

## ACE Enablers

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### **Maj. Gen. John Klein:**

Well, good morning everyone and welcome to the ACE Enablers Panel. My name is Major General John Klein and I'm the commander at the United States Air Force Expeditionary Center. Headquartered at Joint Base McGuire-Dix-Lakehurst. And that's not to be confused with the Air Expeditionary Forces Center of which one of our panelists is the former commander. So, we're very engaged with Agile Combat Employment, and as enablers, the Expeditionary Center has a good chunk of those forces for the Air Force. Agile Combat Employment as defined by Air Force Doctrine note 1-TAC-21 can be either a proactive or reactive operational maneuver. It is important to understand that this maneuver relies on a distributed posture of our forces. This posture necessitates a comprehensive evaluation of our abilities in command and control, logistics prioritization and movement, and projection of combat power from multiple small operating locations. This approach makes a cultural shift from viewing our operating locations as sanctuaries, excuse me, where time was available for operations and sustainment, to prioritizing the enduring resiliency and survivability of our forces.

The priority begins with establishing the theater with well-trained and equipped Airmen, building the logistical infrastructure and engaging with industry partners. These collaborations are vital for developing capabilities that address gaps, enabling us to meet our new demands of distributed operations and Agile Combat Employment. I'd like to welcome our panelists. First to my right is United States Air Force Lieutenant General retired and vice president of future sustainment operations for Lockheed Martin, General Stephen Hogue. To his right, vice president and general manager of Air Force programs and broadband communication system for L3Harris, Mr. Ron Fehlen. And to my left, vice president and acting division general manager for the global systems and modernization division for Northrop Grumman Defense Systems, Mr. Pat Hund. Gentlemen, I'd like to offer you each about two minutes of opening remarks. General Hogue, we'll start with you.

### **Lt. Gen. Stephen L. Hoog, USAF (Ret.):**

You bet. Thanks. First of all, thanks to AFA for putting on this event and thank you for hosting this forum today. I think, as the audience knows probably better than most, the challenges that our logisticians as sustainers face today is order of magnitude more than what it was in the past. I will offer two things to start with. First, history, many of the problems we're faced with today in terms of time, and distance, and communications we faced in the past. We have different solutions, we have different challenges. But go back and look at some of the operations that General Kennedys of the world did, how we set up for OIF OEF, we've done split ops, we've done maneuver ops, we've done these in the past. We're going to have to do it better, faster, quicker, cheaper, but there are lessons from the past that everybody out here as a professional should be aware of.

And the second piece is, to reinforce what you said about collaboration. Industry is there as an enabler. We want to make the airplanes last longer, fail less, have the parts available, tech data in multiple languages to support your allies. These are all the things industry can do, but in order to do it, we're not respondent to an RFI like SECAF said. We need to be out there experiencing these exercises with you, like this recent Bamboo Eagle exercise. What are the lessons? What can we take away? What can we do better to support you as a warfighter out there making the mission happen? Thanks.

### **Maj. Gen. John Klein:**

Great. Mr. Fehlen?

**Ron Fehlen:**

Ron Fehlen, call sign EPIC, vice president general manager as mentioned of the Air Force Space Force Special Operations Command, army, and Missile Defense Agency products for our business. I say that only to say when I look at the different mission sets, this one in particular, we see it through the lens of how do we make sure that you are connected? But as was mentioned in the opening, it remains survivable and have the resiliency underpinning it. From a background perspective, 28 years in the Air Force with about 10 of that in AWACs. So I've watched battle management in theater, how we accomplish that, and the criticality of communications from that perspective. And then, spent the last part of my career in acquisition.

So I can echo again, General Hogue's point on driving to be a partner with us and feeding those lessons learned back quickly is actually what drives not only our thinking, how we focus, but also, where we make investments to get ahead on your behalf. So, helping us make that connection is actually a very critical thing. So, really appreciate... Actually, it's very interesting the specialties that you have up here today. So very excited for the discussion. Thank you.

**Maj. Gen. John Klein:**

Great. Thanks, Ron. And over here to my left, Pat.

