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Commander, Air Force Materiel Command

Defense Writers Group

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**DWG:** Thank you for coming in, and thank you especially for General Bunch, the Commander of Air Force Materiel Command for making time to visit with us on his trip to DC here.

Sir, I wanted to begin with the Science and Technology 2030 Plan that was announced back in April. Things have been pretty quiet on that front since the initial announcement. I was wondering if you could give us an update on where things stand in terms of identifying the programs, getting to that 20 percent and perhaps identifying the vanguard programs that you really wanted to emphasize in that. The 2021 budget isn't too far away, it's all going to be real pretty soon.

**General Bunch:** S&T 030, as many of you remember, Secretary Wilson put that out. I was part of the media when we released it as we went forward. When I stepped into the role as the FMC Commander what I told the team at AFRL was I needed an implementation plan to go get at it. So while you say it's been quiet in the media, it's definitely not been quiet with what we've been doing within the command in trying to move forward.

I designated a lead, we formed a lead, and we built an implementation plan that we're now executing and I'm getting regular updates on.

A couple of things that are drivers in that plan are to create a sense of competition for dollars and everything that go with it, meaning that if you're doing a program if it's not performing, you're not doing a really good job, then maybe we don't need to do that program and we need to off-ramp it and we need to look at other areas.

We're doing that starting with basic, all the way back into the

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basic research, all the way up through programs getting to the point where we want to start prototyping and going further. So that's a competition and trying to drive that speed and progress is one of the big things we're trying to do.

We are in the process of trying to realign our program elements so that we have the flexibility with the money we would need to achieve the movement of, to get the 20 percent. We're aligning our program elements around the five technologies that were called out in the S&T 2030 plan that we wanted to go do. That work is already ongoing and is moving forward.

I met with the Scientific Advisory Board just yesterday. I'm going to refine the way that we look at our basic research portfolio to show progress.

So there are a lot of activities going there. The one that everybody's been asking about that we hadn't talked a whole lot about's been the vanguard programs. We have selected the first three vanguard programs. Those three are ones that many of you are going to be familiar with. If you remember what we talked about with the vanguards, those are things that as we look at them we believe they're going to be game-changers. We believe they can dramatically change the way that we fight and the way that we employ air power.

Those were nominated up. They went through the research laboratory, AFWIC. They went to the Capability Development Council chaired by the Under and the Vice Chief. A couple of months back they have selected the three. Those are going to be [Golden Port], National Technology Satellite III; and Skyborg.

All three of those are ones that we've talked about before that we were doing work in.

[Golden Port], as you'll recall is taking, integrating software defined radios into existing weapons and allowing them to exchange information and artificial intelligence to better

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optimize their efficiency and effectiveness and share that information back with platforms.

The National Technology Satellite, that is a satellite that will be in geosynchronous orbit and it will be working on position, navigation and timing changes and doing it in a different way.

The last one is Skyborg, and that is an unmanned air vehicle that we want to be able to pass information back and enhance the pilot's awareness, do it at a low cost and try to change that equation for how we go employ air power.

So those are the three that we've got. We've funded those for the next couple of years to make sure we've got all the efforts for the prototyping and experimentation that we want to move forward, and as they progress and there are things that we would expect showing the right progress, that we would move in to programs later on.

**DWG:** Do those three programs have something in common that really brought them to your attention in the areas to start, or is this, each program id evaluated individually upon its own merits type situation?

**General Bunch:** Each is evaluated on its own merits individually, but what we're really looking for, the common theme is we're looking for those things that are real game changers. We're not looking for what we talk about sometimes as just an incremental increase or an incremental increase in the way that we see that we get these to work and that function in the way we expect. Then it will be a leap ahead. We want incremental along the way with some of what we do, but there are other areas where we want to make our bigger bets, where we see a giant leap in capability, and that's the thing that brought these more to the forefront.

**DWG:** Thank you. We'll begin with John Tirpak.

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**DWG:** Actually I want to start with my follow-up. Why wasn't hypersonics in that?

**General Bunch:** We already have the hypersonics efforts ongoing, John. So I've already got two programs that we're already running there. We've already got, with Hack Saw and with Arrow. We've already got the work that we're doing with DARPA. We're already doing that research. So to me, we're already there. We believe we'll have an early operational capability still in '22 for hypersonics with one of those two or both of those two projects moving forward. So it's kind of a, it's not the same

That one I'm already there, I'm already doing it. These are more artificial intelligence, linking and pairing things together and having them operate together and using that to define how they're going to do it. So that would be the reason it's different.

**DWG:** The Chief and the Under Secretary have talked about shifting \$30 billion out of things that are legacy efforts that are not as aligned with the National Defense Strategy as they should be to new kinds of things. A lot of that probably is going to pass through AFMC. I'm wondering, are you looking at another reorganization? Are you looking at a different way of doing business? The Under Secretary's talking about linking this to his zero-based review of things that may be just going on because of inertia.

So to the degree you can, without getting into the budget, how is this affecting AFMC?

