

072618 Air Force Association with Lieutenant General VeraLinn “Dash” Jamieson,
Deputy Chief of Staff for Air Force Intelligence, Surveillance and Reconnaissance

GEN. LARRY SPENCER: Good morning, everyone. Good morning, everyone. Orville, could you get your table quieted down a little bit? Thank you.

Thank you call for being here, we really appreciate it. We’re really happy to have our guest speaker for the day. I’m Larry Spencer, I’m the President of AFA. I’m really pleased to introduce our speaker.

She is the Deputy Chief of Staff for Intelligence, Surveillance and Reconnaissance. She is a career intelligence officer and has held six joint positions throughout her career, including serving as the Deputy Commander, Joint Functional Component Command for Intelligence, Surveillance and Reconnaissance for U.S. Strategic Command. She is also a combat experienced and operational expert, having served in multiple contingencies to include Operation Desert Storm, Unified Response, Enduring Freedom and Iraqi Freedom.

Every day her intelligence officers are conducting risk analysis and coordinating ISR capability allocations to provide combatant commanders with the intelligence they depend on to make tough decisions. Like most of you, I’ve had the opportunity to work with General Jamieson, and when I think about General Jamieson four words come to mind. One is competence; leadership, for sure; one is warfighter. Those of you that know her know that she -- you know, a lot of us throw that word around, warfighter. She is a war fighter. And the final one is innovator.

General Jamieson, quite frankly, to sum her up as senior general officer in the Air Force, is a superstar. We’re really happy to have her here. General Jamieson, thank you so much for being here. Ladies and gentlemen, General Jamieson.

(Applause).

GEN. VERALINN JAMIESON: Thank you very much, General Spencer. They must be serving a really good breakfast, because I thought, wow, when the former Vice Chief of Staff has four words to describe you, you get a little nervous. Where is this one going? Thank God the Capitol Hill Club served a fantastic breakfast.

It’s an honor to be here, so thank you very much to AFA for hosting this fantastic breakfast. It really brings together a great group of folks that need to actually share ideas, thoughts and networks, so I really appreciate that. It’s really my honor to share my thoughts with all of you on really what we’re doing in the ISR enterprise.

Before I start, I have to also say one other thing that AFA has done personally for me today that really took me by surprise. My college roommate is sitting here amongst the audience and I haven’t seen her in 14 years. Since then she’s gotten married, so

Maureen Conners is now Maureen Dezell. Thank you for attending and thank you AFA.

(Applause).

So now I really feel like there's pressure. Forget the rest of you, she actually knows who I am and how I actually went through West Virginia University on her laurels as a journalist major and a literary aficionado. I'm a little taken aback right now.

I want to talk to you all a little bit today about where the ISR enterprise is going. I'm really going to focus in on the macro topic of, in essence, artificial intelligence, machines, human teaming, machine learning and all of that. I'd like to start off with great thoughts from inspired folks, so I'm going to use Simon Sinek. He usually says everything start with why. Our why is that we stand at the gateway to an entirely new frontier today, one of technological innovation, and the stakes are extremely high. I think everyone in the room understands that.

In terms of technological change, there's much to gain and we all know certainly there's much to lose. Across all the spectrums of our daily lives, this digital age is bringing a culture and changes in the world that really make those of the previous era seem minimal by comparison. I only have to say, if everyone has got a smart phone on them, you know exactly what I'm talking about.

So, as we look to going forward, those at the forefront of adopting and developing digital applications, such as advanced analytics, machine learning, virtual reality, cloud-based computing -- and we're going to talk about that in a little bit -- and a combination of these examples and many more ideas, will enjoy significantly new advantages over those who don't and those who lag behind. The forerunners will be in control of tools that will analyze more information in more ways than we ever thought possible. These trained operators, using those tools, will deliver better strategies, methods of solving problems, and accomplishing goals than we've seen before.

