Voiceover:

Ladies and gentlemen, the Executive Vice President of the Air and Space Forces Association, Major General Doug Raaberg.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Thank you, and good morning. The topic of this session is accelerating acquisition. Our Air and Space Forces of today are operating some of the oldest equipment in our history. The forces are smaller and inadequately funded to meet the requirements of the National Security Strategy. For the Air Force, it's now a balance between capacity and capability to deliver operational capability to the war fighter. Time is not on our side. We must modernize our forces to keep pace with peer adversaries. Accelerating acquisition is key to challenging our strategic competitors. With us this morning is the Honorable Andrew Hunter, Assistant Secretary of the Air Force for Acquisition Technology and Logistics. Please give him a warm welcome.

And in tight formation with him is General Duke Richardson, Commander of Air Force Material Command. Welcome.

Gentlemen, set the stage for us. If you think of the Secretary of the Air Force's Operational Imperatives as the Department of the Air Force's guide for moving fast in the right direction, and the question is, how are you implementing and institutionalizing the processes in Air Force acquisition? Mr. Hunter?

Hon. Andrew Hunter:

Well, thank you. It's a real pleasure to be with everyone this morning. I just want to start by saying that I've been watching the visual that says, "This is a professional development event for every event," and it kind of got me thinking that I've got to be really professional today in order to live up to that standard. But, the good news is I have, as my partner in this discussion, the premier professional in the acquisition enterprise, Duke Richardson. I'm really pleased to join you, Duke. I think you'll hear, as we go through this conversation, that we are linked in every way that we can find to be to drive as partners, to lead the acquisition enterprise towards delivering the capabilities that the Force demands that the secretary and the chief have given us the mandate to produce. That really comes down to setting priorities.

My last job in the Department of Defense, prior to having the privilege of coming back to join the Department of the Air Force earlier this year was as the Director of the Joint Rapid Acquisition Cell in OUSD. We were working on operational needs and fulfilling those needs, at the time that I was in the job largely for Iraq and Afghanistan. What I learned from that experience was it was all about setting priorities, and about the senior leadership focus and drive on those priorities that made that effort effective. With the operational imperatives, which have generated a strong sense of urgency for our acquisition community, we're looking at delivering capabilities in the mid to late 2020s that are critical to success in a high intensity peer-to-peer competition. We know that we need that sense of urgency, that sense of focus, and the ability to prioritize and focus on the most important issues and what we have to deliver to get the job done.

For my part of the acquisition enterprise and AQ, I've been working to set priorities, I just want to briefly mention what those are and turn it over to Duke. I think we're really focused on the discussion part and getting into the Q&A, but let me just let you know how I've been thinking through priorities for AQ and for our workforce. I'm working closely with Duke in doing so because I think we can really amplify the effect of our efforts when we're working closely together. I've got sort of three broad areas of priorities that we're focused on. The first is delivering operational capability to the war fighter. That obviously

includes focus on the operational imperatives are absolutely critical and one of the top main thrusts of how we're going to deliver operational capability to the war fighter. It's critical to me that we do that in close collaboration with the war fighter, working with our major Combatant Commands to make sure that we understand what their requirements are and that we're delivering on those and not just taking a path that works for us in the acquisition community.

The second big aspect of this is our nuclear modernization, absolutely critical, and a top mission for our acquisition enterprise, to carry that forward successfully and to sustain the nuclear deterrent as we're modernizing it. Then, the last is on sustainment of our capabilities because we can't meaningfully deliver operational capability if it's not sustainable, ready, and able to go into the fight. My second major focus area is shaping the innovation base for strategic competition, and very much in concert with what the National Offense Strategy and National Security Strategy identify as a strategic competition the United States is engaged in with a pacing competitor in China. I think we have an incredible opportunity in the Department of the Air Force to lead the way in shaping how we prepare for and how we carry out strategic competition, not only in the military sphere but in the economic sphere by working with the innovation base and a wider range of partners.

