2015 Air and Space Conference

Strategic Agility in the Aerospace Nation

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MODERATOR: Ladies and gentlemen, welcome to this last symposium forum for the second day of our air and space conference. Pleased to have you here. The topic of our next session is Strategic Agility in the Aerospace Nation. Our forum speaker is the Assistant Secretary of the Air Force, Washington, D.C. He is the Air Force Service Acquisition Executive responsible for all Air Force research, development, and acquisition activities. Dr. LaPlante oversees the research and development, test production, and modernization program portfolio of over $32 billion annually. He's also responsible for the development and execution of policies and procedures in support of the operation and improvement of the Air Force's Acquisition System. He'll make a presentation, and then, if time allows, he will take questions from the

floor. We'll have wandering mics -- well, we'll have people with mics wandering to hand them to you. So, stand or raise your hand to indicate that you have a question. His bio is in our program, and we're very pleased to have him speak with us this year. Please welcome to the stage, Dr. William LaPlante.

DR. LaPLANTE: Thank you for the kind introduction, and you all are very brave to be sitting through -- how many of you are tired already after two and a half days of the conference? Can you imagine how tired this gentleman is right here? It's really something the stuff they have to do to pull off what's going on here and how transparent and how it looks all just seamless, and I'm sure behind the scenes or under the water the duck is doing this, because we also have the evening activities. Then we have what's going on right now. There's a press event going on right now with the Secretary and the Chief, and it all just works pretty well. So, thank you all for staying with you.

I think -- how many of you sat in on the

last panel session that was just here? Would you raise your hand? Okay, good. So, most of you -- many of you know as much as anybody can know about what's going on in KC-46 and F-35 today. You just got it straight from -- I'll come up with an animal, horse's mouth. Sorry, Duke; sorry, Chris. You just heard the situation with those programs.

I'll talk a little bit about my perspective on those programs first, but what I thought I'd do -- and some of you have seen me speak before -- I try to customize, if I can, the talk for the audience, and I pick a topic but I use the same framework of our priorities in acquisition. One of the reasons I do that if you're changing your priorities every year, you probably don't have a strategy. You know, you probably -- you know, you need to kind of keep the same priorities and keep the same focus, and so we have kept these more or less for about -- I don't -- it's over two years now, and these have remained correct, in my view. And what we have underneath each one of these is a set of focused activities and

metrics. We even have metrics of measuring ourselves against each one of these.

What you also want to make sure you do whenever you do strategy and every time you have priorities, is you always want to check alignment. Alignment. So, I have -- in my job, I have two chains to align to, two organizational chains. I have Frank Kendall, and up to the Secretary of Defense, and what Frank is doing -- and his predecessor, Secretary Carter, is doing in things like better buying power. We're very much aligned with that. If some of what you hear here, you find getting into better buying power or sometimes we're a little bit ahead of better buying power, running experiment. That's on purpose. It's on purpose, because we're aligned with each other. Frank knows what we're doing in the Air Force, that's special. We're doing better buying power in the Air Force.

We have another chain that we have aligned to, and that is the Chief and the Secretary's strategy for the Air Force around strategic agility. I'm sure

you've heard General Powlikowski talk about how it affects what she's doing as the AFMC Commander. You hear about what it means operationally in terms of operational concepts. Well, it means a lot to us in acquisition. So, those who have kind of -- where these priorities come from: they're aligned, they're consistent, and they're customized, okay? So, what I try to do -- every talk I give I try to put these up at the beginning, and then I talk through where they are with this chart up, then I flash it at the end to remind us what we're doing, and then I fill in whatever the material is for that talk. So, let me go through the priorities here. And, again, if you've heard me before do this, you know, I apologize. But, on the other hand, I think it's important to be consistent and up to date.

So, the first priority is to get the important programs where I can keep them on track. Sometimes folks called them, the holy trinity of the LRSB, KC-46, and the F-35. Those aren't just -- those are the big three. It's true, the big three for our

future. But there are also some other important programs to keep on track. So, I think what you just heard -- you just heard from Chris Bogdan and General Bunch and General Richardson -- General Bogdan, General Bunch, and General Richardson -- kind of where were are in two of those three programs.