**General Bunch:** It's a great question and it's one that, we will make shifts and that will cause things to change within some of our program offices and activities along the way. The position that I would put forward is, if we shift, don't immediately try to move manpower somewhere else. We started a myriad of programs over the years without additional manpower coming in to the acquisition work force, and what I've asked for is do you

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have [inaudible], let me have the flexibility if these things go through to shift the work force as I need it. I'm not talking about across state lines. That gets into a whole different avenues that I'm worried about. But it is to make sure that I can get some of the programs that we're executing without optimal manpower healthier, to move forward.

I'm not looking at a reorg to do anything like that. There will be changes that may occur if certain platforms, we retire certain platforms and we make some changes in organizations, but it won't be a complete reorg job. I'm not looking at that.

Anything they want to change, the thing many of you have heard me talk about, I firmly believe AFMC's the most important MAJCOM to get to the National Defense Strategy and get to the Air Force we need because we're doing all the tech development with the research lab. We're doing all the buying within the Life Cycle Management Center and the Nuclear Weapons Center. We're doing all the sustainment of the legacy platforms and all that within the logistics complexes and within the sustainment center. We've got to test everything to make all that work. And then foundational to all that is the support of the Air Force Installation and Mission Support Center which many people forget belongs in AFMC that provides that power projection platform for everybody in the Air Force.

So anything they do in the budget is directly going to impact what we're doing and we will adjust accordingly to accommodate.

**DWG:** Do you anticipate a significant effect on the depots?

**General Bunch:** The depots, when we look at the work, they'll re-look at certain areas and as you would know, if they decide certain platforms are not going to be there, then the depots won't do that work. But we are flexible enough to be able to handle that.

**DWG:** Vivian, and then Ariana.

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**DWG:** I wanted to ask you about Adversary Air Training and how you see its future. A couple of months ago there was a big contract for, you know, six companies I believe got \$24 billion in IDIQ. So do you see the future of Adversary Air Training for the Air Force being in sort of contractor-led, commercial Adversary Air contracts? How does that coincide or work with [LBC] and other ways to train? And might that be a way for the Air Force to divest some of their legacy aircraft like the T-38s, for example, that are being used for Adversary Air contracts? Can you talk about that situation?

**General Bunch:** For the Adversary Air, one of the reasons we started doing the Adversary Air through the contracts was to alleviate some of the workload on what we were doing within our own internal organizations where we had our own air crew trying to fly the Adversary Air in addition to doing the training created that demand signal, so that's one of the reasons we did go down that path was to alleviate some of that workload within the squadrons and to try to get at our pilot retention and what the demand signal was. So I do believe that is going to be something we continue to go forward with. I think it's a methodology that we can use to get our pilots to training. There will be some other things we look at along the way with utilization of some aircraft. But right now I would say that's [on].

I believe that can tie into what we try to do with Live Virtual Constructive and how we move. One of the things that I think I've talked about before, when you get into some of our high-end capabilities we're putting into our 5<sup>th</sup> Gen fighters and some of the other things, a lot of those we're only going to be able to exercise in a Live Virtual Constructive environment because they're going to be things we just don't want to show what we can really do. So I do believe there will be growth in the Live Virtual Constructive to try to tie that in. We've got a lot of efforts in the Agile Combat Support program office right now to come up with a common standard for simulators that people would

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be able to tie into. There are efforts that before I left the Pentagon we were working to try to build a longer-term strategy to be able to better accommodate Live Virtual Constructive, and I'm sure Duke Richardson has picked that up as a partnership. It was A3, AQ and A9 were the ones leading that effort to try to make that work so that we could cross-bridge all of our modeling and simulation to get more bang for the buck and to drive it in a better direction than where we were.

**DWG:** And the question about could that help divest some of the legacy aircraft that you're using?

**General Bunch:** That one, I don't want to step into exactly what companies would buy what airplanes. There is some out there that that could be utilized for, but that will be something we have to get to where I'm retiring a few before I can really cross that path.

**DWG:** Ariana.

**DWG:** I know it's been a big push for General Goldfein to redo some uniforms. I know the Air Force Life Cycle Management Center has been working a lot on that. The female uniforms.

But I'm curious, what does it mean for highly specialized uniforms? Is there any updates on that endeavor? Like pressurized suits for the U2 and the experimentation going on there? I know the Air Force Research Lab works on these types of things. But just where are you with the future of very highly technical specialized uniforms for Airmen?

**General Bunch:** There is a big push from the Chief and one that I am the, I have been banging on my highchair like a spoiled two-year-old quite a bit lately in a couple of those areas to try to get a little bit of attention.

I went in last week and checked, and got my opinion on, was asked for my opinion on PT gear because we're trying to redesign

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the physical, our training gear that we work out in when we're doing group PT and taking our group test to make that something that our Airmen are more comfortable in, they want to wear. So that's not as highly technical as what you're talking about, but it is one that's very important to our Airmen.

