

AIR POWER CONFERENCE

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GENERAL GOLDFEIN: This is an honor to be here. I will tell you as an air chief, let me speak to my fellow air chiefs, this is like therapy for us isn't it. Because when you're actually working to organize, train and equip and build a service, it is easy to sometimes think that you're all alone in the challenges you face. If there is one thing that has come through loud and clear, I would say that we face so many common challenges. We're working a lot of those same issues together. So, I want to spend just a few moments talking about some that I'm passionate about, that this conference is all about, which is joint warfare, and talk a little bit about some of the things we all face together.

Here are a couple of questions to pose for the discussion. Who do we need to be in 2030? Not so much what do we need to buy -- I'll talk a little bit about that -- not so much how do we fight -- I'll talk a little bit about that -- but who do we as Airmen, as the Air Component, need to be in 2030 to be able to fight and win in the kind of environment that is not only here, but coming. We've heard that as a consistent theme through several of the panels. And why 2030 for me?

So, I'm the 21st Chief of Staff of the United States Air Force. In our service, that is generally a four year term. In 2030, Chief 24 will be in office. If we go to war against a peer or near peer country in the timeframe of Chief 21, I will actually fight with the force that was built by General Mike Ryan and General John Jumper because that is the nature of what Chief's do. We procure and build and sustain forces that others in the future will have to fight. In my service, Chief 24 is going to be promoted to Brigadier General this year. So the question for me as Chief is what kind of service am I building for her or him to be able to fly, fight and win in 2030 and what is standing in our way? How many of those things that are obstacles that we've talked about in some of the panels are things that we actually can have some control over?

Let me start the discussion with some attributes that I believe we all need to be thinking about relative to the future of conflict, and I think there are five. The first is, conflict of the future is going to be transregional in nature which means they may not live within the confines of our current combatant commander maps. Doggone-it our adversaries are not paying attention to our maps. So, think about it, the Russia challenge is not just a EUCOM challenge that General Wolters wakes up and thinks about. The Russia challenge is actually a EUCOM, AFRICOM, PACOM, NORTHCOM, STRATCOM, TRANSCOM, SOUTHCOM challenge. As the service that brings global vigilance and global reach and global power, a question for us is are we thinking globally. Are we thinking as global chess masters or are we thinking about the

game of checkers? Are we thinking about linear action? If I get pressure from the East I'll build up a force that can counter from the West. If I get pressure from the East do I think about how I can actually create multiple dilemmas at a pace that an adversary could never counter? From the north, and the south, and the east and the west and all domains and achieve the decision speed that no one can counter in a way that that alone become deterrents in the 21st century. Think about our supported and supporting relationships in a transregional fight. I would submit to you, we have to think creatively about that.

A single launch from North Korea. Five to ten minutes of flight. In its initial launch trajectory, we're not sure exactly where it is or where it is going and if it is going straight up into space it's going to attack one of our system, then the supported commander is the STRATCOM commander, Strategic Commander. If in route, it tips over and starts heading to some location in Pacific Command, immediately the supported commander for taking action is the PACOM commander. If it continues on its trajectory towards the U.S. homeland, it transitions to the NORTHCOM commander to take action. Three supported commanders in ten minutes. We've got to think about the relationships of supported and supporting when it comes to transregional conflict.

Multi domain. We sense the globe in six domains: air, land, sea, space, cyber, under sea. If you don't actually add under sea as a domain you forget about it. We create reams and volumes and terabytes of data. And then we have to turn that into decision quality information and a common operational picture so we can make decisions in a speed that outpaces our adversaries. And then we have to be able to create those same effects, from those same domains to create so many dilemmas for the adversary that in and of itself it becomes deterrents in the 21st century. So, for those in the CAOC right now, I submit to you, they already to this. When I was the CFACC for General Mattis when he was the CENTCOM commander I actually thought when I went to work that my primary responsibility was to take air assets and make sure I place them with the right attributes. Understand the ground commander scheme of the maneuver when he had 170,000 Soldiers, Sailors, Airmen and Marines on the ground during the surge. I thought that was the primary responsibility of the CFACC, but actually that's not true. What I really did, was regional command and control and bring together all of the elements of all of the components that brought capabilities into all of the domains and stitched them together as the joint fires coordinator both kinetic and non. I would submit to you that Airmen are performing that function across all of the Combat Commands. We as the Air Component need to be thinking about how we stitch together all the domains to be able to create the effects that we're looking for.