I'll give you my summary, which is not nearly as -- probably as effective as General Bogdan's, but my summary of F-35 is that program, since it was re-baselined going back almost to 2011, has more or less hit every major milestone and every major target. And the other thing that we sometimes lose track or -- I'm not sure if General Bogdan said it in his talk, but the cost for airplanes is coming down. Okay, we're now at about $108 million, including the engine, on the airplane on the A model. That number is going to go into the 90s very quickly, and it's going to be in the lower 80s by '19. That is just going to happen. That's the learning curve that's going on. By the time you're at the lower 80s in '19, an F-35 airplane will be comparable to a

fourth-generation airplane. A lot of times that's lost. That learning is going on. Remember, as Chris Bogdan talked about, we're going to scale up and go to the ramp? That's what's going to happen. So, all the challenges he's talked about, all the momentum, that's his challenge and the things he has to scale. But what's going to happen is the price is going to keep coming down, and it's going to come down into the low 80s. But keep in mind, industry has a proposed plan to bring it into the upper 70s. So, we're publicly just saying the low 80s.

That's what F-35 is -- that's what's going on with F-35. You saw where it is. It's going to IOC. You saw what the challenges are. Frankly, the challenge in F-35 is scale. As we ramp up from the hundred and some odd airplanes that we have for all models to well over a thousand, the scale of everything changes: the scale of the supply chain; the scale of how we do things with the depots. We have global sustainment strategy. How do we get that normalized? How do we get the maintainers? That's

the challenge -- is the scaling. It's the scaling. So, I think you saw that. That's kind of at the hundred-thousand-foot level of what's going on in Chris' program. There's always drama in F-35, and I joke about it. Some of it is self-inflicted. But if you look away from the -- what I mean by "drama" -- there's always an incident. There's always the thing like the engine fire, fixing a helmet, or this or that. But when you take a step back, that's actually what's going on in F-35.

Okay, Tanker. I think you saw from what Duke said. Remember, remind everybody, Tanker is a fixed-price development program. Fixed-price development program. The contract was awarded, I want to say, in 2011. Getting the nod from the expert back there. I'll protect his anonymity, because he's shy, so -- and he was there. And I've heard from similar experts that if you would fast-forward into late 2015, which is where we are today, and said: What do you think the chances are that there would be no requirements change and no engineering changes? Fair

to say probably from some skeptics out there: Well, we've had none. We've had none. And we're going to have none. We're going to finish the development. We're not going to change one requirement or one engineering change, okay?

Why is that important? Because it's a fixed-price development. We are honoring every bit of the government's commitment, and the contractor -- in this case, Boeing -- is going to honor theirs. That means they're going to finish the job. They claim -- they say they're going to make REA. We believe it's very, very tight. And government's liability on the development program is fixed at 4.9 billion and not a penny over that for the development.

So, that's what's going on in that program. And, if you'll remember -- remind everybody -- the whole way the program is designed we have to adhere to every part of the contract. That's why things like the CR concern us so much.

Now I'll tell a little story about KC-46 just to give you an idea on how to protect the

stability of the program, how hard it is.

Duke, it's before your time.

So, when General Thompson was in Duke's job, it was the summer of 2013. It seems like a long time ago, but those of you who were civilians in the DoD remember that time very, very clearly. What happened during that late summer of 2013? Anybody remember? Furloughs. Do you know the civilians in the Air Force and the other services took essentially a 20 percent salary cut between July 1st and October 1st of that year they never got back. Do people know that? Do you know they had to work four days a week, eight hours a day, no more? Remember that?

Well, guess what was happening at the same time in KC-46. KC-46 was coming up to some critical milestones for CDR. I want to say it was -- late August of 2013 is my memory. And we had to meet CDR. Well, we were concerned that the government people to meet CDR may not be available if they had already worked their four days that week. So, what General Thompson -- now, you say: Well, so what, what if

they're not available? Remember, the government has to meet its side of the contract. So, if the government is not able to participate in the CDR and approve the series of CDRs, which isn't a single meeting, then contractually the contractor can say: Well, not on us.

So, what General Thompson did with Chris -- where's Chris? Chris, you mind telling me it's right so far? What you guys had to do is you guys had to shuttle people back and forth on airplanes to make sure we had a sufficient number of government people to approve the CDR in the meeting so we didn't have any drop in what the government's contractual requirement was just because of that furlough. That's an example of what you have to do in a program like this to keep it straight. And so why things like furloughs, CRs, uncertainty, just, you know, doing fixed-price development in that environment and pulling it off. It's quite sporty. And to the credit of Duke, the credit of Chris, credit of J.T. Thompson, to the credit of the Boeing team, they're doing it so

far. They're doing it so far. So, that's what going on in KC-46. I mean, you saw the details of what Duke said and Duke talked about when things will be flying and what's going on.