Just last week I got an update on a couple that are really important to me. That is female defender gear and female aviation gear, to include not only the uniforms but also bladder relief and other things like that that we have not, quite frankly, we've not taken as good a care of our Airmen as we've needed to, and we've needed to invest.

So defender gear, I'll talk about that one first and then we'll see where the rest of this you want to try to go.

For the female defender gear we've got five prototypes that I saw last week. There's a picture, I think, on one of our Facebook pages of my lovely bride strapping all the female defender gear on and wearing it to try to figure out how heavy it was and how it fit and look at all that.

But we are going to prototype those five. We're trying to do a try and then buy methodology. It's my intent to have people at some of, female Airmen at some of our bases wearing this in probably the January time frame, with hopefully making some kind of a buy decision in probably the April-ish, May time frame to try to get some of this out to alleviate some of the stress that we're finding with our female defenders. Quite frankly, the defender gear is not optimally built for them, and we're trying to take action on it. So that's that one.

On the female flight suits. I got an update on that last week. We're working with the Army and working with others. We've been doing a lot of fitting and we've been doing a lot of [anthropometric] measurements to make sure what we want to design and build. We're also increasing the training that's happening, because what we found out is some of our life support



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technicians are not actually, we don't believe are getting adequate training on it to be able to size. So our push there is get a new female flight suit out as quickly as we can to make sure that it works.

We're also investing in the research. This one's not as far along, and I can't give you a great update because I didn't get that feedback last week in the vests that our female aviators wear. That's another one we're doing.

On female bladder relief, we, I got an update on the funding of all that last week. We're increasing the funding to do some prototypes, get them out into the field, do quick developmental testing, do some operational testing and try to get new capabilities out in the field as quickly as possible. We're trying to do that ahead of the timeline it would take to get through DOA.

So there is a conscious effort right now in some of those key areas where we know that people are not getting what they need that we're pushing really hard.

**DWG:** And you said for both of those, I mean you're trying to get the defender out as soon as possible, early 2020 time frame, but the female flight suit, is that --

**General Bunch:** The female flight suit was a little later than that. Don't have the exact date. I'll try to get that out of what they briefed me last week. I don't have that one right off the top of my cranium, but some of the efforts that we're looking at for the bladder relief, we're actually trying to buy that next year as well. Calendar year. Not FY. This FY, but five to six months from now when I can get through some developmental and operational testing to make sure that it's safe and it works, then we'll try to buy some of that too.

**DWG:** Dmitry and then Courtney.

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**DWG:** Good morning, General. Thank you for doing this.

I wanted to ask you about the proposal to significantly expand the U.S. Air Force to grow with the 386 squadrons as announced last year. I just wanted to ask you for an update. Do those plans still stand? If yes, how do these efforts go?

**General Bunch:** The number of 386 operational squadrons still stands. That has not changed. That was based on analysis and modeling that was run by A9. So those numbers still stand.

I know that within the building they're looking at strategy for where they want to expand, what they want to expand, how we can go do that. Right now we're executing the acquisition programs that we have to continue. So I can't tell you today we decided we're buying next year X number more of whatever airplane. More of that is out farther, but we're still standing with that to be able to go do the mission. Because it's very clear that our Air Force is not as large as we need it to be to do the missions the nation wants us to.

**DWG:** I'm going to ask about F-35. At a hearing last week Secretary Lord was talking about Alice and she mentioned that she had directed you and the Air Force to kind of put all the resources you have to bear on helping to address problems with Alice.

We've heard a lot about Mad Hatter and the software group out at Tinker.

**General Bunch:** Hill.

**DWG:** Hill.

**General Bunch:** I went out and visited them a couple of weeks ago so yes, it's at Hill.

**DWG:** I guess I was curious. Are there additional resources

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that the Air Force is looking to put towards that effort, and do you think we'll see kind of additional funding going into that?

**General Bunch:** Across the Air Force, if you haven't figured it out, we're putting a lot into software development right now and trying to do agile secure DevOps and moving that into a lot of areas. Kessel Run was one of the ones that kind of started it. That was one that got a lot of attention. There's [BESMan] is stood up now down at Gunter doing a lot of business systems. There's about 50 to 60 people that we've taken out of hide to do coding down there. Each of the logistics complexes has a software engineering group. They used to be called software maintenance groups. We've renamed them to software engineering groups because they are actively doing coding on a lot of different platforms.

What's happening on specifically Alice is, we brought in the Kessel Run expertise, we matched that up and code it alongside Lockheed Martin and partnered, and we brought in the software engineering group to make that work. We've been in a pretty good sprint and we're actually showing some good results on what it's doing out on the flight line for the maintainers.

We believe that that combo coding and partner coding to move forward and change the way we do it is the right way to make this work, and that's all discussion that we're having as to how big does it really need to be, how fast do we need to push these things.