**Pat Hund:**

Well, thanks so much for AFA for putting on this entire conference. It's been amazing, and General Klein for you hosting this and moderating this panel. So, Pat Hund, call sign Attila. I'm privileged to say that I was in the U.S. Air Force for 20 years, and now I've been with Northrop Grumman defense systems currently for the past 10. I'm the general manager acting for our global sustainment and modernization division. We define possible at Northrop Grumman, we really mean that. And we do that shoulder to shoulder with all of you, our war fighters across the joint services. But today, right now, we have folks with our Airmen and Guardians in six of the continents as well as multiple numerous time zones across the globe. As the other members said up here, it's critical for us as industry to understand what your challenges are. And in an ACE, Agile Combat Employment environment, those are numerous and we are ready to partner, and invest, and support each of you as we in this great power competition work together collaboratively to move forward in our nation's security.

And we often like to say, Airmen and Guardians, you know how to deploy, and employ, and maintain, but we need to probably collectively get a little better at sustain. We know how to fight to get into the fight, but how do we fight to stay in the fight? And so, I look forward to today's panel discussions. Thanks, sir.

**Maj. Gen. John Klein:**

Great, thanks Pat. Gentlemen, thank you. That's a great start. Just to set the stage, John Klein's personal opinion about Agile Combat Employment is that there are three key pillars to making that happen. The first is force packaging, right? We've got to get the force packaging right on the personnel front, but there's also the equipment front and that's where industry can help us. Secondly, it's the command and control to be able to maneuver those forces and communicate with those forces. So, connectivity is key for command and control. And again, another area where industry is absolutely critical. And then, that third pillar in my opinion is maneuver, which really brings mobility and logistics to the forefront when we talk about Agile Combat Employment.

And again, on that logistics side, a key area where industry can offer some solutions. So, that's the context that I offer as we get into some of the questions for our panelists. So, Lieutenant General Hoog, the first question is going to go to you. And, as our adversaries have tightened the kill chain and extended their operational reach, our ability to project combat power will require our forces to operate in a distributed posture and execute ACE as we've talked about. What would you say is the greatest obstacle for the United States military forces to achieve this?

**Lt. Gen. Stephen L. Hoog, USAF (Ret.):**

Yeah, that's a great question, and I think, probably have to start by ruling some things out. So, we're not going to talk about ATSO, because that's going to have to evolve and be refined over time. I'm not going to talk about the threat specifically, because I think we had classified sessions on that. And every time I see those slides I just get a little bit depressed. So what I'm going to focus on is the logistics aspect of actually making a hub and spoke type concept a reality. Because, if you're going to do that, you've got to go in there and do what the chief said, just on the opening comments. You've got to practice that.

When I was a lieutenant way, way back, we took 24 airplanes that went out to Wendover Field in Nevada. And we practiced the WIMP-V sortie rates with our risk kit at the time to see if we could actually do what we said we could do. And I think, exercises that AMC has done recently, Mobility Guardian and Bambo Ego is where we start to do this. We actually press to test, "Can I take 12 airplanes and deploy 4 forward? What does it really take? What's the mix of maintainers?" We talk multi-capable Airmen that can do things other than do maintenance. We talk multi-skilled Airmen that can service F-15, F-16, F-22s. We have all these concepts, but the only way to really test it is to put it to practice, find out what doesn't work, and then adjust going forward.

On the industry's side, we can do things like have tablets that have the tech data for what I believe is called Core-54 tasks, how to make safe, how to arm, how to refuel, how to do some of these things. And have tablets available, so an Airman at Tinian, if an F-22 drops in and he happens to be an F-16 maintainer, he has at his fingertips the tech data, and what it's going to take to service or turn that aircraft. So that's what I would call the execution at the tactical level. How do we do it? How do we practice? How do we learn? An industry can help look at the data to see if we have the right parts.

The one other piece I would bring there is that if you talk to any senior air commander who's been in the theater and major operations, he talks logistics and comm. In the logistics decision-making, we're used to the kill chain, where it's censored a shooter in its milliseconds, in its seconds. It's got to go censor, to shooter, to logistician, to sustainer, and it's got to loop back to get that shooter back up in the air to rinse and repeat. And that decision cycle, how long it takes a fuel barge to get from one island to an X, how long it takes to pre-position support equipment? That whole decision cycle and the logistics professionals on the AFOR staff and the COCOM staff, they need the tools to make those decisions and stay integrated. And that's an area I think we all need to work.