Okay, LRSB. LRSB. Very soon, very soon we're going to be done with the source selection. What I always tell people is if you read in the press, somebody -- and I've said this to the press -- somebody who says when the source selection is going to be done, they're not -- don't believe it other than if somebody says "soon," because the people that actually know what's going on are not talking, and people that are talking don't know what's going on. Okay? So, just remember that.

So, listen to what I say. It's going to be done soon. Everything is going extremely well. We're very, very proud -- we're very proud of the industry teams, we're really proud of the government teams. This is just -- it's going to -- it's being done correctly. I think what you'll see is you'll see the risk reduction on this program that's been going on

for the last several years under this contract and, based upon earlier work, will have brought the level of designs to a maturity that is going to be almost unprecedented. I think what you're going to see is you're going to see very well thought-through fixed requirements that were very well established. Sound familiar? And then we're going to see a very good execution plan. So, that's what's going on there. I hope that we'll be able to say more as we get closer.

But let me just stop there on LRSB.

So, then there are a couple of other new programs that we're trying to get started that are high priority. We're working hard to get the JSTARS Recap into a milestone decision, what's called Milestone Decision A. In fact, we have a meeting I think Friday on that in the Pentagon. The hard part on that program is more just getting through kind of the budget uncertainty and the requirements uncertainty in the Pentagon. In the Air Force, the Air Force support for JSTARS Recap is very solid. We've got the funding for it. But it's in this budget

climate getting through all of the stuff you have to get through to get to Milestone A. But our idea there in JSTARS Recap is -- this is going to sound familiar -- get two or three contractor industry teams on contract doing risk reduction; get up to some type of a mature design for all of them -- sound familiar? -- do a down-select for the EMD; and then hopefully move fast. Move fast.

You saw that the Secretary announced something called "should schedule." We announced the pilots of it being three small ACAT ones but important ones. Well, there's no reason we can't start using at least that philosophy in how we do acquisition on even our bigger programs. I reminded Frank Kendall on the discussion we had about this that he's actually done this before. He did this on MGUE. The MGUE is the M-code of cards or whatever that we're doing, basic prototype and testing that will then have to go out into all the weapon systems as far as the upgrade to GPS.

Because of the importance of it and because

of the progress being made by the contractor teams, we actually accelerated that program. Actually, Frank did. Let's encourage that kind of behavior. And there's no reason we can't do that on JSTARS Recap.

And then, of course, there are other new programs we're getting started in. We're getting started into the competitive phase for a space launch. That's a -- you know, if you think you know what's going on, wait a day and then go to the news. It's always changing. And we're also, of course, getting ready to do T-X. T-X is one of the pilots in Bending the Cost Curve -- I'll get to that in a little bit.

We've worked very, very hard to be transparent with industry. What we always hear is we hear from industry -- they always say: Be clear, tell us what your requirements are, give us the work that it's going to take to do requirements, give us time ahead of time for us to prepare for it. That's all they can ask from us, and it's very fair. It's very fair. That's what we're trying to do on T-X. We publish the requirements. We've gotten comments on

the requirements. AETC has done a great job on this. We've done the cost capability analysis. And we're just being extremely open with industry again as we approach the release of that RFP, which is going to be in about a year. And, again, the same kind of idea there -- get, you know, the beep-beep. Multiple people have access to it.

Now, there, because we're looking at something that's closer to something pretty well designed, we're probably going to go right into EMD rather than do an early risk reduction phase.

So, those are some of the new programs. That's the first bullet.

Second bullet is transparency. We're working really hard. We have a lot more work to do to be transparent. Transparent is actually two-way. We need to be better at explaining what's going on in acquisition and better at listening to concerns and just be straight with folks.

I keep saying to people that I am surprised at how much, I guess, misconceptions there are out

there in acquisition. I think a lot of it is our own fault for not trying to explain things to people. And for example, you heard the Secretary yesterday, what she said. This is all true. This is all of the data. It says that our costs are coming down in the Air Force acquisition. That cost the last three years in a row have come down. Our KPPs and our ACAT-1s are in the 90 percents.

You saw the KPPs at General Richardson's show for Tanker? Remember his chart? So, on average -- I mean, not on average -- when you add up all the KPPs for all our ACAT-1s, 90-some percent of those are being met, okay?