We're working there on how we build together our capability development pipelines so that we are effectively leveraging S&T to generate the kinds of technology advances we're looking for, and at the same time, connecting that to the military capability developments that we're looking for. We want to expand access to innovative suppliers on the industrial base and work with small businesses and new entrants. We want to protect our supply chains, because again, just like with sustainment, there's no capability if you can't sustain it. We're not going to be able to deliver capability if we can't make sure that we have resilient and secure supply chains. Then, the last major focus area for me is transforming the acquisition system for the 21st century. How do we make sure that the way in which we go about acquisition is actually fit to purpose for the kinds of capabilities that we have to deliver?

In many cases, they're incredibly software intensive. They may not lend themselves to the kind of industrial models of acquisition that were the foundation for the acquisition process back in the sixties and seventies, but we have to have different business arrangements and different processes to be successful today, to be much faster, to be more iterative, to be able to deliver increments of capability in weeks and months rather than in years. A big piece of that is the digital thread, something that my predecessor put a lot of effort and great thought into. Duke's team has a number of major initiatives there with the Digital Transformation Office, and we are absolutely doubling down on those and going to make sure that we carry that out successfully. I look forward to the engaging of the discussion and having a talk about how we can make sure that we focus on our priorities in order to accelerate acquisition.

Maj. Gen. Doug Raaberg, USAF (Ret.):
Thank you. General Richardson?

Gen. Duke Richardson:
Well, yes, I'm going to echo what Honorable Hunter said. I'm really thrilled to be here. This is a really a fantastic topic. If you do a literature search on it, there's no shortage of thought, ideas, and studies put into this area. I consider myself a student in this area. I like to read all those studies, in fact, I have a lot of them still, and try to look for themes, what's changed, what's different. The world's different than it was 10 years ago, 20 years ago, there's a lot that's very similar in terms of how we have to get our job done. I'm really excited to be teaming up with Honorable Hunter. I think having been a PEO for four times, I'm on a different area now and it's really up to the secretary and Honorable Hunter to kind of

determine the ends, in other words the secretary likes to talk about what direction we should be going, and so that's not my job anymore.

My job is not to determine the strategies and even the priorities for the programs, my job is more of the organized train-and-equip variety, so much like Air Combat Command, we'd organize train-and-equip forces to go off to a Combatant Commander to fight a war. I consider that very similar to what my job is, and that is basically to organize train-and-equip forces, acquisition war fighters if you will, to do Honorable Hunter and Honorable Calvelli's business, and so that's really what I'm about. I consider myself more the ways, so Honorable Hunter is the ends, I'm more about the ways. That's what I've been thinking a lot about as I've stepped into the job, tomorrow actually marks about 100 days into the work. You can expect Honorable Hunter and I to be partnered very, very closely going forward, and that won't change. We committed to each other that we would do that, and I think that's what you'll expect the whole time that we're together.

To the question at hand, General Raaberg, back to the studies. Of all the studies, there's two people that I tend to always go back to, and the first one is General Pawlikowski, and she always talks about you really just need three things. You need a program manager with what she called godlike authorities, and I think she's really talking about limiting oversight and questions, I guess. Then, the next thing you need is sharp people. The third thing you need is money for risk. That's an interesting recipe, if you think about it. The program that quickly comes to my mind is B-21. I think the B-21 program has got all three of those elements in it, and heretofore it's doing pretty well, and so we're pretty proud of that program. Another one, of course, is I would certainly be remiss if I didn't talk about Secretary Kendall... he wrote a whole book on it called Getting Defense Acquisition Right.

