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Gp. Capt. Hannah Jude-Smith, RAAF:

Okay, good morning everybody and welcome here to our panel on ISR and Remote Sensing. My name is Group Captain Hannah Jude-Smith. I'm clearly not from around here, so I'm going to speak nice and slowly today and hopefully get engaged in a really interesting conversation about ISR and Remote Sensing.

When it comes down to it, ISR is the sense in sense, decide, and act, and it is so foundational to how we do warfighting that, to be honest, I find it sometimes gets taken a bit for granted. And yet if we don't have a really good understanding about what is happening in the battle space and also be able to have that understanding of the adversary as well, then we can't actually warfight at all. We have a lot of challenges that are sometimes out of our control. It's a huge area over which we need to be able to sense environmental challenges, and certainly many others that the fact that the adversary doesn't even want to be seen.

But there are other challenges that we face within the ISR and Remote Sensing that are within our control. Things like how are we going to share information across allies from national to tactical levels across domains and agencies. So our panel today are a group of people who are also passionate about ISR, and they want to discuss today how we can ensure that the US and its allies have the capability to sense and then decide and act to be able to defend and advance our interests.

So today in our panel we have Eric Sindelar, who is the executive vice president business development and partner alliances at Comark. We have Luke Savoie who is the president of intelligence, surveillance, and reconnaissance sector for L3Harris Technologies, and we have Stacy Kubicek who is the vice president and general manager for Lockheed Martin Space Mission Solution.

I'm just going to give the panelists a chance to introduce themselves, and then we'll kick off with some questions.

I'll hand to you first, Eric.

Eric Sindelar:

Thank you. So once again, Eric Sindelar, executive vice president at Comark. We are typically a subprime to companies like L3Harris and Lockheed Martin focused mainly on ruggedized displays, ruggedized computing, compute platforms. I spent most of my career in the commercial space, so over 20 years at Intel, worked at a large server vendor. When I'm going to be answering these questions, it's going to be much more from a commercial angle and talking about compute platform.

And if you saw that break video, couple things I saw from the panelists on that video was that we don't have a technology problem, we have a speed problem. That'll be the angle that I'm going to be addressing these questions from.

Luke Savoie:

My name is Luke Savoie. I'm the president of ISR at L3Harris. My background? Pilot by trade, flew AC-130 gunships and then U-28, so ISR is what I've always done. Then ran an industry, actually ran a small software company, worked in large businesses, and now run essentially all the aviation air breather work in L3Harris, specifically around this particular job set.

My perspective will be that, and I think we have a good pair here in terms of every layer of this domain: cyber on the compute side, airborne and space, and I'm hyperfocused on providing things in this side,

the air layer, through the prism of the connectivity that we had over the last 20 years, but expanding that to the contested environment.

Stacy Kubicek:

Stacey Kubicek with Lockheed Martin Space. It's absolutely a pleasure being here today with everyone. And within Space, I lead a line of business called Mission Solutions where what we really perform for the space assets that we manage everything from the end-to-end ground capabilities. So think everything from C2 command and control to your analytics, your development processing, and also 24/7 operations for a lot of our emission partners that we have the opportunity to work with on a day to day basis. Thank you.

Gp. Capt. Hannah Jude-Smith, RAAF:

Thank you, everybody.

All right, to our first question, I'm going to direct this first to Luke and then everyone else can jump in. What does ISR collaboration look like in the future?

Luke Savoie:

So I think in the future when we look at collaboration, there is both asset collaboration, data collaboration, allied collaboration. I think especially in INDOPACOM, you're going to see multiple elements responsible for the scheme of maneuver and then have that be seamless. So it's one maneuver, even though people are given particular portions of that.

I think collaboration happens in real time. The cycles that we're used to, ATO cycles and stuff like that, get reduced down to minutes. So things that we used to do in niche environments where the planning cycle was 20 minutes but for a very specialized group of people.