Number of Nunn-McCurdy's are very -- are almost like an historic low. And that's true for the other services. Successful, sustained protests are also low. Very low. The one area left -- it's not getting worse but it's not getting better -- is schedule. That's the last holdout in our performance. Hence, that's why we're trying to show the schedule initiative, okay? That's an example of what I just

went through -- is transparency. What you just saw with General Bogdan and with General Richardson is transparency. He told you guys what's going on.

What's also an example of transparency is our Bending the Cost Curve initiative. The Bending the Cost Curve initiative is a series of projects that were basically motivated back with the Chief and the Secretary first -- right after the Secretary came in, and she said, you know -- she had heard a lot from industry that the Air Force had -- in particular, we were not engaging nearly enough with industry, certainly at the senior levels, other than outside a specific program-by-program issue.

We always had bilateral meetings, right? We always would come in or meet at AFA. What we needed was, we needed another set of ways to work together on common problems to basically bring down costs. We titled it Bending the Cost Curve, and we have a whole set of projects with -- collaboratively with industry under that. Some of the projects were just -- we're wrapping up or will be transitioned. We have new ones

that are coming online. You've read about some of them.

I'll just go through a few of them right now that you may have heard of. We have an effort to systemically bring out the timeline of sole source. We've said it takes too long in the Air Force; we want to bring that down. That's one.

Another one is -- you may have heard of this -- PlugFest Plus. It's an experiment with other transactional authority to see how quickly we can get people under contract in an open system.

We have another one that General Powlikowski started that we tried, which is a matchmaker project to see if we can bring two parts of the Air Force -- different parts of the Air Force together with two different parts of the same company to share best practices.

Let me just tell you a few of the ones that are going on right now. One that's getting a little bit of attention in the news is -- it's humorously referred to as, you know, Watson for Acquisition

Professionals. But essentially it's trying to use those kinds of cognitive and computing tools and techniques that we all saw in the IBM Watson and start applying them to help navigate through our system, not just for the people in the government but for, say, a small business. We've actually got two SBRs under contract to do that. That's an interesting little experiment.

The other one that I'd talk about we're doing right now is we've been having groups meet -- industry government groups meet -- on the whole topic of intellectual property. What's behind the angst between government and industry? And I think we're getting at some very interesting things that I think will be able to help the problem.

We did the same thing on some part of FMS about a year ago under Bending the Cost Curve that actually transitioned up to Frank Kendall, who then used it to help him address what's called the offsets in FMS. So, a lot of these projects in Bending the Cost Curve that are spinning off -- some of them may

just stop. They may be experiments we want to stop. I would consider the Should Schedule experiment. I'd say it's a Bending the Cost Curve Initiative.

We're trying these different things. Cameron, who runs that part of the office for General Powlikowski and I -- he calls it a skunk work for nerds and bureaucrats, and -- but that's what that is, and we're willing to try stuff. We're willing to try stuff. But it's all -- but, actually, the title of it is all under Transparency, because -- well, we all -- what's you always find is that you have a much better relationship when you work on common problems together than if every time you deal with other it's on an adversarial issue on a program. So, that's why we're doing it.

Third is Owning the Technical Baseline; that is, bringing back into our program offices the competency that we used to have. We still have it in some areas, but we have to focus in the areas where we lost it. If you've heard me speak before, you know what I mean. Think of it as the opposite of TSPR. If

you can imagine TSPR -- what's TSPR? Total System Performance Responsibility. The opposite of that, okay? The opposite of that, all right?

Now, why are we doing this? We're doing this because the common sense. One is that the best people out in industry work for the best program offices. It's always true. It's very frustrating to work for a weak program office. The program will survive.

The second is, if we're going to do things like do open modular systems, compete pieces of them, the government may not be the integrator, but certainly the government has to be smart enough to basically have the interface standards of the system; be able to know what the baseline architecture is; be able to run models of the system; be good at cost estimation. I think what you've seen at General Bogdan's program -- General Bogdan's program went from close to a TSPR program when it started -- close -- to about halfway there, so it's only the technical baseline today -- and even in the last two years,

maybe even -- he's pushed it further. Remember how he said the progress in the last two years -- with industry? I put that -- think of it under only the technical baseline. So, that's what we're talking about there. We have a systemic effort in the Air Force to assess our big programs. We're not so naïve to think we're going to turn a switch over night and fix it in any program or that we'll be able to do it in all the programs, okay? That's what that means.

