared that capability and that information cross-domain to some international partners at the same time. And we used the ability of integrating a THAAD system with IVCS, which is not actually a program right now, but it's developing.

But in experimentation, we did that. And that THAAD track went through IVCS over JTMC to Aegis. And then Aegis fired a simulated shot against that track.

So, I mean, I think we're on a good path for this. I think we're going to see a prototype joint battle manager that has and leverages this capability in Guam by '27. And it's not going to

be everything we want, everything we need. It's going to be a prototype capability, maybe even a little earlier. But it's going to be dependent in terms of how we culturally address the joint aspects of warfighting.

[Riki Ellison]
Thank you, Tony. Charlie, anything to add?

[GEN (Ret.) Charlie Flynn)
Yeah, that example that Tony just outlined, I mean, I was there for that. That's kind of what I was pointing at in my earlier comments.

And this is where I think Mike would be well served by getting some of that in the same room and having a discussion about what Tony just outlined. Because that's happened. And it did an intercept of a surrogate, so...

I'm like Mark, I'm more upbeat on this right now. Yeah, it's been hard and it's been painful to get here. But I'm hopeful that really what Mike can lead is getting all this disparate activities that are ongoing between industry and the services and point it at a COCOM and say, "we're going to fix this." And start there and use that theater as a priority to fix and then go elsewhere.

I have a bias towards the Pacific—because the homeland is in the Pacific and it goes all the way out, and America's day starts in Guam. And it's an environment where the threats are increasingly severe. And honestly, the environment is so different. It's different from Alaska to the Marshall Islands to the second island chain and beyond. I just think it's the right place to do it. And by the way, Northcom, they would benefit from that as well, because it's obviously all part of the same problem set.

So, those are my thoughts, Riki. Again, thanks for putting this on today. And I got to jump myself.

[Riki Ellison]
Okay. Charlie, I think Brian Gibson's the guy for that three-star that could run under Mike. So, just putting a vote in on that.

I think we're good. J.D., any more questions? We're all good.

[JD Gainey]
We got a whole bunch of questions. We can fill those separate. We are a little bit over.

I'll just do it with my final comment. If we want to be bold and extend the lessons learned from IBCS and bring in commercial technology and take advantage of some of the advanced data transfer and the data integration, the bold piece is: let's extend the mission area within Army's NextGen C2 effort and apply some IMB to it and see what that would look like. The fundamentals of detect, track, control, and engage are the same, right. You're just expanding some capacity and different sensing techniques. So, and the Army already has an internal competition for NextGen C2. So, having, and it's more data centric, right?

Get that foundational data back in place first. And so, once you get that backbone in place, you need to start hanging all the different ornaments, like different sensors and weapons

onto it. So, like if we do want to be bold, recommendations come out of this with a focus, hyper-focus on IBCS.

Yeah, let's open the aperture up on NextGen C2 with some IMB principles and get after it.

[Riki Ellison]
Yeah, thank you. Closing remarks, Tony?

[COL (Ret.) Anthony Behrens)
Yeah, just a couple.

I'll say first again, Riki, thanks for doing this and allowing me to be part of the conversation with all of these gentlemen who I really respect. I'll say, I have been saying, but now I'll say it as a private citizen, I guess. To me, I believe Guam is phase one of Golden Dome, period.

We've already got a plan to put systems and capabilities in place. It's not going to be the entire architecture or all the layers of air and missile defense, but it will prove out some concepts and some things that we need to do. Plus, I think that we should just be taking credit for it.

If we're going to do it, we should make it part of that. I also think that we should be leveraging, or at least I would advise the Golden Dome leadership to leverage experiments such as GIAMDO's Nimble Fire—which has proven to provide a lot of insight at depth about the types of gaps that we have and the requirements that are necessary across the Joint Force—I think that that is extremely necessary and would be very helpful.

When I was leading GIAMDO, we brought in the vice chairman and every single combatant commander and every single chief of staff, service chief of staff, and went through a lot of the things that we were thinking about and got a lot of great guidance there. General VanHerck was there, and I know he just joined your board. The first thing he said was, “how come what we're doing in Guam, we're not also applying in NORTHCOM? We should be working together on these types of things.” I really think that that's where we need to go. Again, thank you.

I'll give you one last thought, Riki. If you want to continue this discussion in a more in-depth kind of a way, maybe we have a conversation about what the Huntsville Air Defense Association can do currently in that association. Maybe we can host something and do something together.

Thanks.

[Riki Ellison]
Thanks, Tony. I'm taking you up on that offer to make Guam part of Golden Dome from Guam next week. We're going to do one of these from Guam, and we can expand on that. I'm going to count you in on that. Okay, Tony? You got it? We're good? Mark?

[GEN (Ret.) Charlie Flynn]
He's out. He dropped. He ran.

[Riki Ellison]

He's out? Charlie? Are you last, Charlie?

[GEN (Ret.) Charlie Flynn]
No, I'm not lost. Montgomery made a quick...

[Riki Ellison]
I said last! I said last.

[GEN (Ret.) Charlie Flynn]
Oh, no. I'm good. I said my piece. Montgomery poked them, and then he bolted.

[Riki Ellison]
Okay. Thank you. Thank all of you for contributing to this conversation. To me, it's about urgency. To me, it's not about planning like we've done and being very risk-averse, which you've got to blame a lot of those 20 years for that. We're in a process. We have to take risks. We have to go fast. We can't predict. Nothing's going to slow down. It's all going faster. We have to predict what's going to happen in the future. You can't wait 20 years to predict that.

The only way you start predicting is you're going to have to be agile. You're going to have to be mobile. You're going to have to make decisive decision-making.

You've got to have collaboration on openness, but trust between everybody to roll. IBCS is going to have to change to adapt to get it in in the next three years to make it an impactful investment to move out on this. We have to be not scared to fail, not scared to not make everything 100%.

It's there for us. It's exciting. I appreciate the openness and the candor of this investment that's there, and we're going to play with it because we've got to. That's what we've got to make our nation better. I also think this is much bigger, as you all said, as a global integrated missile defense besides the Golden Dome. We've been focused.

I've been leading that into the Golden Dome, but it's much bigger. Being able to move the tracks to everybody is great. Great discussion.

Thank you all for taking the time and effort to be here. Thank you.