Multicomponent. I would submit to you that we are more interdependent as components then we have ever been. Occasionally, back in the U.S. you may hear talks about we're growing a bigger Air Force or bigger Army or bigger Navy. The reality is those are interesting conversations but not really compelling. If you grow one bigger you're going to think about growing them all bigger. So, how do we think about pulling together the various components: air land, sea, space, cyber, under sea, land component, maritime component. How do we pull those altogether to be able to create effects for the future.

Multi-national coalition. We've heard that throughout this conference. By, with, and through. I would submit to you that we have got to take a strong look at how we are doing culturally relative to information sharing and the systems that we have pulled together to do multi-coalition warfare. I would offer to you that maybe we've been asking the wrong question growing up. How many conversations have we been in where the question we ask is, "what can I share?" It doesn't take long in that conversation before somebody says, "nothing." Think about it this way, the youngest member of our organizations through the click of a mouse can set the classification level on any document or piece of information that comes across their desktops. The youngest individual, secret can't share. It takes the oldest member of the organization to undo that, often through a laborious process that we give up on. Perhaps a better question is, "what can't I share and show me why." We have to be careful about ensuring that the distance between have and have nots when it comes to exquisite technology does not make coalition warfare harder in the future when our political leaders have told us that our strategy is by, with, and through.

We have to think about speed of warfare. We have had the luxury over the last 16 years of actually having a fair control over the rheostat of time. Think about this. We've been able to state publically that we will be going into Mosul in, you name the time. There is not much the enemy could do to change that timeline. We've got to understand that in a future conflict with peer on peer we may not have control of the time dial and, in fact, we probably need to think about adversaries who can significantly change the time factor. We're going forward and part of that is the recognition that in 16 years of warfare, we have been able to fly, for the most part, wherever we've wanted to fly. We've been able to operate in relatively uncontested environments. Syria is a bit of a new game for us. So, when we take a look at future conflict and the attributes we have to prepare for, I would offer that speed of warfare, speed of decision making is going to be key to success for the future. So, what do you do about it?

Those are five attributes of future conflict. I would offer there are three war fighting imperatives that I will tell you that I'm focused on to ensure that our Air Force, our Air Forces, our Air Components are prepared for what is coming. You don't know much as a service chief with absolute 100 percent accuracy. Very often when you get to this level, you're making decisions based on gut and instinct without perfect information. Here is one I actually know this one for sure. You and I have from this moment until then to get ready and every day counts. We ought to be treating every week as a blessing and as the last week of peace. Here are some areas where I'm focused to ensure that we are preparing for this conflict that is coming.

War fighting imperative number one. And there are three elements to this: making sure you get your formations set, you get your leaders developed so that you have the folks that can actually lead and succeed in this environment and you have your technical baselines so that you're procuring against the kind of warfare that you have to fight and win in. For squadrons, this for Airmen, is the core fighting unit of most of our organizations. It is where our Airmen join when they got of their pipeline training. It is where Airmen families thrive and where innovation often very much occurs. It is where readiness is generated. I would submit to you it is probably

the most important level of command you ever have in an organization. It is where you have the most impact on individuals within the organization.