I want to wrap up that thought with in this age, second place might as well be last place. You can read a lot of documentation, not just from the U.S. but from the EU and from China and Russia, that actually state the same thing. So, if there's one thing that has united the globe, it is this digital era and the impact that it has on all of us.

So, as we, the United States, face a return to great power competition, resources to the Air Force are only valuable if fielding mechanisms are supported to assure the forces best equipped by using emerging technologies on mission driven applications. Secretary Mattis makes it very clear. Our competitive edge has eroded in every domain of warfare: air, land, sea, space and cyber-space, and it's continuing to erode. That's quite a statement from the secretary of Defense.

Furthermore, if we are to look and read and study the National Defense Strategy, it prescribes that we must not only preserve but expand our military advantage. To that end, the chairman of the Joint Chiefs of Staff, General Dunford, has noted that in order to

maintain our competitive advantage our military must, and I'm going to quote him, "Address all domains, trans-regional challenges and conflict, enabling execution of military campaigns with a flexibility and speed that outpaces our adversaries." I've got to tell you, that's a tough hurdle when everyone, to include China, Russia, Iran and North Korea, actually understand speed is of the essence in the digital age.

So, with this reality in mind, I'm going to get back to what I kind of know most, and that's our current ISR enterprise. I've got to tell you, and I'm going to share with you, our ISR enterprise today is not postured to meet these challenges with the intent laid out in the National Defense Strategy. It says, we must compete effectively in the current and future global security environment. So, our aim is to answer the call with you, industry, academia and government, and it's really simple. We must build the next generation ISR enterprise capable of possessing decision advantage across the entire spectrum of conflict.

You might say, no kidding. But if you look at where we've been for the past 20 years, we really focused on a permissive environment to fight a BEO fight. We did not look across the entire spectrum to build and think and develop the high-end fight that we believe we are facing today.

So, the secretary of the Air Force provided us really five priorities to address. Those five priorities are: one, restore readiness; two, effective cost modernize; three, drive innovation; four, develop exceptional leaders; and five, strengthen alliances. All these priorities in concert will not only restore, but we believe will increase readiness and lethality, and that is our job.

Incumbent upon us is to integrate and balance the ISR portfolio. I don't mean we're going to have equal spending across the board. We're talking about balancing the ISR portfolio in all domains, whether they be manned or unmanned, stand-in or stand-off, penetrating or persistent, air, space, cyber-space, to set a path towards an environment enabled by airmen operating through a multi-domain, multi-intelligence in a government-commercial partnered collaborative sensing grid, utilizing technology at the speed of relevance.

For about two decades we postured our enterprise via a manpower intensive solution to support operations, as I said, in a permissive environment, addressing irregular warfare, tactics in extinguishing violent extremist organizations. And I want to take this moment to say I think we're pretty damn good at that issue. Yet in order to address the peer threats that loom ahead of us, this approach will not answer the demand.

Since 9/11 we've had an opportunity to surge our force, to increase our budget as well as it has been -- there has been an increase -- but more importantly to build the best war fighting capabilities the world has ever seen. But I want you all to understand, increased budgets and manpower are not guarantees. As the chairman stated in a Joint Forces Quarterly article that came out this month, there is no right to victory on the battlefield. We've got to think differently and we've got to approach things differently.

So, in order to ensure success today and tomorrow, we will need a whole of enterprise approach to align ends, ways and means to accelerate transitioning from a manpower intensive approach to one that is machine learning intensive. Industry and airmen will be asked to increase both quality and quantity of ISR production while remaining competent across the range of military operations. This is no easy feat, but I've got to tell you we are going to do this as a team, just as we have done for the past seven decades.

Before talking about some priorities, I would like us all to come to the realization that in today's environment there simply is no such thing as sustained comparative advantage. In today's digital age the acquisition or employment of more sensors, platforms or assets, the things in a traditional sense, will no longer be the continuing answer to the intelligence problems we face. The solution really does lie in what we do with the data and the information we are already gathering around the globe.