He talks about four things. He talks about setting reasonable requirements, which for me kind of hearkens back to Kelly Johnson, the father of Skunk Works about hey, each project should probably only have a single miracle, don't throw two in there. It's more than just that, it's other things. The second thing that he said was, "Put professionals in charge," which is a lot like General Pawlikowski's one and two. The third thing he said was, "Give them the resources they need," and I think for me that means the personnel resources, the organized train-and-equip acquisition war fighters that Honorable Hunter needs to be successful. The fourth thing is provide strong incentives for success. I think a lot of folks in the audience will probably think about things like contract incentives, and it certainly does include it, but for me it really is about incentives for the workforce within Air Force Material Command. I'm going to be giving that a lot of thought, about how I incentivize the government workforce, because I know Honorable Hunter will be thinking very much about how to incentivize industry.

But at the end of the day, I start thinking about what is different and what's not different, and really it comes... there's a couple things that are just not different and that is the need for a competent workforce. That's both leadership and the actual workforce below the leadership across all functionals, and I won't list the functionals, everybody knows what they are, but I'm going to be very focused on that. The second one is this need for systems engineering. Secretary Kendall about that, I mean, the requirement for systems engineering is not going to change, I don't expect it will, and so we're going to be pretty focused on that. In a similar fashion that Honorable Hunter just went through his requirements, I'd like to very quickly go through my what I'm calling Four Lines of Effort. The first one is deliver integrated capability, every word is chosen for a reason, especially the word integrated, and so we want to make sure that the work of the six centers that comprise AFMC are integrated across the centers but also inside the centers so that each PEO is not operating like a silo.

Also, it means making sure that the programs that we deliver to Honorable Hunter are also integrated across each other. I think things like ABMS and the announcement of General Cropsey, that will also help in that regard. The second one is strengthening the team. This is where, Honorable Hunter, I really

got to double down for you. That is recruit, retain, reward the team and train them. You mentioned digital, and so there's a very large effort, I hope we can go into that a little bit more later, about what we're doing to try to make sure the workforce is trained in these new techniques. We do think that digital's very likely not going to... it probably doesn't require less people, in fact it might even require a few more people at the beginning. I don't know that it's going to save necessarily a lot of money.

I do think it has a real opportunity to accelerate what we do, and not just for the initial delivery but in perpetuity. When we get into the product support aspects of it, if we built that digital foundation, we also think that it will actually allow us to accelerate all along the life cycle, especially as we get into mods and product support. The third one is this idea of revolutionizing our processes. I mentioned part of my job is to organize, train, equip. Organize, train, and equip includes the processes that we use to deliver work on these programs for Honorable Hunter. Revolutionize was chosen for a reason, it was meant to be provocative, to kind of challenge ourself. That's really where we're going to dig in deep on this idea of digital material management, and that is where we're not going to just digitize current processes, we're going to look at the digital tools to see if we can actually reinvent the processes that we use.

We will always have the process. Systems engineering is not going to go away. [inaudible 00:14:44], those things are not going to go away, but how we do them, using the digital techniques is what's going to be different. The last one is what I'll call amplifying a war fighter culture. I'll use the term engines metaphorically. Engines don't turn without every AFMC member doing their job, and that's more of an internal probably thing, just the AFMC, but I want to make sure the AFMC workforce feels very connected to the tip of the spear. Those are the four lines of effort. If you are taking notes on mine and also Honorable Hunter's, you'll notice there's very good alignment on those, and where they're different, I think it makes sense. My strengthening the team really is his workforce that he's using, and then he's got one on the industrial base, and so where they're different makes complete sense and where they shouldn't be different, they're not different.

We've been trading these back and forth and so, again, I'll close just by saying that the teamwork is really super strong. After three months, I'm just really excited to see what we can get done over the next couple years.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Mr. Hunter, do you want to add to that?