I did this unscientific study some years ago which is code for I called my dad who used to fly RF-86's in 1966. Since my brother is up in the room here, he can vouch for me on this. I called him and I said hey dad, I said tell me when you took off to do a mission in the RF-86, how long did it take you to plan, brief, execute and debrief and take a typical mission. He said about five to six hours. I said, okay. Any chance you have a yearbook from those days and so he dusted one off handed it to me and I'm looking at his year book from 1966. I'm actually holding the unit manning document, for a squadron in 1966. They are in 10 year increments. I took a look at how long did it take to plan, brief, fly, debrief, execute a complete mission. If you take a look from going to the RF-86 to the F-4 to the F-15E to the F-22 and now the F-35, it's actually not linear it's actually almost exponential. So, today for example in the F-22 or an F-6 or our F-16 squadrons take on average 12 to 15 hours to fly a single sortie. What has happened? We went through a period of time where we were actually upgrading the aircraft with hardware and that was on a linear path. Then we got to the point where we could actually upgrade the capabilities of the software. Someone would show up and they would squirt new technology into the airplane and you've got new capabilities and we've got an exponential curve. So, the timeframe required to be able to plan for and execute missions went up. So, then I went back and looked back in 1966 and looked back to 2016 and said what is different about the makeup of a typical squadron over that time frame and the reality is the United States Air Force for the most part we look today about like we did in 1966.

The fundamental question is what does the 21st century squadron look like for the kind of technology that we have at our fingertips and what we're asking squadron commanders to be able to execute? If, in fact, we agree that squadron commanders are the most important level of command in our organizations, how are we doing at first selecting those who have great potential for command and then preparing them for this most important level they will have? What does the organizational chart look like in our Air Forces? I will tell you I'm trying to draw for people is I'm at the bottom, squadron commanders are at the top and everyone else is there to support what they get done every day. We had a commander some years ago, we used to have Tactical Air Command and when they would out brief an IG inspection at a base, he would take the entire staff, put them on airplane and he would fly them to Wing and he would sit them in the conference room during the out brief of the inspection of the Wing Commander. When the IG inspector was saying okay now this particular part didn't go well, he would stop and he would look at the Director of Logistics and he would say, "why didn't this wing commander get what he or she needed to be able to succeed in this particular area?" It was an important message for the staff that staffs exist to support commanders in the field to make sure they get the mission done.

So, we have a full court press of looking across the Air Force to determine what does a healthy squadron look like in the 21st century. How many can we actually sustain across our Air Force. How do we repurpose manpower within the Air Force to ensure these squadrons are healthy and how do we revitalize them as the real heartbeat of an Air Force?

Joint leaders and teams. I love this picture on the left. I'm picturing the conversation that occurred this morning between the JTAC and his team. He said he guys, here's what we're going to do this morning. We're going to get up and stand on the end of the runway and we're going to have an A-10 that is fully loaded with bullets and bombs and it is going to scream down the runway at us. Right before it plows into us it is going to take off and we're going to get the best picture ever. That is trust and confidence. The reality is this. When I talk about joint leaders, I will submit to you, this is something we all need to think about as Airmen. Most of our joint partners actually don't know what these mean [points to Air Force Specialty Code badge]. They don't know whether these are flying wings, cyber wings, space wings or you name it we all have different kinds of badges. Here's what they know. We walk into the room, they see Air Force, Airmen, Air Component, they expect that we understand the operational part of air, space, cyber capabilities and pulling all of that together. When we have any of our Airmen that are in a conversation with our joint partners, they say I'm not sure how that works in space, I just fly, fill in the blank. I think we're doing a disservice. So, we're looking at how do we actually raise leaders within our Air Force that are not looking at the world through a particular weapons system that we fly but about the operational part of how it all comes together. We're looking at those key competencies that you have to have to ensure that you fulfill your obligation as a joint leader when you sit down at a table. As a CFACC, my boss, General Mattis at the time, when I first walked in he says, "hey Goldfein good to meet you. You're my space coordinating authority." Of course, I said, "great, I got it." I called back to 14th Air Force and I said hey I'm the space coordinating authority. I hadn't been a space coordinating authority before. I said what does that mean can I actually move a satellite? She said not so fast there partner. Your job is to make sure you understand your fellow Component Commander's requirements, the Combatant Commander requirements, what capabilities are out there and you're the connective tissue to make sure that those requirements are fulfilled according to the campaign plans of each of the Components and the Combatant Commander. That's the expectation of you and I and our Airmen.