I think that exact same thing now applies to the future where that planning cycle, reaction cycle, is measured in seconds or minutes in terms of how we react. That comes down to the sensing environment. There's no longer two week pattern of life, IMET soaks, that you're going to do on a target. It's going to be instantaneous, multiple sensors get what you need, react to that, and then put an effect on it. And so I think we will see collaboration across multiple platforms, multiple things, ecosystems of things, and then have that be resilient. Day without space, a day with space, a day without air, a day with highly contested air, but penetratable.

Gp. Capt. Hannah Jude-Smith, RAAF:

Did you want to add on that at all, Eric?

Stacey?

Stacy Kubicek:

No, I think you bring up a really valid point as far as the integration. There's going to have... It's going to take all piece parts. One asset is not going to be able to do it alone. Not one capability, not one domain's going to be able to do it alone.

I think it's really being able to build upon it and being able to prioritize where you're needing the data, at what pace you're needing the data, and how you're connecting that data in the field to get the right intelligence at the right time moving forward.

Gp. Capt. Hannah Jude-Smith, RAAF:

Just pulling a little bit more on that thread then, Stacey, how do you foresee commercial space and space-based ISR and Remote Sensing supporting the warfighting function? In particular joint fires, targeting, those sorts of things?

Stacy Kubicek:

That's a good point, actually. I'll take it a little broader and I feel bad talking commercial, so you're going to have to follow this up since you're the commercial representative here.

But commercial data is absolutely part of the fight. I mean, I think any of us would be remiss if we didn't say that commercial data is absolutely playing a role in everything that we're doing today, especially when you think about the Ukraine crisis and the role it's playing there. Absolutely, across the board it's a piece part.

That being said, taking it down to a commercial ISR standpoint and the data and what that's going to do, I'm going to have a little bit different of flavor. As with anything, there's going to be benefits and there's also going to be challenges when you start integrating these types of things. When you're thinking about the tactical effects that you're wanting from an ISR standpoint and what that's going to do, then quickly you see some benefits.

Some of the benefits I would highlight, and please feel free to add in, obviously one area we really look at that is good to leverage is when we think about all the stuff that we're automating, the analytics that we're automating, AI and ML, they're learning so much faster because of that commercial data. That commercial data is helping to feed those analytics, having to feed those models. It's also increasing the size of the metadata lakes that we have for the capabilities and for the data that we have, which is just going to help us be smarter and make better decisions.

Data can also be used as a sentinel. It can help to better understand situational awareness, patterns of life, maybe give us insight into a threat earlier than we would've had before. I definitely see some benefits there.

On the flip side, there's going to be challenges. Absolutely, right? One of the biggest challenges that I would see from the commercial data, and that we are already seeing, is the security piece of it. We've got to be able to trust that data.

I don't necessarily need to trust the data as much if it's helping to predict whether if there's going to be clouds in the sky for a day. But I absolutely need to be able to trust the data if I'm using it for targeting, or different desired effects along those lines. Because there some serious implications if that's wrong, if that data's been compromised, if I can't trust where it's coming from, I can't trust the data source, or have the right infrastructure and rigor around that data that's coming in and see that as a big challenge.

That's where we have to balance that. Identify what the risk we're taking with that data, and do we have the military-grade data, or how are we using it? So going eyes wide open of what the data is, how we're using it, and what we're using it for is absolutely a must when we start talking about the data moving forward and balancing between the military versus commercial data.

Gp. Capt. Hannah Jude-Smith, RAAF:

Yeah, I think it's a really interesting point about when operational risk is going to outweigh security risks, particularly when we are looking into competition. And as you say, that's going to come down to the kind of mission that we're trying to execute here.

Eric, did you have any further to add?

Eric Sindelar:

Just to add on to what Stacey was saying, if you really look at it, we're not even in through the first ending when it comes to AI and ML in the space. And if you look at what's going on in Silicon Valley with the large companies, there's really only a handful that truly have the type of developers needed to really unleashed the power of AI and ML. And so the partnership between commercial and the defense contractors is extremely important.