Hon. Andrew Hunter:

Well, I do want to double down on what Duke said about the workforce. Workforce is critical, I actually mistakenly didn't include that when I talked about transforming. Our third focus area definitely includes a focus on workforce and making sure that the workforce that we have, which is incredible, is fully equipped to carry out this transformation, certainly on the digital piece as well as on the business model, two critical areas where we've made a lot of progress and we've still got work to do. I do think it's a key piece, and that the Duke talked about what are we really going to get as an advantage from doing this digital thread, and what I am seeing in our programs that have been implementing this is a much higher degree of maturity earlier in the design process. As we get I think a little further in the discussion talk about how do we make trade-offs so that we can deliver at pace and achieve acceleration, a lot of it is making informed choices. That design maturity is I think a critical enabler.

Maj. Gen. Doug Raaberg, USAF (Ret.):

I think my next question's going to pert the ears of industry. You've talked about one of the focus areas, your top one there is delivering operational capability to the war fighter or the last tactical mile, putting

in operational parlance. But as you both focus on literally digital acquisition, how are you engaging the industry partners and your own workforces to embrace that transformation, especially in digital acquisition?

Hon. Andrew Hunter:

Well, one of the things that strikes me as you look at the operational imperatives is several of them, if not all of them, cut across a whole range of stove pipes. We've developed a system which is highly specialized and it has stove pipes, and in some cases for a reason. You build up the expertise in a sophisticated aircraft design, sophisticated weapons developed, in sophisticated mobility solutions and you leverage that expertise and you create a center or PEO and someone that really is able to leverage that expertise, get the best evidence for you, work with the suppliers, many of whom we know well and know us well. There's power in that, right? There's a reason why our system has operated that way, and it's been very successful. But when you look at the OIs, they really force us to cut across those stove pipes.

The premier example is the one the secretary discussed yesterday, which is C3 Battle Management. It touches every single system that we operate, across every domain in which we operate. It requires coordination among tens of PEOs and hundreds of program managers in order to actually be successful. That kind of organizational complexity is not something that the AQ enterprise was really established or has processes in place to handle. We saw that the secretary identified that problem, it's a very significant problem, so it's a technical problem of how do we set standards and interfaces, and then there's the organizational problem of how do you create the institution that's capable of developing those standards but also distributing them across the entire enterprise, and if you will, enforcing them? Then, how do we support that PEO in being successful in carrying out the direction across all the elements of the acquisition process to include requirements in budget, none of which are under any one single entity below the level of the secretary?

It takes that top-down leadership focus, which I think self evidently from the remarks that we heard yesterday that we have, and which I'm committed to working on with Duke, with Frank Calvelli, with the CFT and others to make sure that we are able to not just admire that problem of organizational complexity, but manage it, tackle it, and overcome it. To me, that is really illustrative. There's a reason why that announcement was the announcement for AFA because it is an example of us committing to tackle a really challenging problem, one that we haven't always succeeded in solving in the past, in fact, our track record there is not sterling, but this time we're going to take different approaches to get after it, and likewise with industry... Here's the connection to your question. Likewise with industry, the traditional model is, okay, we'll pick a prime, we will operate on the assumption that we've got primes who can solve the problem that we're asking them to solve.

I think the record shows that when it comes to some of these problems of enormous technical and organizational complexity, they're bigger than one company can really address on its own, and so you need a team approach. That's how we're approaching several of these initiatives, including C3 Battle Management is we are definitely going to be looking for expertise, we are looking for industry partners who can manage large parts of the problem, who can integrate, who understand systems engineering, who have systems engineering expertise, we need that. But, I don't believe there's any single company that has everything that we're going to need to be successful, and almost by definition there isn't, and so we're approaching it with that idea of building an industry team to support our efforts.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Especially in a family of systems acquisition environment. General Richardson?

Gen. Duke Richardson:

Honorable Hunter just said something interesting about how the OIs are really crosscutting. He mentioned the C3BM, certainly is a... I mean, that one's clearly a cross-cutter, but really all of them crosscut. Back to focus...by the way, I don't know if everybody picked up on it, but the first priority that we both have is deliver... I don't know if anybody noticed that, but that wasn't by accident. We know that our job is to actually deliver, and so that's why that's the very first thing. Going back to the integrated, we've got to work towards getting the work of the PEOs integrated across all of them. We can't have exquisite stove pipe systems that don't talk to each other anymore, so that's why we're also focused on enterprise solutions. Really, there's a lot of buzzwords I guess that roll through my head daily, but integrated is certainly one of them, and enterprise solutions is one.