**Maj. Gen. John Klein:**

Great. Thanks, sir. Ron, next one for you. I mentioned command control as one of those pillars. And so, your question is distributed operations and Agile Combat Employment has created secure communication and connectivity challenges, especially when it comes to the enabler forces for ACE. From your foxhole, what are your thoughts on this issue? And, what might you see as a critical obstacle for enabling ACE?

**Ron Fehlen:**

So, the first and best part frankly is the obstacles that are out in front of us are frankly solvable. In some cases, with already field of technology just used in a different way, or mature technology, frankly ready to go to field in the next year or so. So, from that perspective, as far as meeting really critical timelines in the next two to three years, we don't have to spend a lot of time in development. Frankly, we can get it out there quickly. So from that perspective, I'll take it to as well, I mean, how many of you have left behind your cell phones for three or four hours, and you start to feel disconnected, you start to wonder what's going on in the world. If you're a battle manager or if you're in command and control, that's a bad feeling, right? You're not getting the data in.

So we could talk about bandwidth, we could talk about agility and communications, but I'll take it a step further, which I think is not getting a lot of conversation is you talked about survivability and resiliency in the beginning, in the opening remarks, that applies just as much to the maneuver space as it does to the communications. And so, the last thing you want to do is to be able to maneuver, and then be retargeted very, very quickly, either kinetically or non-kinetically. So, there are techniques out there and it's actually very critical and you can use them today, fielded, that allow you to basically hide, if you will, in plain sight while still maintaining that connectivity. So as you're moving around, and that's local I'll say, and now more broadly from a global perspective, as general Hogue laid out the timeline and the individuals or nodes involved in order to feed the fight forward.

Now the question is, how do you reach back to them? How do you create a demand signal of consumables are out fuel, whatever the case may be, to make that transition without giving away your location, and frankly becoming the next target. So there are technologies today, I think that's one of the things that we probably need to talk more about, because a lot of the underlying foundational technologies are there and fielded today. It's a matter of how you piece them together, and then how you use them from a con-ops perspective and when to ensure you're not the next target.

**Maj. Gen. John Klein:**

Great, thank you. Okay. Let's talk equipment just a little bit. This will be for you, Pat. Distributed operations and Agile Combat Employment has created several challenges, especially when it comes to aviation ground, equipment, and aircraft specific requirements. So, from your position, what are your thoughts, and do you see that as a critical obstacle to enabling ACE?

**Pat Hund:**

Yeah, thanks general. Absolutely. It's a critical topic. And let me talk about logistics as a whole, the six functions of logistics, because each of these are critical enablers or could be obstacles, whether that's supply, or transportation, engineering, facilities, maintenance, training across the board. Your question specifically is about equipment. So how do we as industry partner with the Air Force and the Space Force to make sure that we have MOSA compliant technology? How do we commonize as we go across, especially distribute ops in the Indo Paycom theater for example, having more common support equipment, versus peculiar support equipment, or common test sets versus the STE, the special test equipment. How do we common eyes our age, and bring operational power, and fuel capability that even extends to aircrew life support initiatives and efforts? How do we commonize together and collaborate is how we get across this obstacle. There's no doubt, as Ron said, that it's solvable and we are right at the crux of being able to make some significant movement.

And so, we, as an example, but within industry, we are investing in hybrid power systems that can be used airborne or on the ground, even maritime. We're digging into smaller form-fit function that's very agile and executable. We're digging into digital logistics, having data-driven decisions to the commanders at the right echelon at the right time to have visibility into all the data and the assets and

in this case the equipment. So, that's really critical as we talk about ACE and move forward across all of the logistics functions.

**Maj. Gen. John Klein:**

Great, thank you. Okay. Don't look back to you. And this next topic could probably be an entire panel by itself. Okay? But as we posture for our combat forces for resiliency and survivability, our traditional methods of pull logistics really centered around an efficiency model might be too late to deliver effects. So how do you see the United States Air Force transitioning to push logistics, maybe a more effectiveness model to provide the warfighter the resources needed, versus the reactive manner?