From what I've seen, though, once again, if you're deploying three to five-year-old hardware, you've already lost the game. And so partnering together such that we can get the latest and greatest out there and really take advantage of the development that's going on both in the commercial space and the defense space is important.

Gp. Capt. Hannah Jude-Smith, RAAF:

So I'm going to pull the... Oh, sorry. You got to [inaudible 00:10:03] on that.

Stacy Kubicek:

I was just going to say it builds off of what during your introduction you brought up, it really is a partnership. If we're not bringing it all to bear, we're not going to be as successful as if we're finding ways to collaborate and we're finding ways to drive those synergies together.

But again, it's eyes wide open of what you're getting and what you're not getting so that we can optimize it for whatever desired effect we're going for.

Luke Savoie:

Yeah, this is a segue really quickly to bind the two things together. You mentioned something that was very key, which is metadata, and you talked about commercial innovation.

It's interesting cause over the last 20 years the things that we have leveraged from an ISR and a target perspective hasn't been, "I need to listen to someone's voice and get voice recognition." It has been about metadata exploitation.

On top of that, the commercial environment innovates at a rate to develop and make things that are very convenient for them. And so things that we used to do in the past that were very cumbersome, like facial recognition through CCTV cameras, et cetera, well, now all I have to do is intercept the hash table because my biometrics on my iPhone automatically unlock it for me. Commercial market made that so much easier in terms of stuff that is measured in bytes versus megabytes, processing that happen had to happen in the rear.

Their innovation of the infrastructures that we use commercially actually provide us the next level and layer of targeting, which really changes how ISR is done and the things you care about versus the things we used to care about.

Gp. Capt. Hannah Jude-Smith, RAAF:

So I guess then to all three of you, based on where you see the potential for the integration of commercial and military and where you see that could go, what do you see as the biggest risk to what that future ISR looks like?

I'll start with you, Eric.

Eric Sindelar:

Sure. I think the biggest risk is having the qualification cycles that we've always had. I would ask everybody here from the Air Force and the Space Force to, how do you think different? How do you push faster?

When I come from the commercial space, it's the tortoise in the hare. I'm amazed at how slow all the defense organizations move, and that causes the prime vendors to move slow as well. We can move much faster.

I'm not asking for technology to be deployed the day after it launches, but one year is a pretty good metric. I will tell you. 20 years at Intel, I wouldn't touch a server platform the first six months because a lot of the bugs will be found, and they'll be fixed. But three to five years is just ridiculous. We have to change this, and we have to go faster.

Luke Savoie:

Yeah, I 100% agree. I mean, one, the acquisition system does hinder our ability to iterate quickly. We sit here and talk about... I had a conversation around a technical piece and the customer was like, "That seems really risky." And I was like, "That's five years from now." I'm like, "Elon Musk is going to build a gas station in space and build a world's largest rocket in less time than that, and he's already built three of them." Boca Chica didn't exist four years ago.

So, empirically, we know certain things can be done, but there's process that gets... Process is warranted and needed, but how do we get through that?

But I think the other piece, and I'll give a little bit more... Obviously, there's a lot of threats from the threat itself, i.e. how serviced air systems have been, the proliferation, the mobility thereof, our legacy assets and where they hang out in the domain space. How do we get beyond the horizon or to the horizon? How do we deal with resiliency in space or contested LEO? I mean, these are things that massively complicate and make much more important edge processing, edge C2 versus in the...

We've become addicted to kill TV, management in the rear, dealing with one and a half to three seconds of late and saying, "I think that's good." Now, when that gets cut off, who's making the calls? Who's making the shots? What do we even have infrastructure-wise, people? I'm showing my age because I'll mention things like ABCCC but those things don't exist anymore. But that was your edge C2 back in the day.