But, to answer your question about what we're doing with industry, I go back to what General Brown said on the stage yesterday about Mission Command. What I'm trying to do is provide Commanders intent to all 89,000 people that comprise the Air Force Material Command, give them the tools that they need to be successful, tools and training, not just... I'll talk about tools in a second, and then just stay at it with a steady drum beat. I think where I spend my time is going to tell them where my priorities lie, and so I want to make sure that I focus my time, there's only so much of it, in this space, and then try to limit the amount of distractions that I get. I think that's where the workforce will end up spending their time.

The workforce, I think that commander's intent, giving them the tools and training, and then empowering them, that's really what the chief's talking about with Action Order B. Not just empowering them, but equipping them so that they can be empowered. The tools and training, there's an overlap here between we're setting up... by the way, this work is not finished. We have a long way to go. We've got a digital guide website where we're sort of parking a lot of the stuff, the workforce is getting up to speed on some of the tools. I won't go through all the class of tools, but suffice to say there's a bunch of them. Honorable Hunter mandated one tool, and I think that's all he's going to mandate. It's called Team Center, it's the product cycle management tool, and it really for me is the quarterback. That's kind of where we're going to house a lot of the data, including things that might have intellectual property stamped on them. We'll have to come up with ways of making sure that we can protect that intellectual property at the correct boundary.

When we queried industry on this topic, it turned out that they each kind of use a different set of tools, and so we decided maybe it wasn't smart to mandate a set of tools. We're kind of working through that right now, sort of prime by prime to figure out how to make that work. At the end of the day, back to my job, organized, train, equip, these things have to get placed into requests for information, requests for proposals, model contracts. They've got to get into contractual vehicles so that we're clear and we're not just doing happy-talk, and so that work's also going on. We've made a lot of good headway. I should say, we've got some Pathfinder programs out there that are kind of doing it on their own. I think that's great at first because they're leading the way, so think about NGAD, GBSD, even B-52 Serb. We've got a bunch of Pathfinders out there, and I think what we need to do is kind of look at the work they're doing and get the best of breeds.

You're seeing that PO Weapons, General Bartolome is doing that down at Eggland with this weapon open system architecture, and so now we're coming up with ways of, hey, if you're going to build a new munition, it has to be WOSA compliant. When we're in source selection, we're actually going to evaluate how open it is and you're going to get graded on it. To answer your question, we need to continue collaborating and teaming with the industry and then we need to actually inculcate these ideas into the contractual and the business processes that we use. I will tell you, if you're a senior leader out there, I am not an expert on digital material management. I am also a student, so I am working to learn as well.

It's incumbent upon... the younger folks in Air Force Material Command are super duper excited about this. Folks at the higher level, like myself, are super duper excited about it.

But, we got to get what I consider the enabling level of leadership, all the folks kind of in the middle. You might call them middle managers, to me they're the enabling levels of leadership. We've got to get them super excited, and I think then we're going to be cooking with gas.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Can I ask just more of a side question because both of you are starting out together, this is an incredible relationship and a real fighting team, but I'm going to touch on amplifying the war fire, your culture, because you both are now developing the culture of acquisition for the war fighter, especially as the Department of Air Force is enforced provider to the Combatant Commanders, and all I can see is from conventional to nuclear, you have a big job. The real question is just in the initial phase, are there opportunities you've seen already just in going through the enterprise with your focus areas themselves, those opportunities that presented themselves?