**Lt. Gen. Stephen L. Hoog, USAF (Ret.):**

Yeah, that's a great question, and especially in the distributed hub and spoke, you're not going to have the transportation available to send this part to this base on a short notice every day to make it happen. So, it begins, I think, with data and analysis models, AI, all the tools that many of the industry partners in the Air Force itself is investing with, Atvana and some of the sets. So you need to understand the demand to the third degree of your weapon system. You need to know how many nose tires it takes to fly 1000 hours on F-35s or F-16s. And oh, by the way, if you don't understand that nose tires wear out a lot rapidly when you're taxiing with fully fueled and armed aircraft, you're probably going to underestimate the number of nose tires to send to the base that first time around.

So knowing that demand, the advanced analytics and AI is I think a core function we're all working at right to, and that's the push piece. So the next piece goes to that is what are you going to fly? So if I've got 24, a 48, like I'll send 48 aircraft deployed to one location and you have 24, 12, 12, I got a 12 ship at a location, it's dispersed. Am I flying a barrier cap, because I don't have any destroyers nearby to this or I'm engaged with the army? I might be flying a 4, 4, 4, 4, 7 hour sorties trying to do a barrier cap. Or I might be doing a 8 turn 6, 8 turn 6. Either one of those are going to burn about 110, 112 to 100 hours. So that demand is now what goes into the equation for the push piece. And then, we need to understand the commander's concept of operation.

And then, from an Air force and a DoD perspective, we've got to pull that back to understand what the impact of surging is on the DoD industrial base, because as the secretary said, we don't have time. And if you're in the production business, there are three things you can play with. "I've got time, I've got capacity, and I've got inventory." So once you understand the surge demands and your capacity and how long it takes to flow apart back from the AOR and what I can pre-position, then you can get serious about getting the right inventory and get it stationed at the right place. So it's going to be analytics, it's going to be understanding the concept of operation, and it's going to be stepping back to take a look at the industry-wide level of parts and repair capacity you have.

**Maj. Gen. John Klein:**

Okay, this topic is connected to both of your industries too. So, would you mind offering a few comments on the push logistics?

**Pat Hund:**

Absolutely, sir. And it's a great question. A really critical topic. Like you said, we could probably have an old panel just about push logistics. I think, you laid out the three keys as you see them general, and I want to dig into the command and control, specifically the connectivity. Connectivity is so critical to push or pull, but especially, to push. General Minihan has said, "Connectivity is the single best investment that we could make." And that connectivity is critical, because if you think about it from an

aircraft airborne perspective, you really dig into it's about survivability, where are the blue forces and the red forces? And then, that survivability leads to risk tolerance. And when you have a risk tolerance, then you can push to your forward commanders more of that authority. And with that authority comes the unity of effort and a higher threat environment.

But it also applies in push logistics specifically to the ground component and forces. So to our AOCs and our CRGs, our mobility support teams, our air mobility ops wings, it's really critical that we establish that connectivity to enable the command and control, which provides decision advantage. And General Minihan talking about 25 by 25, the 25% of aircraft that have that connectivity by next year, 25 is right here. We're well within our FY planning for that. That connectivity is going to be critical. And so, what are the pathfinders that we, collectively, our military services and our industry partners can do to drive more of that connectivity. General Minihan's fond of saying, there's a lot of real estate available on the wings of our mobility aircraft. So, EW, ECM, other opportunity space, what can we do? And a lot of it is already technologically available and present in special ops platforms or whatever it may be. So, we really need to, I believe, team to drive that connectivity into the ACE push logistics environment.

**Maj. Gen. John Klein:**

Great. Thanks, Attila. Ron, any thoughts from the connectivity perspective on the push logistics?