Fourth, Better Buying Power. I don't think I need to say more. Let me just say this. Should cost savings -- we're in the billions of dollars for the Air Force. I brought this book up here just to remind myself of what the numbers are. These have been validated. So, I mean, we've looked at them. Our independent cost estimators have looked at them. So, let me see if I can get you the numbers. Okay, '11 to '13, realized savings $1.3 billion. In '14 -- '13, late '14 is when we really started this in earnest.

I see R. Davis here. I saw him earlier.

General Davis was running Air Force acquisition by himself for most -- for about half of 2012 and 2013. He was just keeping his head above water. We were able once we got -- once a couple of us got in there, we were able to start working on these things. General Davis had started them. So, we really got into it in ’14 with General Davis.

We’re up to $3 billion -- $2.9 billion in should-cost savings. We’re already in ’15 at 2.8 billion. It’s not cost avoidance. It’s actually going back after the money has been put in the budget and looking and saying they’ve validated that they done it cheaper than the independent cost estimate and pumping it back in the portfolio.

Excuse the way I’m going to talk about this, but I’ve heard it described as: We used to suck; we suck less. So, we’re compared against our history when we sucked. So, we’re getting great savings. Now, this is just continuous improvement.

So, now you understand why we’re motivated to try this on schedule, right? That’s what that is.

Fifth is what I wanted to talk about in this talk -- Strategic Agility.

Next chart.

Okay, the Air Force -- I've learned this -- many of you in the Air Force know this -- has a very rich history in basically taking technology and playing it with operationally to have breakthroughs. On the far left -- and I'm -- the last person that's an expert in this is General Schriever. I've heard it said, and others here -- General Powlikowski -- can explain this better than me. In some ways, General Schriever invented what became the development of planning. Okay, it's essentially -- think about doing the work you need to do before you even know if you have a requirement. Think about doing the analysis, doing the CONOPs. It has to be kind of a warfighter-led thing. Okay, that's what developmental planning is and was and was part of the innovation for the Air Force. We got away from it in the mid-'90s.

Now on the far right, you see a picture. It's General Claude Bolton. General Claude Bolton and

Paul Kaminski, two giants -- two giants for the Air Force -- they looked last year and did a study on how we could get back to our roots in developmental planning and basically reminded us of what we can be and as motivated the Chief, the Secretary, all of us, to get back to the roots here. And that's what we're doing. I'm sad to say General Bolton passed away unexpectedly in August. We were all very shocked by it. But, boy, he left just -- what he did in his last year, he left a legacy by that alone of getting us back to our roots in developmental planning. And I can't say enough about what he and Paul Kaminski did, and I thought it was important to remind everybody of that in this talk.

Next chart. So, here's what -- this is right from Paul Kaminski and Claude Bolton. What it is -- it's innovative, multi-domain options that better understand operational decision space. It is basically how do we support decisions, how we do experiments. This is what developmental planning is. It's not business cases. It's not acquisition plans.

Next chart. So, far left. You've heard about this from the Secretary. That's the plan that was put out last year -- the strategic plan. The Secretary also mentioned the strategic master plan. This is goes into a little more detail of what we're doing. The far right is the report of Claude and Paul and the report they did. And so what we are doing is we're lining up from the strategy, from the master plan, and this whole concept of strategic agility and let's get back to our roots in developmental planning. We're using guidance of the different work that's been done.

There's always a study -- there are always three studies going on, on certain topics. I guarantee you, any time in Washington, there are three studies going on in NC3, and there are three studies going on in What's S&T for the Future. There always is. You can swing a cat and you can hit one of the studies.

Well, what we're also looking for, though, is the research that says how do we get this S&T and

this technology back into fielded systems? Part of that is something called experimentation. We were looking at this at the same time Claude Bolton and Paul were doing their study and just realized, no, this is just a subset of what is under developmental planning. So, it really all fits together, and I'm going to get more specific in a second, but we'll talk about what that means.

Next chart. So, we're shifting. This is at the enterprise level. It's enterprise capabilities over programs. I'll just tell you the first one we're doing is Air Dominance 2030. Is Air Dominance 2030 about what comes after F-35, F-36? You know, some people will say no, it's not, it's about what does air dominance mean in 2030 looking at all aspects of the problem -- cyber; kinetic; EW, including space. What does it mean? What does it mean across the kill chain? What are the platforms? What are the distributed things you need? What's the adversary doing? What does that look like?