So, we are working with industry, academia and others on core technologies and our treatment of the data must fundamentally shift. You've all heard some of these things being coined, these phrases being coined. Our vice has said data is our gold, our oil. I have said data is a weapon, and all of us need to treat data in this light.

We're on a journey. We're on a journey from data to analytics to machine intelligence, towards human to machine teaming concepts using artificial intelligence. We've determined a path moving forward that really actually has five steps. All of them use state-of-the-art technology, so I'm going to take some time to actually talk to you about where we see those five steps, those five elements.

Number one, operate on a commercially relevant information, technology enterprise architecture centered on compute as a service. Now I've got to tell you, I'm a West Virginia graduate. Perhaps I was a B student, and I was a marketing major.

I talked to my millennial awards captain Kagan. If you really want to know who understands artificial intelligence, who understands the application of human-machine teaming, virtual reality and how do we actually lead this in, you've got to look to our young captains, because they grew up in that world. They don't know anything but this.

So, when he tells me this I go, let me put it in old Dash speak. What are we talking about? What we're really talking about is compute as a service means I need a platform, in need infrastructure, and I need the software. I just don't need a data storage facility.

And I've got to figure out, how do I do it on premises, how do I do it on the cloud? I need you to help me with that. As a service: infrastructure, platform and software. That's what we're talking about, a package bundled deal, and we're going to have to work together to figure that out.

The second theme is, securely create and transport quality training data to appropriate compute architectures combined with a talented workforce. There's another big one, so let's get back down into Dash speak. What are we really talking about? It's all about your training data. It's got to be pure. And that training data is no good unless you have got a talented workforce to actually develop algorithms that can learn from each other when you use that quality training data.

Number three, identify, understand and measure authoritative data and information across the enterprise. You've got to check the veracity of your data. You're starting to see really, it is all about the data. And then you have to develop and field algorithms at speed and scale to share those techniques and solutions.

This one isn't easy. How many of you in here drive Teslas? Because you all are icons of industry, I know you're buying Teslas.

(Laughter).

Okay, I had a feeling you were going to say that. But if you actually own a Tesla, every time you start up there's already been an instantaneous upgrade to all of its software. You don't do anything.

So, let's take the Dash approach. I watch Netflix. Netflix does the same thing.

Every time you log in it has already updated, simultaneous at scale and speed to everyone turning on Netflix, instantaneous updates. That's where we have to be, and our workforce has to understand that. Industry has to understand that.

Finally, and I talk about this at length, you have to access and employ a skilled, educated, mission-oriented workforce. What that means is we actually have to talent manage those who volunteer to be in our services. It's a daunting task, but we know we can do this.

I want to talk about one more concept that I hope we can accelerate in the future and hopefully we can partner and flesh this out. It's just one of our new frameworks and it is in development, so there's not an end yet. It's called SIAS, sense, identify, attribute and share. Let me explain why we're looking at this new framework.

The industrial age manpower intensive process to make sense of data was called PED, processing, exploitation and dissemination. I've got to tell you, that was state-of-the-art during its day. It's a very linear process. It's a very time consuming process. And as I mentioned, it is a very person powered process.

So, what does that mean in the digital age? The PED paradigm is no longer sufficient for war fighting decisions at the speed of relevance. I'm going to give you a nice little Dashism, for ISR and our team, PED is dead. Now we get it, PED is dead. We

can't think that way, we've got to move forward.

So that brings me back to our thinking. Our thinking is about automation, machines, and human-machine teaming. As a result, processing, exploitation and dissemination is going to be done by machines. Those are rote tasks, you don't need people to do them.

Yet we do need our analysts to harmonize the data into decision quality at speed. So now that we've come to grips with that thought, we also want to give you some more insights and some details on what exactly is SIAS. So I'm going to go through the acronym. You know we're the military and we love acronyms.