**Ron Fehlen:**

Yeah, absolutely. So, it's really interesting, because if you think about the last five years in industry in particular as we've tried to keep production lines going, in the same way that you've tried to keep operations going during COVID, we ran into some of these same problems of what happens when your logistics, or in our case a supply chain is not working at full speed? You don't have all the data. You had planned for just in time, if you will, and now all of a sudden, it's not getting there in time. So, you learn a lot about how that data that was just talked about a minute ago is critical to feed those models to understand and predict ahead of need, so that you can get into inventory, and then therefore into production to meet your commitments. So, a very similar challenge, slightly different viewpoint, just from an industry viewpoint, but at the end of the day, it boils down to this, you have to have the data. Same for command and control, same for maneuver and situational awareness. You have to have the data.

Now, all of us have experienced the, "I'm going to chat my way into it. I'll send you data via chat. I'll send you three emails, and then you'll have to figure out and put them together, or maybe I'll do a phone call and it'll go from there." At the speed and the agility that I believe the force is going to have to operate on, it's going to take more than that. It's going to take those underlying systems that are able to transmit in a resilient and timely fashion back to the central place that can actually forecast what they need to push forward.

So frankly, I still look at it as connecting the dots to feed the data and to feed the machines of artificial intelligence and predicting and forecasting just like we do in production lines today. But being able to do that over 50%, 60% of the earth's surface, that's a big deal, long range from that perspective. So again, it's still underlying, it's not even a key piece. It's actually foundational to have that resilient, secure connectivity to pass that data to feed models both for command and control as well as for logistics.

**Maj. Gen. John Klein:**

Yeah. Well, who would've thought an ACE discussion was going to turn to data, right? Ron, I'm going to stay with you and maybe it's just an opportunity to riff off of your previous answer. But, I asked the

other panelists here before about the greatest obstacle to executing distributed operations in Agile Combat Employment, how do you see that from your perspective?

**Ron Fehlen:**

Great question and appreciate it. As in all of our missions, there are certain obstacles. So I'm going to push on one that I think industry can help with, and I see it coming and not talked about a lot. So, it was mentioned earlier and talked about at the conference, multi-capable Airmen, multi-skilled Airmen, mission-ready Airmen. Despite the flavor or the name, in essence, as Airmen and Guardians, the expectation there is to be ready to fight today and be able to do more slightly out of your AFSC that you may not be comfortable with, similar to how SOCOM, as most of you probably know, operate their small teams. And so, from that though, the one thing that always comes to my mind at least is workload. How do you as Airmen and Guardian now set it up quickly, be able to operate it quickly, understand... We've talked even to the extent of, are you able to video back to the mainland, if you will, to be able to provide support in the field if you're not able to get it running first time?

So how do you provide that training, number one? And then, number two, do you have to provide all the training? Meaning, why can't, with some of our more advanced technologies, in some cases field of technologies, make that job easier for you? Again, flying on AWACs, we had a communication systems officer, CSO, that was their whole job. All they did was manage the communications, and therefore the data coming in and out of the jet. Yes, you can carry one of those with you, or ask us, start talking to us about, "Hey, if you could do A, B, and C." Meaning, have the system take care of itself, self-healing type networks, things of that nature, rather than you having to spend maybe 2, 3, 4 hours setting it up. How do you get it up quick? How do you make sure that you can fix it quickly if you need to and maintain that operational capability?

**Maj. Gen. John Klein:**

Great, thank you. Pat, back over to you. I want to return to the maneuver pillar that I talked about and the criticality of mobility being a critical capability that enables Agile Combat Employment. I know that General Minihan as the Air Mobility Commander would agree with that. He talks about how the mobility Air Force has explode into theater, right? And, what would you say is limiting the MAF from exploding into theater in terms of how it has to be half a step ahead as the logistical foundation that enables ACE?

**Pat Hund:**

Yeah, great question. And, I'm going to riff a bit on my previous discussion with connectivity, because I think that is at the source of how the MAF and frankly our forces explode into theater, into that maneuver, to get to the PhD level as the four star panel was talking about yesterday with maneuver. And I'm going to use an example that we've been working through that I know our industry partners are doing very similar things.

But, looking into the flight line of the future, we have put together in our secure communications area an opportunity to use commercially available augmented reality headsets. Those are all over the place, the AR headsets. And then, we combine with commercial 5G partner like AT&T, and then we combine with a private 5G partner, and we are able to use that consortium, that industry teamwork and partnership for Airmen on the flight line at the 509th bomb wing at Whiteman Air Force Base to be able to push critical, secure, even classified data out to Southern California real-time to enable data-driven decisions. And ultimately, that logistics, that connectivity of pushing the envelope in an ACE environment is how we enable the MAF to explode into theater or any of our combat forces as we talked about.