Those things don't exist today, so what fills that gap or fills that role?

Stacy Kubicek:

Yeah, I'd say one of the biggest risks, it's piggybacking off a little bit of what both of you have said so far, is really the speed. How quickly can we move?

The threats aren't getting any easier. The contested environments are ever increasing. We continue to have more implications against what we're trying to do and being able to do that. Finding the ways to continue to add to the speed of getting the right data out to the edge, wherever it might be, whatever the edge might be, whatever mission partner might be, whatever military partner it might be, it's getting that data out quickly. How you do that is having to expand at a rate that none of us have ever seen before. You're integrating... You talk about JADO and you think about aerospace, sea, cyber, land, you've got all these different domains, and they all need to interoperate seamlessly now.

So to be able to do that though is not going to be just using one type of data or one type of communication. It's how do we leverage everything that's at our fingertips to be able to do that and not at a slow pace. Because you also have latency problems when you start thinking about the massive amounts of data that we have coming off of some of our assets now. And how are you processing that

to get the information, or the right insights or intelligence, that we're needing to be able to go do different effects?

So I think it's really that balance and understanding, "All right, if I don't necessarily have all the pieces of data here for this, is that going to still be okay for this situation?" And balancing that with, "Okay, maybe I need more here, so it's going to take a little bit longer," and being able to weigh those out but still moving at a fast enough pace that we're keeping up, or keeping ahead, of whatever threat we need to.

Gp. Capt. Hannah Jude-Smith, RAAF:

I'd really like to pull on that thread, actually. I think it's a really important challenge that we're facing and that is how are we actually going to be able to wade through those masses of data to be able to pull out the information we need to be able to affect that mission and yet not to be overwhelmed so that we can find that needle in the haystack.

I'll pass to you first, Luke, on that one.

Luke Savoie:

For sure. I think this is where it gets, "Hey, what did we record and what do we do and what do we wade through?" Do we have a retention pond that is filled with stuff and then we sift through other things, and this comes down to edge processing quite frankly. This gets down to when I record a video, or I'm recording steering erst, or I'm recording SIGINT at the raw RF side, and I have edge processing, the things I should be recording is, "Hey, in this particular video frame there are three trucks, two sedans, and four people."

And, okay, that's the piece that the data that matters and those are the tags. These are the tags that you use to then get to the larger repository but you can't sift through the whole ocean. You got to create smaller, richer pockets of all of that.

When you're sifting for gold, you don't just sit there and pick the little pieces out of the bottom of where you're sifting through. You get it into a refined piece, and then you do another layer of that to how you actually extract it out of everything that's there. The same thing is there with data, but I think it comes with further forward edge tagging and processing, and that only comes through automation. That only comes through AI/ML.

Eric Sindelar:

To add to that, how many people got the new iPhone 14 yet? Am I the only one? That came out on Friday. I think everybody here knows that the iPhone comes out every year, and then so that's the cadence and every time you get a new one you're like, "Oh, there's not going to be anything better." But there always is something better. I will tell you that battery life is huge on the new phone. Some of the other things, not a big deal.

So along those lines, getting to that one-year cadence, the technology is so much better and the commercial... We know how to do this. We know how to develop products and test it and make sure it works. There'll be some tweaks after it launches, but for the most part we know how to get it right.

And also, talking about edge, as Luke was referring to, the biggest thing about edge is the fact that you don't have to deal with the latency in the bandwidth issues.

I mean, standing in the line today to get my badge, it took me 45 minutes. I mean, there has to be a better way. If you look at Uber... Yes, thank you. I can get on an airplane in San Francisco and fly out here faster than it took for me to get my badge here. We know how to do this. And so we have to keep thinking about how do we process at the edge. And I'll use my first joke here, cloud stands for complete

lack of understanding data centers. So to think that everything that goes into the cloud is going to solve things it's not because there's always a latency in bandwidth issues.