We believe one of the big drivers in our Airmen on the flight line being efficient and effective at turning sorties for F-35 is the interface with Alice and what it drives and how long it takes to do certain things and what it requires. That is really one of the big focus areas that we've put out with the Mad Hatter thing. Let's go get after some of these things that are just causing our Airmen headaches, and nuisance things. How do we get after this?

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So we're seeing progress there, Courtney.

**DWG:** On another topic, with the discussion around the Digital Century series, there's been a lot of, I won't say a lot, but some of the initial reaction has focused on how will the Air Force affordably sustain these smaller [fleets] and particularly like something else is coming out about just the cost of sustaining smaller legacy fleets and how that might translate to sustaining these smaller fleets of these new aircraft.

I was just curious, what is the Air Force looking at in sustainment innovation to address some of that?

**General Bunch:** You asked two questions -- I could probably talk about that for five hours. I don't think that's exactly what our intent is so I'll talk about the Century Series first and then what I will do is step into slightly a different avenue of what we're trying to do for sustainment.

So for the Century series, the purpose of that is to be able to continuously develop and put new things in and turn out platforms when the technology's ready to turn. And it's not to build a platform that I'm flying like a B-52 forever. So it's a different sustainment mindset that we have to look at if we're going to go down this path.

If you're going to put a new platform out every few years, and I say few because we're still looking at how far does technology go? Can you build off what you've got? You're not going to sustain that platform for 50-60 years. That model, it's changing the mindset and the model of how you move forward. It's not let's put a platform out that we can grow off of and we can add capability and we can morph and we'll keep it flying forever. That's not what the Century series is kind of based off of. So it will take a mind shift change for how we've done sustainment over time if we're going to do that.

It may not be a 12,000-hour airplane. It may be a 4,000

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airplane and that may be it. And we're still working our way through the sustainment of all those and how we do it, but those are dialogues we're having.

For sustainment writ large and what we're doing there, because we actually are doing a lot of great things in the sustainment arena, conditions of base maintenance is a big thing we're doing in a lot of different platforms now. We've got another methodology and I can't remember acronym off the top of my head. ERCM I believe is the acronym. We owe them an answer on that one really quickly. What we're actually trying to do is take some of the things they use in commercial aviation to maintain their fleets so that we're predicting when we're going to fail and correct things quicker, before it happens.

I went to a meeting with General Miller at AMC and one of the briefers stood up and the last 11 to 18 engines that they had changed, they had changed not when it failed, they had changed when they were told it was getting ready to fail so that we didn't have it go down range and then have to do it. So there's a great number of things we're doing in that area.

I was just out at Hill and watching them using lasers to strip paint off F-16s, saving tons of time, energy and effort.

I went to Tinker and looked at their additive manufacturing to where they're actually replicating parts so that they can build the drawings and compete in areas where the vendors are no longer available to build the parts that we need for some of our legacy things. So there's a lot of other activity going on in sustainment.

That's not exactly what you asked, but it kind of all ties together with we want the Century series, it's a different way to do it, we still are making progress in sustainment that may apply where we go.

**DWG:** Pat and then Scott.

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**DWG:** At AFA Dr. Roper was talking about how the Air Force wanted to harvest Uber's interface for use in ABMS. You know, the interface where you open the app, the GPS. Are you familiar with Uber and how it works?

**General Bunch:** I am somewhat. I think the only time I used Uber on my own was on Christmas morning about four years ago when my car broke down. It is really hard to get anybody to work on a car on Christmas morning and we ended up finding someone from Uber to drive us back. [Laughter].

**DWG:** I'll take that as you are familiar.

So he said that he wanted to harvest the interface for use in ABMS which we all know is about connectivity in warfare. I was wondering if you could explain how exactly the Air Force wants to use that interface as we know it where the GPS hones in on where you are, it shows the cars on the streets around you, you press a button and it says how long the car will be there. What is the military utility of that, and how do you plan to use that technology?

**General Bunch:** I do not know if Dr. Roper literally meant use that interface. He may have.

**DWG:** Not for the car part, but --

**General Bunch:** What we want, and you've heard the Chief talk about Joint All Domain Command and Control. That is the new phraseology in case anybody is still trying to use Multi Domain Ops. Joint All Domain Command and Control.

The real goal of this is what the Chief believes is we've got to connect every shooter and every sensor together to get the best information. How you flow those data are really going to determine who wins.

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Preston Dunlap is our Chief Architect. We are getting ready to do our first ABMS demo here in about a month. We're going to go on four-month sprints to show how we're going to do this. And we're building what we want to build with an architecture that if you can link into the architecture, kind of like what we did with open mission systems, kind of like what we've done with the UCI standard that we built that we've utilized, is allow people to connect in and share that information.

If, and it also has to be able to be, I'm not going to use the right word Pat, segregated or isolated off. What I mean by that, it's got to be tiered is probably the better word. The reason I say tiered is what I'm collecting out of an F-35, if I'm pushing it to a soldier on the ground he probably doesn't need the TS, what I'm getting. So we've got to find the right way to tier that so that we don't have all the classified information flowing to everybody. We can do those things. We've done it in other areas. But we're getting ready to go off on that journey and we believe it's got to be done.