And so, I think it's really critical for all of us from a mindset perspective... ACE starts with Agile, is its first name, and agile can mean a lot of things to a lot of people, and our Airmen and Guardians are absolutely up to the task, but I think there's also some mindset and culture about being agile and what we need to do differently. Ron was talking about the multi-capable Airmen, and General Hogue was talking about all the different perspectives that we need to bring to the fight from industry. I really think diving into agile and that mindset is going to be critical and that's what we as industry need to do to partner with our customers, to partner with the warfighters. And I use that example of the flight line of the future and what we in industry are trying to do.

**Maj. Gen. John Klein:**

Great, thank you. Before we get to closing comments, we've got a little extra time here. I want to throw this one at you and raise the discussion to this question. We've been doing ACE and talking about ACE for four or five years now, right? Gentlemen, and I'd like to get an answer from all of you please, what would you say is missing from the conversation on what's required to enable ACE? We'll start with Ron.

**Ron Fehlen:**

So, I hit on it a little bit I think earlier, and I'll do my best not to restate too much here, but we're talking about flowing in quickly, setting up quickly, being agile, and being able to maintain the commanding... Or, execute the command and control mission. I still believe that it relies on a survivability from a resiliency standpoint to enable some level of MCON. And as well, again, simplifying the training, simplifying the systems, so that you can simplify the training. I think, those are keys. And, from my perspective, as far as things that are in the conversation, but I don't think have the prominence. The last thing honestly is the architecture. And I know that now we're going from data to now a technical architecture, but it is something from an industry's perspective we start to look at is how much bandwidth do you need forward if you're doing most of the processing in the rear and pushing it forward.

There's a lot of different concepts at L3Harris, we've been working on a couple of them to include how do we enable sensing, and I'll say, initial decision-making at the front line, while being able to then transition that over resilient links back to more large-scale fixed site C2 center with a lot of processing to do some of the artificial intelligence. We did this primarily in the electromagnetic spectrum to be able to understand the threats that are around you to be able to then send forward not only awareness, but potential solutions for it. So I think those, how do you push that architecture in? How do you decompose that across the different elements to make sure you have, I'll say, the right level up forward without being too overburdened to the group forward, as well as have the capability, and then the connectivity between the two in the rear?

**Maj. Gen. John Klein:**

Great. Thanks, Ron. General Hoog?

**Lt. Gen. Stephen L. Hoog, USAF (Ret.):**

So, I'll take a different approach, because I think we've all established that comms is key. If you don't have that, nothing happens. So, let me ask you this, how many people have flown on another nation's military aircraft? Flown on an Australian C-130, German this... We're not going to war by ourselves. And we're not going as the Air Force, we're going to go with our Marine and Navy counterparts. So, as you are keenly were standing of a base, back in my day it was 101,054 Airmen and 820 short tons. On an 8000 foot strip to stand of a base that can do combat ops. But today, the Marines have a concept for



Expedition Advanced Operating Bases. We have our concept. We have systems for example, on the Lockheed F-35. You can pull parts from a Marine unit, you can pull parts from an Australian unit. We used to do ample gain in Europe, where we would cross-service each other.

So, I think, one of the things we need to do is... And oh by the way, we're not going to stand up a base that doesn't have air defense that goes with it. So if we're not practicing connecting comms with our army counterparts, with your initial contingency response group, we're going to be a day late and a dollar short. And everything it takes to stand up that boss-eye infrastructure, that typically we just wave our hand and say, "Okay, it's up." It all starts with that. If you don't get the boss-eye right, there's nothing to fall in on, there's nothing to be agile from. So, your challenge, and as General Minihan said, is to flow in and set it. And I think we need to have cross-service, cross-national discussions on how we can do that better than we are today, leveraging that common technology.