So, the question is how do we develop them to be able to understand that operational part? Do we have the incentive programs within our service to ensure that we promote against what we value? How do we ensure that we are prepared to not only join but lead a joint task force? There are over 60 Standing JTFs right now around the globe that we have going. If you look at the history of joint task force stand up, it's about six weeks on average between the crisis and the actual stand up of a JTF. That is not the time to start learning the language of JTF operations.

What I found within my own Air Force is that we over 16 years of warfare where we haven't been asked to perform JTF functions, we've walked away a little bit from having that core capability within the Air Force. It began pretty clear to me during the Ebola crisis as the Director of the Joint Staff when we were looking at who do we send in now to Nigeria to work that problem set. The first discussion that happened was okay, what is the next Corps, what is the next Army Corps headquarters that is ready to go. We started to find the mission set and then taking a look at what services actually had capability, deployable command and control capability to be able to go forward and run this JTF. Quite frankly, over 16 years, we've all done strategic trades and we have traded away some of our deployable command and control

capability and JTF's. We're rebuilding that back. I will tell you at Shaw Air Force Base, we had a headquarters that is focused on building a JFT core headquarters with the resident capabilities and the skill sets to be able to send, go in and lead JFT's. Building joint leaders and teams, strengthening how we build joint leaders and teams and how we present forces is absolutely key to the future.

Number three is multi domain command and control. If you go back to thinking about sensing the globe, air, land, sea, space, cyber. Turning that into decision quality information and a common operational picture and then being able to create effects as the joint fires integrator, this is central to us. Right now, at Al Udeid they're doing this. I would submit to you going back to speed being one of the central elements of future warfare that we've got to think about, we may not be fast enough for what the future requires. Some of that has to do with how we put together our systems. If you stand at the cat walk at the CAOC and you look down at the floor it's arranged a little bit like a football field, offense and defense, unless they've changed it. If you look below it, for instance, the space cell is right next to the personnel recovery cell and just using those two as an example, one would argue that you need capabilities from space in terms of being able to do personnel recovery. But if you were to look below their feet what you would see is that we procured most of the space architecture from one company with formatted data rights associated with that particular contract and then we brought the personnel recovery to a different contractual vehicle. Then to be able to share the information at the speed we require from space to do personnel recovery, we have to go back to industry and build gateways and talk to them about data rights and information flow. So, I would submit to you that we need to think about command and control relative to the speed of information flow so it can do those two critical things which is build that common operational picture for decision makers and achieve decision speed in a way that we can create so many dilemmas for an adversary that they could never take us on. In the business of command and control as we build this out for the future, I would also submit to you that we need to think about how we do this in a coalition friendly environment because we will be doing this together.

These are the three areas where I'm focused in terms of war fighting imperatives of Chief of Staff of the U.S. Air Force. We've heard a lot of talk about the challenges we face. I'm one that believes that with every challenge we're handed, there is an equal opportunity. The larger the challenge, the larger the opportunity. So, I'm going to leave this on a positive note because I will share with you that as chief, I'm as excited and optimistic about our future as I've ever been. There are some fascinating technologies that if we can partner with industry on, it is going to fundamentally change the way we think. I go back to that question of who do we need to be in 2030 and what is standing in our way? Let's talk about a few of them.