That's an enterprise-level problem. That is

an enterprise-level problem. That's an example. It's horizontal integration. What I just did went across a bunch of missions, right? It went across a bunch of missions there. And of course what we're after is strategic agilities. Strategic agility remember, the metric is speed, we want to sense it at that, faster than the adversary, faster than -- as fast as technology changes. And what we want to do is we want to do it with the warfighter innovating with us.

What I found as a non-warfighter is that the most innovative people anywhere are the warfighters that are in uniform. They're the most innovative people. You give them something, they'll figure out how to use it. We just have to take our innovators that are in the science and technology arena and get them together with our innovators that are warfighters and let the magic happen. That's what we're talking about here.

Next chart. So, it's not about whether to start a program. It's not an AOA. That's one of the outputs. It's not one of the inputs. We must own it.

We can't outsource this. We, ourselves, as the Air Force, have to own this. And it must be our technical expertise with our industry and our [inaudible] colleagues, and this is not AOAs. This is not analysis alternatives. People sometimes confuse them. It's not at all. This is even before an AOA. I heard a saying one time that said: Sometimes you have to acquire before your require. And that's kind of what we're talking about here a little bit. Okay.

Of course, now we're starting with the two, and I just mentioned their superiority effects. Well, I put on the chart something that -- it's not just the technical innovation; it's the operational innovation. I'm a technical guy; I'm not an operator. I'm actually biased. I think the leader of this kind of stuff almost has to be an operational expert. It's my bias. I'm willing to have the argument with people. And I'm a techie saying that, because I think that the way the warfighter thinks about operational concepts is something that us technical people can't do. We just can be right with them playing our technologies

together.

Now, I've had these late-night arguments with my friends on the defense science board as a traitor to my class by saying a technologist should be in charge. But that's what -- you need at least that partnership there. You've heard about the new operational concept the Air Force has. Okay, well, that's a great example of an innovation coming from the operators. Well, if we can inform that and have a constructive tension with technology and systems, that's how you get the innovation. That's what we're talking about doing.

Now, you're going to see in a second this is not just talk. This is reality. My biggest objective in this talk is to convince you all not just of what we're doing but that we're actually doing it.

Next chart. So, this has been done before. Paul Kaminski and others can tell you the story of the F-117. It was done with a small empowered team. They delivered -- they did it with prototyping experimentation. They looked at the kill chain. They

didn't just focus on the airplane. And we all know how that went.

Now, there are caveats about the 117. I know they didn't go to larger rates of production, et cetera. Understand. But we can do this. We have done this. In fact, we did -- this was from a report we did where we actually sat down and interviewed the people who were in that program. And it was fascinating to hear the stories. You know, we said: Oh, did you have any failures? They said: Sure, we had failures. We had fatalities. Well how did Congress react? We went over, briefed them on the Hill, and they said, okay, we understand. We trust you. Well, how did you do with the requirements? Well, we had discussions with the requirements people.

They were at the table with us. They were on the small group. Like, one time the story goes that the requirements folks were saying, you know what, it doesn't -- it's not an all-weather capability. It needs weather radar. This is, what, probably 1980-something? I don't know about putting

weather radar on an LL platform in the 1980s. Probably -- and Paul says he knew it would have killed the program. And so he just said -- they just said: Not a good idea. Just later.

So, they did stuff there that was just -- it was remarkable. In fact, if I think of the legacy that we have today -- the big safari and the RCO and some of the other great stuff that's going on, we have that in our DNA in the Air Force, and we can still do it.

Next chart. Next chart. Okay, back. I hit enter twice. Okay, so, we have the Air Superiority started. We have an ECCT stood up. This is going to be -- this will be funded. I'm not -- General Powlikowski and I were just telling people we're funding the Sandbox. We may have funding for a few things that go in the Sandbox, but we're working through with the leadership. But there's going to be real work going on here. I'll give you the points of contact on what it could be. But this is the one that we're doing air superiority. It's actually led --

this is actually being led by an operator, and there's a cabal of folks -- they call themselves the cabal -- who have fit across the acquisition community, the operational community, requirements community -- who are kind of behind the scenes pulling this together, and it's pretty cool to watch. And then some of us have been just trying to push and give it top cover. But's it's about ready. It's underway. And the first one is Air Superiority.