I'm sure a lot of people use Uber but you didn't get rid of your car and that's because latency is always an issue, and it costs more. It'll never be cheaper to take Uber the rest of your life. I don't care where you live. So trying to embrace the technology, the commercial knows how to do this. We just really need to push from the DOD to make sure that we move faster.

Because if you look in history, only recently do we have an adversary that probably will move faster on compute technology. We had such a large gap against our adversaries in the past that we could afford to be three to five years behind. We can't afford to do that anymore.

Stacey, any comments?

Stacy Kubicek:

Yeah, you guys covered everything really well there. I think the only other component that I would add is the cyber component because to me that's just such a critical component. When we start talking about our adversaries, especially the predominant ones that we all know and love so much that we're trying to fight against, the cyber piece is going to be such a critical component.

So as fast as we can move may not always be the pace at what we are able to because of needing to have some of those buffers on there to make sure we've got the right data and we're trusted data, but also it can process at the speed that we need to.

I think that cyber component is going to be really important as we continue to look forward as well and start to formulate our entire position on how we're handling data for the different purposes that we need to. Like I mentioned earlier, some things absolutely open, that's fine, open source code, software, whatever for a desired piece of tactics that we're doing. But then you start looking at some more of the sensitive things that we're doing and the cyber becomes very, very important.

Luke Savoie:

I'd like to also then get [inaudible 00:21:03] So we talked a lot about edge, we've talked a lot about AI/ML and its application, so then there is in the rear, in the PED, and/or in how we deal with data and how we experience it.

Then there's the temptation that AI is like this... It's like Motrin, taking 800 milligrams and it cures everything. So there's a temptation for that, "Okay, I've got a bunch of data. That AI's going to tell me what now what it all means."

But there's also a way of, we, over the last 20 years, have gotten really good at certain things. And I don't know how many MQ-9 drivers we have in here, or folks who have interacted with their sensor systems and their platforms, but we've taught a lot of people how to use their thumb and... [inaudible 00:21:47] this but my airplane, we used our thumb sensors around, and the entire crew had a sensor for multi types of operations.

We taught a lot of people how to interact with their environment, how to follow things, how to understand atmospheric. How do we leverage that? And we're doing all this work and our training pipelines with virtualization and VR and all these other things. [inaudible 00:22:08] we once to look at whammy data this way and how we looked at hey creating virtual MQ-9s and having operators interact with the whammy like they had virtual sensors.

Oh, by the way, everything downstream worked. So you could operate in exploit data, but then actually live assets could prosecute to what you're doing. But I think the key thing here is finding ways to interact

with that data in ways that we know how to interpret it that relates to our experience that now the AI in our head, the gray matter portion at AI, that understands I'm looking at a compound that vehicle went into it. There's four people in the backyard, one of them smaller than the other, and the atmospheric understanding when someone's pulling weapons out of the back of a car versus the milk crate.

Those are the things. How do we apply that to the pieces in the back that the AI doesn't necessarily catch? How do we make the same things similar even with large pools of data that may be in the past or present?

Gp. Capt. Hannah Jude-Smith, RAAF:

Yeah, I think it's really important to... I've heard explained before that it's an iterative process of building trust with the people on the loop versus off the loop and just slowly being able to build that trust to be able to let AI and ML take where it needs to go, but in a way that helps us to control the risk still.

Luke Savoie:

[inaudible 00:23:33] I've exceeded the bounds of the battery of my microphone, but I mean that's the operative word. The T word is a key word there. And in all fairness, I said this at the AFA in the fall in terms of modeling trust.

But central to ISR is that word trust. When we looked at what makes certain platforms, or certain capabilities, highly effective, we found out it wasn't the sensor. It wasn't the SIGINT. It came down to trust. The person using the data inherently trusted the data, and that allowed them to use their processing power. They could pay attention to other things taking everything they were getting at 100%, not having to double check.