Hon. Andrew Hunter:

Well, I've been enormously impressed by the professionalism, the skill, the knowledge of the workforce that is here. I've been just absolutely delighted to be able to come in and lead this group. It is phenomenal. As Duke mentioned, we do have Pathfinder programs that have been out there literally forging the path on how do we actually do a business arrangement with industry that brings in both traditional primes and tech companies, non-traditional, small business who each bring their unique skillset and we can get them engaged in a high-end aircraft design problem, which historically we would've said, "Hey, let's get the two or maybe three companies capable of building such an airplane together and we'll have a competition, we'll pick one, and then we'll give them the development resources to go build the airplane." A fundamentally different approach, and that is something that was designed by the team that we have is being executed, they've got digital thread, they're out there absolutely making it happen on a daily basis.

Then, as people who have been engaged in that effort, reach the point in their career where they're ready to take on more responsibility, we can take those folks who've seen how this can be done, how it works, and make them program manager in a different area, they can spread that knowledge. Others can come in, see the program, and bring that back to their program. I talked to some of our material leaders I think last week and said that all of you talking to each other is probably the biggest single thing that we can have to help our enterprise move forward on these things, so all of that's in place.

I really see my job is to come in and be, as Duke said, be the enabler at my level, hopefully I can be the senior level enabler and make the connections to the secretary, to the chiefs to get whatever direction, whatever authorities that we need... in most cases, the authorities reside at the assistant secretary level, I can execute them, sometimes we need a little help on things like... well, I wasn't able to create a new PEO all by myself, I needed the secretary's help, I needed Duke's help to make that happen. That's what we can bring to the table. I think the team is ready to go, they've got the right skillsets and they're motivated, and it's really incumbent on us as I see it to bring what they need to make them successful at it.

Maj. Gen. Doug Raaberg, USAF (Ret.):
That's insightful. General Richardson?

Gen. Duke Richardson:

I would answer that question in two ways. The first one is I think the obvious way, and so we talk about the collaborative combat aircraft, a huge opportunity. I mean, it goes without saying. Not only will we apply digital material management techniques to that program from the very start, but in terms of how we... I mean, just across the board, across all the centers, how we test it. I think that's pretty pervasive. But then, the interconnectedness of the CCA, so for that construct to be successful, it really goes back to this whole C3BM thing, all this stuff. The environment that we're in now and going forward, we cannot afford cylinders of excellence anymore, and so rather than each PEO optimizing a single system and basically cutting off all barnacles, they're going to be connected. I do think that we can optimize the whole, but it might mean that we have to maybe sub-optimize certain capabilities because certain capabilities can't work on their own anymore, and the secretary's made that crystal clear.

The second way I would answer that is that when I look at all six centers that comprise Air Force Material Command, huge opportunities. If you look at what's happening in the lab, we're applying digital to all six centers, even installation and mission support center. We're making a digital twin out of tindle as we rebuild it, so this cuts across everything. The sustainment center, the way we do heavy maintenance in our three organic depots using digital workflow techniques. We have a long way to go, digital depots is part of our long term strategy for the depots. Clearly, it applies to LCMC and Nuclear Weapons Center. Test center, the same thing, we're doing a lot of work to figure out how to... one example that I would give you is this thing called the Joint Simulation Environment, which we started that program because it really has... it's needed to essentially finish IOT&E for the F-35.

What we're learning is that it has applicability much beyond F-35 and we're starting to look at that could be used for development tests for other programs, and so you can kind of see the Air Force Test Center is really going down this road as well, not just that but training. The JSE has got huge training benefit to it. Then of course, I guess the trifecta would be capability development. When we start, I don't know what OIs are coming, I don't know what subset OIs are coming, but the ability to use that tool as a way to basically model and simulate ideas I think is going to be very powerful. Opportunities abound, Doug, I mean, I don't know there's a shortage of opportunities here. Back to Honorable Hunter's point, I think our challenge is going to be the priorities. We've got to not get distracted by all those opportunities and try to figure out which ones we really want to get after.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Fast question, the secretary started off yesterday morning, he said, "China, China, China." With China's seeming ability to move faster in the innovation and technology realm, how are you both better connecting your S&T or science and technology efforts to war fighter needs and ensuring you can meet emerging requirements? Mr. Hunter?