Next chart. So, that's the ECCT that the Chief of Staff chartered. He already chartered the Air Superiority 2030. It's up and running. We're also getting started now -- a little bit behind it -- the one for What's the Future of the Ground-Based Deterrent?

I should say something. The person -- other than the chief that owns Air Superiority in the Air Force is General Hawk Carlisle. He is all in on this. One of the key things is that the operational leader and General Powlikowski and myself are tied together on this. And the Chief is. On the second

one, General Powlikowski, and myself are going to be tied together at this, doing the Ground-Based Strategic Deterrent part. That's what key is that we are aligned across the requirements, across the sustainment acquisition communities. So, you can see some of the ongoing pilot projects.

Next chart. So, this is basically how we're trying to reinvent. We're really not reinventing. We're going back to our roots. We're going back to General Schriever. We're using the incredible work that Paul Kamiski and Claude did where they reminded us again of what we were missing. And we have to institutionalize this. We have to make this automatic in the Air Force. We need industry to be part of this. We don't want you guys to be spectators. We've got to bring you in. I'll talk about that in a second. And we need to set the team up and get this moving, and we're doing that.

Next chart. So, join the team. Okay, we're already on there. For example, you'll see on there the ECCT, and the bottom one there is an RFI the AFRLs

put out. You can look at a lot of these other activities that are going on. You're going to see more of these activities. Again, I said I'm hinting strongly there's funding behind this. There's funding behind it. And it's going to be a series of campaign experiments. Modeling and simulation will be part of it, and operational concepts will be part of it -- the warfighter. That's what we're setting up. And, again, the reason we're doing it is we want to really discover our future. We want to innovate. We want to do it near dominance. We probably -- I won't speak for General Hyten, but we're probably going to need to do something customized for space. He's going to need to do something customized for space.

The other one that people talk about, which we're not doing anything about right now, is the broad area of electronic warfare.

So, next chart. So, you've heard the priorities. I emphasized the last one in my talk, because I thought that might be interesting for this, but we can talk about any of the other ones. So, why

don't I, at this point, wrap up and then turn it over for questions and see how much time we have. So, I'll stop at this point. Thank you very much.

MODERATOR: Well, we have two mics out, if you'll just raise your hand. We'll get the mics to you.

QUESTIONER: Dr. LaPlante, you mentioned the importance of industry being a part of the team for strategic agility. One of the elements of the Air Force Association statement of policy this year is advocacy for a robust defense industrial base that has the capability and the capacity to affordably provide for the needs of the Air Force. What is your assessment of the robustness of our defense industrial base, and are there things that the Air Force needs to be doing to ensure that robustness?

DR. LaPLANTE: Yes, so I'll give you my top-of-the-head assessment. I actually think -- and this is more by listening to analysts of the [inaudible] of the world and others that -- and there's even probably some in the audience here -- I don't want to embarrass

them -- who are smarter than me on this. I don't see them, but there are some smart people in this that --

By and large, the big companies, the big ones, are doing okay if not well on give and take. I mean, you look at their earnings. You look at what their earnings reports say. It's not the situation that I'm told it was, let's say, in the '90s, certainly before the last supper. There were a lot of very sick companies in the big companies then.

Having said that, what I am concerned about is, yes, of course the small business. But I'm also above the small business. I'm interested in the tiers that go below that, you know. That's the concern. Yes, they're -- why? They're in the supply chain. They're living more hand to mouth, right? And so -- and certainly -- and this is what we expect when we press the should-cost savings onto -- with one of the bigger guys. We know it's flowing down into the supply chain.

One of the reasons that I'm really pushing and we're all pushing modular open systems is we --

and owning the technical baseline. One of the things behind that is we want the flexibility to directly contract and compete with some of these mid-level or smaller companies. I mean, certainly the big guys can compete as well, but we want them -- and if needed the government can just -- once we make a selection, we just provide that GFE to the upgrade of the system.

So, let me -- very specific -- I'll make it real, LRSB. LRSB is going to have -- it's going to have the OMS system, the OMS standard. That's the open mission standard for both the software and the hardware defined standard. Whoever becomes the prime of that, that will be the thing that they have to build. Well, we have said -- and we mean it -- that we will compete upgrades -- upgrades to censors, processors. Think of anything you can imagine that you'd want to put on the thing. Well, there's no reason in theory -- not just in theory, practice -- that the government can't do that competition itself; whoever wins it provides GFE to the prime and say integrate this using your open standard.