**DWG:** The Air Force has had pretty robust C2 capabilities forever. Don't you already have these types of capabilities within the service?

**General Bunch:** We have some. What we don't have is the ability to pass the information as quickly as we can. We need to find a way to harness the power of what our sensors and our shooters can collect, pass that to other parts of the defense kill chain or to people who are doing things so that they're better prepared to go forward.

One of the examples, we had a country explain to us who had a very robust command and control, and there's a reason I'm talking at the level that's very high that I'm talking at, who got F-35s and they just basically said it changed the way we did everything. The amount of information that it can capture and what it can do, it changed the whole way we looked at our command and control.

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So we're actually building things now that we've got to change the way we're doing business to be able to share that information in a more timely manner so that we can prosecute targets more quickly.

**DWG:** Scott and then Michael.

**DWG:** You started, I think over the summer that We Need Initiative, and it calls on Airmen for what they need. Can you update us as to what you've been hearing and where that is?

**General Bunch:** This one's near and dear. For those that don't know, the AFMC We Need Initiative is an initiative that kicked off shortly after I became the commander. What I was really trying to do, I did a two-fold approach there.

The first approach which to me was the most important. Many people outside of AFMC may disagree with this, but to me it is the most important part. I actually asked the work force and our Airmen who I work for, what do you think? What do you need? What's hindering your ability to get things done? What's happening?

The other part of that was we did go outside and we talked to senior leaders about their perceptions of the command what they felt bad about, what I needed to go work on there.

Our Airmen were very willing to talk to us, I found out. We had over 80,000 comments that came in writ large from all over the enterprise about certain things.

The two biggest ones that I got were facilities and IT, just the whole infrastructure for our IT and how it does or does not support what they're trying to go do.

So those are kind of harder ones for me to solve as a MAJCOM commander because they take money and they take time, but we're



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working on both of those.

The Air Force, if you'll recall, right before, probably within the last year, we signed an Installation Investment Strategy. All the MAJCOM Commanders signed it. The Chief and Secretary signed it. To reinvest in our infrastructure, because we had neglected it for too long and we knew we needed to recap and do some modernization.

So that will be what helps me in that area and we've got to keep communicating.

On the IT, I've got the team looking at some of those areas and trying to alleviate some obstacles and I'm probably going to have to try to find a way to invest some money to help out that part. So those were two of the bigger ones.

The other ones that I would say were big, I found out that we need to revamp our leadership training, particularly at our first level, first and second level supervisors. We got a lot of feedback in regards to those type of aspects and that we needed to improve those areas so that our supervisors were better prepared, and we're off doing that. The Sustainment Center's got the lead in that one and we'll morph off the class they're building to train everybody else.

The other one we figured out is we don't really have a very good communications strategy. What we discovered was, both internal and external, there weren't a lot of people that understood what we did as a command. They didn't understand how important what they were doing was to the overall success of the Air Force internally. So that's a message that Wendy and I, we've shot videos, we've talked to people about what we're doing in those areas.

We've already taken a couple of areas, we removed some tiering on some of our civilian work force that was put in place as a direct result of that feedback. We have already reinstated

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some time off awards that people believed were not there and we've forward on those. We've set up a team that works under General Schaeffer that is giving regular updates to he and I on what they're doing to go after many of the ideas that are coming in from the field.

The other big message for the field was don't wait on me. If you can do it locally and you want to take a little bit of risk, tell me the risk you're taking, tell me what you're doing, and just go do it.

Now one of the, quite honestly, frustrating things out of that was that one of our teams took that upon themselves, we had an individual go talk to someone about an idea they had that they thought could save time, energy and effort, which is what everybody's -- I'll circle back to manpower and hiring in a minute. But they had an idea they thought could save time, energy, effort, streamline, make things go faster. And the individual who the topic was briefed to informed them that they could not go do that, they could not share their ideas with the team that I have at the command, and that they could not reach out to me and talk to me. That's a little frustrating as a leader to have someone take that kind of an approach when you start talking about it. That message has gone back as that's not the way you really need to interact with General Bunch. That' won't go over very well. And we're now off trying to do that young man's initiative just because I'll find out if it worked or not, but you can't say don't talk to the boss. That doesn't work very well. For any of you who know me that's not a very good technique.

So we've got a lot of initiatives going there

The other one that I found out was we have not done a very good job of communicating what we're trying to do to improve our hiring. We got a lot of comments about how slow our hiring was and everything, and we're not perfect. I do not want anybody to believe that I am claiming victory. I've not got the pom-poms

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out yelling yay, we succeeded. I'm not doing any of that right now. But I can tell you we've done a lot better.

We have over the last two years decreased the hiring timeline by roughly 21 percent. 11 percent just this last year. We have three organizations that were part of Air Force Personnel Center that are on a trial basis now working over with AFMC. They're aligned to us as operating locations. Their turn times have improved 33 percent within the last year for the workload they're doing. We're using expedited hiring authorities, direct hiring authorities. We're cutting down those timelines, continuing to find obstacles.