Hon. Andrew Hunter:

There's no doubt that China has moved incredibly fast in a number of areas, and honestly it's quite impressive and daunting that when we say that China's the pacing threat, the pace is fast. Having said that, their requirements are not our requirements, they're fundamentally different problem sets that they're forced to have to solve, and then there's others that we're forced to have to solve. We obviously are focusing on what our requirement sets are and then working fast and hard to get after those as fast as we can. I think the OIs created the infrastructure to allow us to do that because when you focus on a specific operational problem, I think it enables you to do that prioritization when it comes to setting requirements. The secretary has said, "The timeframes that we have to deliver capability by are really short, so we have to be willing to take risk."

But as Duke said, you want to be judicious in taking risk, you don't want to bet on we can achieve three miracles, maybe you pick one. I just think this construct gives us the disciplined approach that will allow us to make those good trade-offs. Then, as much as anything, it's the process. It's the way in which the OIs were formulated with the requirements community and the acquisition community doing kind of, if you will, the initial scene setting, and then we engaged the resource community at the same time to make sure that we would be resourced appropriately to achieve these initiatives. Incredible work's done, it's really set the stage for us and created the right framework, but it's yet another task to turn that into programs, into programmatics. Saying we've generally got the right requirement, which I think is correct, now we've got to say, "How do we turn that into a technical specification that we can send to industry and get bids on, evaluate those, determine risk, make good choices in setting our specs and then in managing programs?"

We're going to have to keep that collaborative approach. I think being very closely linked with the requirements community, with the MAJCOMs every step of this process, because in some cases the risk may be that maybe we'll bet on a second miracle and just say that the payoff will be so huge, if we succeed then it's worth taking what would be a substantial risk. In other cases, the risk may be ultimately the OI may have originally envisioned one kind of a capability, but as we get into it, we say, "We only want one miracle here because we got to have something," and so in order to deliver on time, we may not do everything that was originally envisioned, but we'll work closely if we were to make such a choice with our operators to make sure that's the right choice and that we can still close the mission threat.

Maj. Gen. Doug Raaberg, USAF (Ret.):

General Richardson, what message would you hand your counterpart?

Gen. Duke Richardson:

You talked about the S&T here. General Pringle... I got to give a shout out to General Pringle, our lab commander, doing really great work and leading a fantastic team. She's just an authentic leader and is very quick to always give credit to her lab for the work that they do. We've got three processes. I know process is kind of like a dirty word, process. But, we got three that I think are worth highlighting very quickly. One is called the TASR, Technology Acquisition Sustainment Review. Honorable Hunter, myself, and the MAJCOM Commander meet once a year. We do that for each MAJCOM where we actually go through technology acquisition, IE acquisition programs of record, and then sustainment, the product support aspect. We go through that once a year. That's one thing that's worth mentioning.

General Pringle at the lab has created this process called the war tech process, where we team up war fighters, technologists, and PEOs to get after problems and things that we should be looking at. That process has spawned a whole bunch of laboratory work. It's also spawned some OI recommendations, not all of them, but some of them. I think that's working really well. The third thing I would mention is we have an experimentation and prototyping campaign where we get together with A5, S5, AQ, SQ, where we talk about how to spend... we have a whole separate pot of money for experimentation and prototyping, what projects to go after that would inform an OI, and so that work's been going on. Those are the three things that we are doing now. This is a very long topic, so I'll probably have to stop because we're going to run out of time.