For the second time, I'm going to go right TO here. On the left, how many folks have used Uber. Okay, so personal recovery. Let's think about that. Common operational picture. In 2030, let's all agree to this. In 2030, if we still got an S in CSAR, if we're still out there searching to find people in 2030, shame on us. So, here we've got this company called Uber and you can call up iPhone and you can get a common operational picture of the environment. You can look at various modes of transportation that are available for you and you can actually pick

the one that best suits your particular situation. Once you pick that particular mode of transportation, you get immediate information about driver, you can get the license plate, the car, everything that you get right there. And then on that common operational picture, you can actually watch that vehicle as it approaches your location. Perhaps we're looking at CSTAR of the 21st century? If we could only think about partnering in the future.

What does the world look like to us militarily if every inch of the globe has been imaged and you can go on a commercial website at any given time there is no place on the planet that you actually can't go look at. That's coming. Industry has determined that launching small satellites that can go into low earth orbit, hundreds of them, to be able to then look down on the earth and image every inch of the earth and make that available to us commercially, what does that do to military operations. For those of us who actually were in Desert Storm and remember building up for six months for the big left hook, what does that look like if any potential adversary on the globe can go to a commercial website and look down and see all the activity? Challenge or opportunity? What does that network look like if we can actually tap into it? How do we think about that if we actually know they're always looking at everything we're doing? How do we exploit that information? How do we use that network that is up there? Industry is going there; the question is how do we jump on board and make use of it for military purposes.

SpaceX. I went down to a launch at Cape Canaveral. SpaceX has determined that to make space launch commercially viable, the most expensive part of the ride is actually the motors in the first stage. So, for us what we would normally do is dump it in the water but what SpaceX has done is they actually save enough residual fuel and after it reaches the point where it sends the payload into orbit, they actually fly the first stage back to a pinpoint landing on a barge here. The last one I saw at Cape Canaveral was one football field away from the launch site. Is that what follows the C-17. Are we thinking about payload and precision guided reentry from low earth orbit and how we can place payload anywhere to the planet? What does it do to our supply chain management if we can actually get payload to lower earth orbit to any place on the planet in less than an hour?

The one on the right, Moon Express. So, this is a commercial company that is studying how to mine ice on the moon because it turns out there is a lot of it in the north and south poles of the moon. When you mine ice, you get two elements of hydrogen and oxygen which happen to be the two elements of what is required for rocket fuel. If you then place those elements in orbit, you now have gas stations in orbit. Is that the next KC-135? Is that the next tanker and are we thinking about access to space and where commercial industry is going relative to the military applications for us?

Sir Richard Branson has developed an element called Virgin Galactic and he has determined that the most rocket fuel costs are from the surface to 50,000 feet because that is where the air is the thickest. But if you can actually get a mothership to take you to 50,000 feet and it will launch you from there, then it is quite cost effective. So, his business model is to take seven passengers into lower earth orbit for a bit of a ride right now. He's already got several folks signed up. The question for us is what does that mean if I take seven special operators, put them on this and then can get to any place on the planet in less than an hour? What does that do

to us and what does that do for us in terms of all the scenarios that we think are a way through? This is the technology that commercial industry is now going for. So, I would share to you that with all the challenges we talked about in the last couple of days, there is as much opportunity for us if we could just jump on it and grab it.

I started off with a question and said who do we need to be in 2030 and what is standing in our way. I'll leave you with this. Our nations expect us to own the high ground; air and space superiority. When they see blue, which most of us are wearing, that's what they expect. They expect that we are able to go in and gain ownership. One of the terms we throw around a lot and we used here the last couple of days is anti-access area denial, A2AD. I would submit to you that there is no country on the planet that can put up a block of wood or a brick wall that we can't get through. The best they can do for any of us is put up a block of Swiss cheese which has holes in it that we can exploit, and that's our job. Gain and maintain air and space superiority which I define as owning the high ground and develop the leaders within our services that are prepared to lead or support joint and combined operations for the future. In the environment I described for you up front. It is an exciting time to be an Airman and I thank you very much to Sir Stephen for setting up a spectacular conference. Thank you very much.