Now, you say, well what does that do? Well, first of all, it gives the medium guys a little bit more air to breathe, and it forces a more level playing field. And it also, perhaps, opens up a type of work that was really kind of closed off, which is things like integration; things like if you want to focus on just sensors and you can fit this open module, you can make it as a company. That's the idea behind this. And the idea is that it's going to be best to breathe. But that's the big part of the industrial base I'm the most concerned about -- is that tier below the main guys.

Thank you.

MODERATOR: We have one right here. This will have to be the last question.

QUESTIONER: Can you comment: Where do hypersonic technologies rack and stack in your R&D priorities? I see you've got a picture of one up there. You didn't really mention it. And what plans do you have in the future for that? And a real quick one: What kind of R&D priorities needs do you have in

the cyber realm?

DR. LaPLANTE: Well, so, we have two people in the audience here that can speak much better to it than me: General Powlikowski and General Masiello. I will tell you that hypersonics is on their list. I don't know if you saw General Powlikowski's talk, but she listed hypersonics on there. So, yes, obviously.

I'm a big fan of hypersonics, okay? And I think that what's happened in the last year and a half with the WaveRider, I think. That actually looks -- you know, that looks like that may have really done something for the first time. You know, we -- my wife is an attorney, so I know all the best attorney jokes. My friends are hypersonics engineers, so I know the best hypersonics jokes. Hypersonics has been the weapon of the future for 50 years. Hypersonics has the best failure review investigations. They're really awesome. But I really think that we might be coming there.

Let me give you my personal view on hypersonics. I've seen the argument built on

hypersonics, that it closes the kill chain fast. I've always had trouble with that one. Every scenario I see, it shows that, well, you know what, the tells underneath this highway overpass, and it pops out and does something and it goes back, and a conventional weapon would have missed it. But if a guy were right here with a hypersonic weapon, it's the only thing that would have got in, in those ten minutes, they were out -- maybe, I don't know if that will make the argument around that.

You know what I think the argument's about -- is actually survivability. I think that's where the argument is more. I think if you think about where we're headed [inaudible] survivability is, I mean, probability to penetrate where defenses are going. I think that is as much -- now, speed does kill. Make no mistake. It is good to do things fast. But hypersonics has got to be one of them.

Now, cyber is interesting. I think that the problem we have in cyber is that the offense is where all the fun is, and the defense is where, you know, is

always the harder part. We have a problem with the defense, and we need research on the defense, and that should be the high priority. Where we need on the offense is -- and this is going to sound like you've heard it before, but cyber -- this is my opinion -- cyber offensively can actually be quite fragile. Quite fragile. Think about it in just your own life, how quickly a patch gets put out, something that happened -- you know, just like you can find a [inaudible] very fast, you can fix it very fast.

So, how does one as a warfighter integrate together in a reliable way cyber, kinetic, and EW for example? And how do I do it on a time scale? How do I know which one is predictably going to have what effect? So, I think cyber assessment tools, cyber metrics in terms of what is a cyber effect -- that's really where the S&T needs to go. Actually, S&T for cyber for some of this stuff is probably not that expensive even, but that's where I would put it. Yes, you need a cyber on the defense.

The only thing I'll close with is -- some of

you have seen this. It's a data chart, but DARPA had a chart that on the X axis was time starting, I think, going back to 1980 or '90 and then Y -- it went and finished to say today, going on today, and the Y axis' number of lines of code -- lines of code. And what they wanted to do is that -- lines of code is a surrogate for cost, and they showed that a piece of malware -- if I remember this right -- has typically been constant in about a hundred lines of code, 150 lines of code since 1990. It's been flat. The amount of antivirus software in the lines of code has been like this, logarithmically. Which curve would you rather be on? Which curve would you -- the situation is so asymmetric. In fact, there's a running joke that says: I know who's writing malware to people in the defense protection business, because it's lucrative. That's what we have to -- we have turn that asymmetry around. That's the issue for S&T for me. Okay.

MODERATOR: Dr. LaPlante, on behalf of the Air Force Association, we truly appreciate your being

here. Have a little light reading, *Mission Berlin*, for you.

DR. LaPLANTE: Oh, thank you.

MODERATOR: And thank you so much.

DR. LaPLANTE: Thank you so much. Thank you.

MODERATOR: Ladies and gentlemen, that concludes the last focus area for today. We'll resume tomorrow morning at 0900.

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