And so having that, so we've done MBSE modeling. We put trust into cameo and at the base of a platform gone, the key capability is trust. How do you model it and make sure that your requirements flow through and amplify and ensure trust in what the capability is?

Gp. Capt. Hannah Jude-Smith, RAAF:

So one of the other risks, or I guess challenges, that I mentioned that the outset was about integration and I think Stacey, I'd like to throw to you with your background and giving me a bit of, I guess understanding about how you see... What do you see as the challenges to fully integrate that space data into those combined and tactical operation centers?

Stacy Kubicek:

That poses a very interesting concept, and it builds upon what we've already been talking about a little bit here today of space is absolutely a critical part of this and it's a critical part because of the speed that it's going to bring. Are there challenges with it? Absolutely. We're not here because what we do is easy. We're here because there's good challenges ahead of us and there's a lot of good things we can go do with that.

But space, this is what gets me so excited about the work that we get to do, is space is really bringing a whole nother dimension and it'll continue to bring a different dimension as we continue to look forward. There's going to be challenges with that. There's going to be trust challenges. There's going to be speed challenges. There's going to be all of the above, but it's absolutely a critical component when we start talking about the interoperability.

A lot of times I like to talk about it, everything in our systems now, whether you're an airborne asset, whether you're a sea-based asset, whatever asset you might be, if you're a space asset, you're a node in



a broader system now moving forward. They're all nodes that need to be able to play together and need to be able to interoperate together to really be able to do what we need to do at the speed that we need to do it. Especially from an ISR standpoint, especially when we start talking about tactical capabilities at the edge.

So that is absolutely critical, and space plays a huge role in being able to do that. We're able to operate in contested environments that, historically, maybe an airborne asset, maybe speaking to another airborne asset or speaking to an ETIDs, or whatever it might be. Those are contested environments now. They may not be able to communicate, but now you have space sensors that are able to still get that information out.

Normally, it'd take a day to get out to the Pacific if we're here on earth. I can do that in a matter of minutes with space to get data out there. So there's a lot of capabilities, and this is really an area in Lockheed specifically, that we've been focused on with our 21st century security is how do we integrate all that to get those desired effects. How are we making sure that we're optimizing in whatever environment might be to be able to get that data transferred quickly?

So I see space being a very critical component of that, which is exciting because you're adding to the additional layers and assets with all of our different mission partners that can come to bear against the fight.

Luke Savoie:

Let's see if this one works better. Okay.

Absolutely, and I think for the audience we have here, I think there's some critical questions that need to be answered by the Air Force and the Space Force. When we talk about agile space or responsive space, we only talk about in a single dimension, which is time.

Yet this is how many sites there are that can do it. They're 100% predictable on location. So if I'm going to adversary now, I want to deny ourselves LEO and GEO, I mean I have five [inaudible 00:27:41] and it's gone. So how do you provide agility to responsive space, both unpredictability, unpredictability of orbits, unpredictability of launch site. Who owns that by the way, in terms of agile launch? Is it the Air Force if you do it with an air breather? Something like a Virgin Orbit capability? Does Space Force own that? Does Air Force own that? Who's the owning command that does that.

What other ideas are out there other than, well I can iterate and make a payload quickly and a commercial provider, or a military provider, can get it off in hours, or whatever, in terms of prep, et cetera. Okay, but it's still the same place, and a well-thought out special op could take that out. I don't even need a hypersonic from across the planet to take it out.

It's an interesting challenge, and that's a question I put out for the thought leadership that's in the audience to think that through. So us an industry, can we put some thought about that, but where should we be placing investment, et cetera, to address agile response?

Gp. Capt. Hannah Jude-Smith, RAAF:

Yeah, I think one of the other challenges I see with the integration of space though is that space has traditionally been, from my experience anyway, an intelligence community function. I think it's now broadening out obviously to be much more utilized clearly with the US Space Force.

I'd really like to understand how you guys see the intelligence community and the service communities, that title 10, title 50 challenge, how do we get around that?