What we're actually utilizing in this is what we use at the Sustainment Center on a daily basis, which is the art of the possible. The art of the possible is just laying out all your things, finding your LimFac, go attack your LimFac, run the process, find the next LimFac, go attack that and continue to improve. We're actually doing that in our hiring process and it's actually speeding things up.

So we've got a lot of effort going on there. A lot of initiatives that we're working and starting to see progress.

**DWG:** And just real quick, after you've seen all these, what does it tell you conceptually about where the Air Force is and where you want to be when it comes to being a near peer competitor or taking near peer competition? And also just going into this 21<sup>st</sup> century sort of Air Force.

**General Bunch:** What it tells me is our Airmen are amazing. They're the foundation we're built on. What I've got to do is get them some tools and some resources to be able to do some of the things.

I've got to find a way to make sure they can make digital engineering a reality. If we did digital engineering, then we'll be able to turn at the speeds we need and we'll be able to

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do those.

What it's telling me is that I have some pockets where I have some, that I've got to go look at what's hindering our ability to go fast. I believe the team is leaning into it. I feel very confident. But there are some things that I've got to put a little more attention into going forward. Thank you.

**DWG:** Who's making your job easier with software? Let me phrase the question a little better. With F-35 it's difficult, there's a big fight with Lockheed Martin over the IP around the software on the jet and that's going forward. You've got a lot of initiatives on platforms, trying to make the software on the other platforms work well. But then there are also antennas and sensors and all these things. What company is really leaning forward and saying General Bunch, we want to make your life easy, we spent a hundred million dollars on this code. Here. Enjoy it. Who's making your life --

**General Bunch:** That's a great question, and I think you know I'm not going to be able to give you a great answer.

**DWG:** -- someone who is making your job easy, that would be nice.

**General Bunch:** Well, I think what we are, I'll tell you what makes our job easier is when we get to where we have open mission system architecture and we have the modularity. That's what makes our job easier.

If I can get everybody toward an open system architecture, then it makes it easier for me to add an app, and I can do it with whoever's out there. I can do it with some small startup that's never even done anything with defense and utilizing them in a way to make that happen.

This is all part of the dialogue. And Industry's watching this. They understand. It's a change. If you're going to do the

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coding or you're going to bring somebody else in to do coding -- I need industry. I don't want anybody to think that. We don't build a whole lot of things within the Air Force. I need industry to be profitable and successful. I don't need them to be exorbitantly profitable, but we have to have them as part of this or we're not going to be able to build a lot of the things that we need.

So these are dialogues that we're having with industry now. How does this change? What are you worried about? How can we make this work? Those are debates and discussions Dr. Roper's having right now, and I'm part of those.

**DWG:** So no one's making --

**General Bunch:** I'm not going to dime anybody out here.

**DWG:** I'm just saying --

**General Bunch:** No, no, I know what you're -- I'll tell you what we have done and I won't use a company's name because I don't want to show favoritism. We have had some companies that have come in and educated us much better on software. One of the things that we found, and many of you have watched me testify and talk about OCX and all these other programs that were, AOC 10.2, I could probably pull a couple of other ones out that you've watched me get pinged on. We've actually had to educate ourselves more on what we were buying, how we were buying, what we wanted to do. And it goes into not just educating that part of the equation. We also have to, how do you do a cost estimate for a software intensive program that you're going to continuously do? It's different than how you do a cost estimate for buying an airplane. How you test that system is, a software, if you do it the right way in accordance with how industry does software testing and everything else, that's different than how we've historically tested software.

So we have had industry educate us and now we're trying to carry

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that message out and go after the pockets that kind of want to do business the way they've always done business, so that we can move at the speed of relevancy. That's what we have to do.

**DWG:** Everybody says they're trying to help you on the industry side. But I don't think that they, I'd like to hear from you -- they're purporting oh, we give away the IP, they get everything, and I'm trying to get you to say Harris has given us IP for the antennas in an open system and they're not, or whoever's leaning forward and doing the right thing.

**General Bunch:** Well, yeah. [Laughter].

**DWG:** Lee and then round two.

**DWG:** Have you all finalized the Light Attack Plan? And if so, can you give us some detail on what that looks like?

**General Bunch:** I actually can tell you that we've, I know that we released RFP for the procurement of three of each. Two to three of each depending on what the bids come in. I know that effort's underway. I have not got -- I also know that we have a protest in from Air Tractor on that. I acknowledge all of those activities.

I cannot give you a rundown as to exactly the experimentation plan.

**DWG:** When do you think you all will be able to --

**General Bunch:** I have to go back and check where we're at. The part we need to make sure we're looking at as we do these things is we've got to remember our allies and partners, and that's the part that we are continuing to express in the experimentation is how do we get the allies and partners in this as well. So I can't give you a great timeline for that. Sorry.