But suffice to say, I think General Pringle's got the lab oriented... historically the lab was really... tech directors, for example, the Air Vehicle Directorate, which is really good domain expertise. She has created... I approved it, she recommended it, I got to approve it I'll say, this Integrated capabilities director where it is really a cross cutter organization that's led by Mr. Chris Ristech to look across all the

tech directorates to inform and be very closely linked to the war fighter to make sure the lab, our S&T work is directly linked to the war fighter. I gave you three processes and then a little bit of a reorganization within the lab, which you may have picked up on, we announced it last month, but it's pretty major.

Hon. Andrew Hunter:

I'll just double tap on that.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Absolutely.

Hon. Andrew Hunter:

There's a buried success story in the operational imperatives, which is when we went out and surveyed the landscape for what were the things we could quickly bring to bear to solve these operational problems, we found a lot of technology that AFRL had been working on that was ready to harvest. I think I want to mention that. The other related piece is we also found technology that had been developed by other countries, think of the E-7 here, which we could quickly acquire. We found technologies that were available in the commercial realm. There's a real success story there and one we want to continue.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Well gentlemen, we're down to about two minutes. What final thoughts would you like to leave the audience? Mr. Hunter?

Hon. Andrew Hunter:

Well, let me just kind of return to the theme of prioritization. I think we've been talking the happy side of it, all the good things that we're going to do. I think it's fair to point out too that prioritization has a flip side of the coin, right? It's still critical that we divest the things that aren't fit to fight. We're going to have to probably be careful about how we apply resources to things that we don't see as directly relevant to the operational imperatives. That's a message that I send to my program managers, in some case, I may be managing programs that are not the priority, we still have to do them or we would've canceled them, but they're not going to be the priority. Then, the mission is how do you do what you need to do as efficiently as you possibly can so that you could potentially free up resources for the rest of the enterprise? Success there will translate to, I think, to success in their careers and success for the enterprise.

Gen. Duke Richardson:

I'll take a page out of that book, and I'll kind of finish where I started as well. A lot of studies in this area, nothing new under the sun here. How we do it is... I think there's some new stuff there in terms of digital material management. I think that's clear. Compute power, the software tools that are available to us, the Cloud allows us to distribute the workforce and work much closer together with our industry partner, that's never been done before. The basics of systems engineering haven't changed, and so we'll do that, but we're going to do it differently. I want to caution us though. There's this idea called polarity management. There was a book in 1992, I don't know if anybody's heard of it, that I'm reading right now. It's fascinating. What got me on this is this constant left to right, we take risk, risk averse, fixed price, cost plus, perfect solution, just get it out there.

We tend to ratchet between the two extremes and the book will go through a bunch of these things. If you think about it, it really in a lot of ways captures how we think, "Oh, well we need to do it this way." The premise of the book really is you have to manage the polarities. In most cases, the answer is not on the poles, it's somewhere in the middle. That thought runs through my mind because I can tend to be somebody who likes to run to a pole, and so capability versus capacity is another one. Differentiate versus integrate. Specialization versus enterprise. You heard me talk about enterprise, I have a propensity to want to do just that, but there's going to be times when we will need to specialize. I would just leave the audience with, this is complex stuff, there's probably not a simple answer. If you think you're going to run to a pole, you're probably not going to be able to do that because then two years from now you'll run to the other pole.

I think it's going to require all of us to be a little deeper in our thinking and explore these ideas. I'm really excited to lead the women and men of Air Force Material Command across all six centers. We have these six centers that are purpose built. I think they're built for this task. I hope it's clear that Honorable Hunter and I, and Honorable Calvelli, to the extent that we're able to and we overlap to partner, to team, and to get after this for our nation, because at the end of the day, it's not about any single individual or organization, it's about our nation. That's what excites me.

Maj. Gen. Doug Raaberg, USAF (Ret.):

Teamwork starts with the leaders, and you both demonstrate a very, very close coordination and formation. Again, thank you for your leadership. It has been absolutely incredible to hear your thoughts and share your insights this morning. Ladies and gentlemen, please give them a warm hand.