Luke Savoie:

I know everyone here will want to speak about that because traditionally just put space is traditionally been title 50 a lot of... And it's gone through this interesting permutation in the military. Pre-9/11, it was almost purely a title 50 type of activity. Then we started using a lot of title 50 tools in the title 10 environment, but coming up with weird rules to make it all us sleep well at night. Don't listen to the conversation, and as long as you kill the guy, you're fine, but you can't like listen to him. Let him live another day. We did a bunch of weird procedural rules to get around it.

And then we get in the contested environment, and then we're back to very heavy on our title 50 side. But then we're starting to realize that it goes from cold to hot like that, and you really want the tool sets you have in title 50 because now the focus is on passive. The focus is on domain awareness, completely passive, and then putting an effect on that where your adversary cannot react until it's too late.

So how do we bring bear the tool sets that we use to inform decision makers and hopefully deescalate? But at the same time, how do we take those exact same tools and then, on a dime, they both can be proliferated to more penetrating type of assets, et cetera, but at the same time provide a targeting capability that is legal with underneath title 10?

And then in space that's even more complicated given treaties and everything else that are out there about how we utilize space.

Eric Sindelar:

I'll let you go, Stacey.

Stacy Kubicek:

Oh, well, thank you so much. I appreciate that. Building off of what you've said, my program spanned both sides. I've got operations programs on both the intelligence community and the DOD side as well as development support from a space standpoint.

I think the only thing I would definitely want to add on that is working close hand in hand with our customers and our partners on this, everybody is looking for ways to just continue to evolve and do better. We've got so much capability, and it's not just a, to me, a title 10, title 50. It's also how do we utilize our Five Eye partners? How do we bring everything to bear because this is not a fight that we're going to go in alone and win alone. This is going to be a team effort, absolutely a team effort, and how we bring all those capabilities across every area where there's been a lot of investments.

That goes into commercial partnerships. That goes into partnerships with other countries and how we share the data, how we share the capabilities, and how we optimize that for what we need to go do to get ahead of this.

Luke Savoie:

I think you brought up a great point on the allied side because the allies do not have the same rules. And so it's interesting to have context, especially when we look at decisions around, for instance here in the US around the E3 and transitioning to a different platform.

But we look at the allies, in your case Australia, but Australia's a very specific CONOP on how that works with the growlers, how that works with platforms like MC-55. And there's a very specific CONOP up in the F-35 on how that all ties together as part of one single scheme of maneuver.

It's not just left or bang or right of bang, it is a continuous transition from left to right of bang in terms of that. Whereas here, we still deal with a lot of individualized procurement, the IC community does, and we look to fill these gaps but we don't understand, "Well, hey. I really like that capability to have over there." Yeah, but it's paired with three other things with the connective tissue for a very specific use

case. We need to make sure we adapt those things appropriately or understand the gaps if we're going to replicate those gaps.

Gp. Capt. Hannah Jude-Smith, RAAF:

Eric, did you want to add on that at all?

Eric Sindelar:

I think both my peers here covered that quite well.

Gp. Capt. Hannah Jude-Smith, RAAF:

I was just going to say I think that's something that's really important when you start working in alliance is to make sure that you're sharing the right data but not imposing regulations that might apply to one country and automatically don't necessarily apply to the other.

I think that is one of the strengths of the partnership of an alliance is that other people don't have the same regulations and therefore can act in more agile ways across various areas.

We're coming to close this session, so I do actually just want to bring out one last topic that I think is probably going to run throughout the symposium is about JADC2 and the Joint All-Domain Command and Control. What I'd really like to understand from you all is how do you see JADC2 and ISR? What is going to... Is it going to enable it, is it going to be in hindrance? What's the relationship between those concepts?

Eric Sindelar:

From my perspective, I work with a company that's one of the key parts of stitches. That's part of the JADC2. And we definitely think it's going to help enable it. Once again, this is something that could have been done in the commercial space 10 years ago, so it pains me to see how long it takes us to do that. We're looking to support that in any way we can.