**Maj. Gen. John Klein:**

Absolutely. And I can tell you, just working with some international partners, and we saw this in Mobility Guardian, they're all in on Agile Combat Employment. So, we need to bring them into the fold and develop enabling capabilities that go along with Agile Combat Employment together. So, for you, Pat, what's missing from the conversation?

**Pat Hund:**

Yeah, this is tough to go last on this question, because I love the General's discussion about the joint fight, and frankly our allied nations and partners, as well as Ron hit on that data and the architecture that connectivity and comms that are so critical. So, I'm going to take a little different angle, and say what I think is missing, and this is an industry that we can and need to do better on, is planning for proactively building sustainment of our weapon systems, our platforms, whatever that may be at the beginning. If you look at an acquisition life cycle and you have EMD or that design development phase, it's critical that you have maintainers, and logistics engineers, and you're looking at reliability, maintainability, availability up front in that design. And so, we can do that in our newer platforms or the technology. But as we're modernizing those capabilities and weapon systems that we already have that are going to frankly utilize and enable ACE, we need to be thinking about that up front.

How do we fight to stay in the fight? And I really believe that is building the sustainment in at the beginning, not thinking about it toward the end as an afterthought and having a lot of our maintainers and logisticians need to work through it. Let's have their voice and their inputs in up front. If we're going to modernize an aircraft, maybe we should go out and hear on the flight line what the top 10 maintenance drivers are for a certain component or LRU in an aircraft, and then design and develop that into the solution and the technology up front. So, that's what I would challenge that's maybe missing a bit that we could do better and need to do better in industry.

**Maj. Gen. John Klein:**

Okay, great. Great. Good discussion. Okay, we're nearing the end. So, lightning round here, 45 seconds or less for closing comments from each of you. Ron, go ahead.

**Ron Fehlen:**

Hey, so just first of all, thank you. I think you had the right people up here to have the conversation from different perspectives. I see that came across. I won't harp on connectivity anymore. But I do agree 100% with the point on interoperability across both the coalition and across our own services. Really appreciate the time and I'd ask, right, we talked about, hey, feedback, lessons learned from exercises.

Well, I would love to join you on the exercise. The likelihood of that happening anytime soon is small. But I will be up here. Would love to get any of that feedback that you think industry needs to take advantage of. Thank you, sir.

**Maj. Gen. John Klein:**

General Hoog.

**Lt. Gen. Stephen L. Hoog, USAF (Ret.):**

Yeah, to piggyback on that, we can only fix what we know about. And, there was a program called Day in a Life, to your point, you'd go out and you'd spend three days at base X and they'd tell you everything from this piece of support equipment doesn't work, to Y is a meantime between failure on this part X, or why do I have to do this? Or why does it take 30 hours to cure something, right? So that feedback is key. But I guess what I want you to all take away is industry is here to help solve your problems. We won't be there shoulder to shoulder with you necessarily, but we will be back there and reach back. We will be trying to anticipate anything we can do to help train better. Anything we can do to reduce your burden by better having better tools, meantime between failure improvements, all those things. That's what we're committed to do. So the better we understand your concept, the better we can all support the monumental tasks that you've all been given. Thanks.

**Maj. Gen. John Klein:**

Attila, how about you?

**Pat Hund:**

Yeah, well said gentlemen. So appreciative, so humbled frankly to be here in front of and with all of you. This is a great discussion and I'll just echo the comments that were made. We industry, we might be wearing a different uniform, but we are 110% in. So, what we can do to assist whatever your toughest challenges are, I would say, please bring those to us. Let us be collaborative, part of that process proactively, and then we can present opportunities or solution space that you make the decision, and then take and deploy and employ. So, really appreciate the opportunity, sir. And a great discussion. I'll stick around afterwards if there are any specific questions that I can address.

**Maj. Gen. John Klein:**

All right, thank you gentlemen. I will echo that and say this has been an absolutely wonderful discussion. We have much more thinking and enabling to be done with ACE, right? But we're on that path. And, we can't do that without our industry partners. And we appreciate the relationship, and you are shoulder to shoulder with us in terms of developing all the tools necessary for Agile Combat Employment. So, ladies and gentlemen, please join me in thanking our panelists. This concludes the ACE Enablers panel. Thank you.

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