**DWG:** Can you talk about the [EC-4], [E-6] RVS and the fixes and

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that kind of thing?

**General Bunch:** The FVX program is definitely one that General Miller, myself and Dr. Roper are tracking very carefully. We know that that's got to get, we've got to get that fixed. We've got to make that better.

The dialogue in continuing efforts in the research lab are ongoing. There are continual dialogues back and forth and I'm not ready to claim one way or the other. What I can tell you is the team is working through what Boeing is bringing in, proposing, and we're looking at all those options. And we've got a good partnership continuing and that dialogue is still happening.

We believe, we have to get that fixed right. It's critical that we get it fixed right and we're not going to back off of what our requirements are that we specify.

**DWG:** Courtney and then Vivian.

**DWG:** About RVS as well, Brian had said they were going to submit better updated [inaudible] this month. Are you saying, has that happened yet?

**General Bunch:** I can't tell you whether it's happened or not. What would happen, it would be it would come in, it will go to the program office, it will go to our experts in the research laboratory who actually updated their simulation environment and everything to be able to look at the system, and they'll evaluate and they'll let us know where it's at. So I can't tell you that I know that it's there or not there, but I can tell you that there has been constant interaction and dialogue throughout this whole process.

**DWG:** On F-15EX, [inaudible] that called for like approved [apogee] strategy. Have you all completed that?

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**General Bunch:** That strategy would be built and would go to Dr. Roper. I know that before I left AQ I'd seen some of the original language, so I can't tell you exactly. I think they've got a good strategy. I think they're actually talking about doing an RFP in December, if we can get there.

**DWG:** Okay.

**General Bunch:** So we're still moving forward.

**DWG:** On another Boeing program, I wanted to ask about the T-7A program. It sounds like that program is moving along really smoothly Boeing has said that it's completed both the PDR and CDR at this point. So with the CR now being extended until at least December most likely, the Senate's going to vote on it today, or even further than that, how concerned are you that that is going to impede the progress that you've made on T-7?

**General Bunch:** I think you all know that we've consistently said we need a budget so that we don't impact our programs. We just have to keep that consistently flowing. We've got 88 new starts. I think it's over \$11 billion coming into the Air Force this year. We really need to get a budget passed and we really need to get it authorized so that we can go spend the money we've got.

We're looking at F-22 modernizations. We're looking at T-7. We're looking at all those programs right now to figure out what the ramifications of all that are. I won't specifically call out what I know the T-7 one is. I just know that it impacts our ability to go forward.

**DWG:** And then I just wanted to follow up real quick. You said that there's funding already in place for the three Vanguard programs. So is that funding, just to make sure, is that already what you all have put in, the S&T funding you've already put in? Or is that --



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**General Bunch:** It's the prototyping and experimentation money to get it through the point that we could make a decision.

**DWG:** So is that FY19 funds?

**General Bunch:** It's '19 and '20 already. Well, '19 we finished; 20 we've got the money laid in to go through [here], and then within the lab we'll have the money we need for the prototyping experimentation to carry it forward.

**DWG:** So some of that is still held up in the budget process for the Vanguard programs.

**DWG:** Can I just follow up on the CR? Are there, it looks like you're going to be on a CR for at least a few days or weeks or whatever. It's hard to say. Are there kind of pressure points coming up? Are there dates that you really, really hope they make now that they're -- it appears they're not going to make the first one.

**General Bunch:** The one that, and it impacts everything. And it impacts, there's an impact not everybody realizes about this, that it does to the work force, and I'll circle back to that.

The one I'm focused on all of them, I really want to get this done so we can get the EX RFP out, get that moving forward so that we can buy. I think we're trying to buy eight aircraft this year and we need to move if we're going to get that done and try to get those delivered as early as possible. So we just need to continue moving down that path.

The part of the CR that not everybody always talks about is, you have all this money that you're planning on spending for the entire year. You have a contracting work force that's trying to do all this work over a year. By the fact that we delay it, you now get them to the point that they're trying to award the contract. They start later, we've got budget goals we've got to hit for expenditures and all of that. We end up cramming our

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contracting work force into this little corner to get all this work done, and it's a huge impact on the work force that not everybody kind of remembers or realizes, but it's one that as -- I have 80-plus thousand Airmen I get the privilege of working for. A large part of those are contracting officers and it has a dramatic impact on their lives because it just creates a lot more churn in a shorter period of time to try to get everything done.

**DWG:** I'm Theresa Hitchens with Breaking Defense. I apologize for being late. My Uber driver got lost. [Laughter].

**General Bunch:** Thank you very much, a point on key.

**DWG:** I have a question about going back to open architectures and the software and dealing with the contractors in changing the system. I know IP is a big problem, but I wondered if you might make some progress with sort of, something called Right to Repair. Right to Repair is like what happens with my iPhone. I can't repair my iPhone or I break the warranty.

Is that something that you're looking at sort of separately from the IP issue because it's a back-end thing that might allow you to do things with 3D printing or something like that that might solve some of the problems.