Luke Savoie:

I think we're starting to finally... I mean, it was obviously announcement this morning, and there continues to be a lot more form coming around this particular topic. I think JADC2 ends up becoming the connective tissue around ISR.

At the end of the day, sensing does happen on something we just don't pull it out of... We do pull it out of the air, but something has to do that, in any of the domains we deal with whether to cyber to space. So there's always stuff that's part of it. JADC2 more certainly takes on that topographical network layer, the governance around metadata, the governance about around are we a J series or K series message world, or are we all OMS UCI? Well, I mean you go to the Navy, they're all face. What level are we capital open? Are we lowercase open standards types of things. But I think it comes around governance of those things, the topologies of those things, the connective tissue around it.

I mean, at the end of the day, we want to interact with sensors as if they're our own independent of platform we're on. That is critical to getting to as minimalistically processed data as possible. So we want as raw data, but with metadata as possible from any sensor in the environment and then be able to come to our own conclusions on that for our own use case.

Because someone may care about passive earth station keeping and someone then may care about missile warning detection and someone else may care about, I'm using that to collaborate in just things

I'm getting the net spectrum that come to a refined target that gives me, "Hey, I can classify something from unknown to hostile." That's JADC2 will provide the connective tissue around all of that.

Stacy Kubicek:

Yeah, I definitely agree that JADC2's enabling right from that perspective is going to provide a lot of enablements.

To your point on the governance as well, I think again, you talked about all the different sensors, again, all the different nodes. It's how are we making sure it's going to help to enable that connectivity across so many different things that we, historically, haven't always had the connectivity for whatever reason. Maybe it's a data format issue maybe, whatever it might be, a system.

But it's driving the need and the urgency of being able to connect everything and make smart decisions on the data that we have. I think that's really helping to enable and help to drive. We've always worked to attach different and connect different domains. That's nothing new from a JADC2 standpoint. What's new is how quickly we're able to do that, how we're able to process the data, prioritize the data, and be able to make decisions on that data.

There's cultural shifts that happen anytime you start doing that from a data standpoint, trusting that data, trusting the intelligence, especially when you start thinking from an AI/ML standpoint and you're making decisions, very serious decisions off of that data.

I think it's going to be a balance of moving quickly, but also with the confidence that we need to have with what we're doing.

Luke Savoie:

I was just going to piggyback on this as well. The other aspect of it does also is, as a commodity, JADC2 will turn processing into a commodity.

Because when we talk about Cloud, capital C Cloud, it really does get into that, "Hey, independent of hardware that's out there. How do you leverage unutilized processing at the edge, even if it's not on platform?" Two hops away is an F-35 with a card that's dormant inside that is unutilized. I'm tapped out on, my AI is tapped out over where I'm at, but I'm going to get metadata over to available processing.

JADC2 two will provide, I think, the topology not only for sensor connectivity, but actually processing connectivity, which gives us scalable degradation. It isn't a one to one, a platform falls out. We don't lose just the processing on it. The processing can be offloaded and utilized in other places.

Gp. Capt. Hannah Jude-Smith, RAAF:

Right. Well, I think that comes to the conclusion of our panel today. I just like to thank our three panelists very much for coming. It's been a really interesting exploration, I think of the challenges that we're facing in the ISR Remote Sensing world.

And they're not going to go away, but I do think that today, talking about AI and ML, helping us deal with the scale of the data and to try and do so at speed, has been really reassuring. I think we haven't really solved the answer of how to do that faster, how to acquire it and get into those commercial opportunities faster.

But I think that to me that's a conversation about risk, and it's actually about understanding where is the risk that we need to accept now, particularly given the strategic environment and the uncertainties. We need to start being a little bit braver and a little bit more optimistic about where we need to take that risk now.

Please join me in thanking our panelists for today.