**General Bunch:** So we are having discussions about how do we make that business model work. Do you have a licensing fee for someone that builds something that gets added to something that someone else has done? I'm not the tech expert for what happens with an iPhone or an Android or anybody else so that I'm not throwing anybody under the bus. But if you build that, they don't really build a whole lot of the Apps. They get a certain percentage of the Apps when they're done. So there are different things that we are considering.

Could you build it such that if an industry partner gave you some open architecture or gave you something that you then

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wanted to add capability to, is there a means or a methodology that they could recoup and get money for allowing that? So that's a different business model, though.

So those are all things that we're trying to work our way through how we go forward with this, in the software -- I mean software is the driver right now for many of the things that happen because the technology's changing so quickly. So there are avenues we're looking at there, ma'am.

**DWG:** John, then Lee.

**DWG:** You were in on the ground floor, as it were, on the B-21. And at that time the Air Force was talking 80-100 airplanes and now we're hearing more along the lines of maybe 150 airplanes. So if you can, tell us, the contract was structured I assume for 80 to 100 and facilitization to build at a certain rate. And the Chief now is talking buying more airplanes and buying faster.

So is the contract structured so that you can make those changes without going back and redoing the whole thing?

**General Bunch:** We definitely have not come off the line at a [minimum] of 100, and we know that we want to, and if you look at the Air Force we need, we talk about that we need more long-range strike and that's the bomber force. So we know we've got to have that.

I am comfortable that we've got the contract structured in a manner that we can go higher, and I believe, I'm not worried about that.

**DWG:** So there's --

**General Bunch:** I'm not worried about going back and renegotiating a whole big, and by that time, the time we would do that we would be into the production more and we would

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better, so I'm not worried about that.

**DWG:** Is there still enough flexibility in creating the facility such that you can --

**General Bunch:** That's something we'll look at later on. I believe we have the ability to ramp up some, I just can't tell you how much we can ramp up. And right now the program's staying on track.

**DWG:** -- how long --

**General Bunch:** A [minimum] of 100 is what we've always said publicly.

**DWG:** Lee, you've got the final question.

**DWG:** Not to beat a dead horse but I want to follow up on Light Attack again. Can you talk about the company that did the bid protest? I'm not familiar with them.

**General Bunch:** Air Tractor is just another vendor. They do, the aircraft that I remember seeing from them do not have ejection seats, but they are a platform that's done some of this work before for other companies and other things. But they're an industry partner that's out there that believes that we're, and they filed a protest which is exactly their right. We'll see how it plays out.

**DWG:** Is that still active? I looked it up when you were talking about it and they protested and it closed over the summer.

**General Bunch:** I believe they filed, at least in the notes that I got prepping me for this, that I have one active on both the AT-6 and the A-29 RFP that we put out that they filed a protest on.

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**DWG:** Pat, I apologize, you had one also.

**DWG:** Real quick, not the right real quick question, but how do we resolve the F-35 IP issue? Actually what I was going to ask is how many ACAT-1 programs are modeled under Total System Performance Responsibility?

**General Bunch:** TSPR was definitely what we were doing on the F-35 at that time. That is, I'm trying to think my way through. I know we don't have that in what we're doing on the B-21. I know we don't -- that's probably one of the last big ones that I'm off the top of my cranium thinking of.

**DWG:** Really?

**General Bunch:** I won't swear to that, but off the top of my cranium that's the biggest one that I know, big elephant we've still got out there modeling them.

**DWG:** From your acquisition experience, why did you get away from that model?

**General Bunch:** I believe we have to be more involved to control our future than allowing it to be turned over to the contractor and letting the contractor do those type things. They're great partners and partnering with industry we've built the most dominant Air Force the world has ever seen. And in partnering with industry, it's going to be the only way that we will continue to be the most dominant Air Force the world's ever seen. But we need to have more involvement and we need to do some things organically and we need to have more of a role in that and we need to be better buyers and more technically savvy with what we're doing.

Over the years back, we lost a lot of expertise in some drills that we did when we went down this path. We're now rebuilding that up. It's not that I want us to be able to do everything, but I do want to have the right level of expertise to sit down

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and have an across-the-table dialogue about where we're trying to go and understand the technology and make a smart business decision on where we're trying to go. We just need to be more involved in those areas and that's the only way that TSPR is not one that, it's just a model that they're great partners but we need to be there sitting at the table, having the dialogues, making the decisions and moving forward together.

**DWG:** Did you say the B-21 or the F-35 was the last big TSPR?

**General Bunch:** I said the F-35 is the last one that I'm aware of. The B-21 we know we're already looking at organic depot. We did it with an open modular system, open mission system architecture so that we're not tied completely to the contractor forever. That's exactly what we did on GBSD. That's exactly what -- it's a whole new mindset with trying to have that ability to inject that technology on a more relevant timeline.

**DWG:** Thank you very much.

**General Bunch:** Thank you all very much. You all have a great day. It's good to see all of you again.