SIAS, S-I-A-S, so let's start with the S, which is sense. What do I mean when I say that? I really mean multi-domain ISR from a sensing grid: air, space, cyber, ground, surface, sub-surface, to provide indications and warning, tipping and cueing, and operational preparation of the battle space.

The I, identify, meaning what is the integration of different characteristics on what we're collecting and how do I put that together to form pattern of like or trend analysis? The identification of those characteristics, those trends, leads you to the A, attribute. You have to actually provide the ultimate end-game. We actually have to answer the who done it question. It's just very critical when you look at cyber-space and space, because we all know -- and I'll give you an example with cyber-space -- you can take a very wandering path and be misled on who you think is actually doing something until you actually get to end-game attribution.

And then finally, the last ending in S really is, you've got to share these insights, not just with warfighters and coalition, you've got to share them with industry, academia and other partners to help us evolve this thinking and this framework. So these are the elements and the concepts I think we all need to embrace. Why? As we speak -- I am A2 and I've got to talk about our adversaries, our peer competitors.

China surpasses the world as the largest producers of scientific articles. It owns the two fastest supercomputers in the world. Today they are building several digital artificial cities, artificial intelligence cities, in a military-civilian partnership. That's really critical.

So, what does that mean? Why do we need to have a discussion with industry and society on artificial intelligence? This is the best example.

Our society, our Western culture and norms, values privacy. China does not value privacy, so here is an example. China has got facial recognition algorithms and they have used them in mass sporting events to actually identify problem people. They have done facial recognition and they have taken people out of the stadium.

We need to have a conversation. That does not fit Western norms. That does not

fit our expectation of privacy. We need to discuss this.

China has also published an action plan for promoting development of a new generation of artificial intelligence and technology industry. This is one of their main efforts that was cited in the 19th Congress. Additionally, they recently announced they want to be the global leader in technology by 2030, with a domestic industry boasting \$150 billion in cash. Just to put this number into perspective, we estimate the total spending for artificial intelligence systems in China for 2017 was \$12 billion. We also estimate it will grow to at least \$70 billion by 2020.

Now I'm not going to make an editorial, but if you read any of what our fantastic press colleagues have done, there was some press out there yesterday about what was in some of the reports on NDAA and some markups. Go compare what we're spending to what China is spending. So, this makes China's vision for artificial intelligence a true moon shot.

Let me explain to you their formula, because I think it really is pretty straightforward, clear and very effective, to some degree, and you'll understand when I tell you. Here is their formula for technology. They want to be the world's biggest. They want to have the world's data sets, plus algorithms, plus super-computing, plus artificial intelligence technology centers, plus global talent to equal global domination.

So, I posit, why are they doing this? They're not 10 feet tall. They've got their issues as well. Here are some of the reasons we've considered why they're going down this path.

They actually have to solve their structural problems with regards to an aging population, growing gross domestic product to actually instantiate a middle class that has become accustomed to a specific living standard that was not available to their parents or grandparents. In their own words, they have created a mandate to build China into a manufacturing and cyber superpower. That's their stated goal.

These are new dynamic approaches we have not seen from the China of old. They show a willingness to foster national innovation, an ability to accept startup failure and to build a digital future. That should really make us think.

So, let's turn to the other direction on the globe and let's look at Russia. In September of last year Vladimir Putin stated -- I think we can all understand, these are his words -- the nation that leads in artificial intelligence will be the ruler of the world. It gives us an insight as to where Putin wants to go.

Even more hard-hitting, the Russian state news reported artificial intelligence was the key to Russia beating the United States in defense. Okay, we got a little more focused there. As a result, I'm going to talk about Russia.

The Ministry of Defense and the Ministry of Education and Science of the

Russian Federation and the Russian Academy of Sciences just recently released their 10-point plan on how they will organize and develop artificial intelligence. In that 10-point plan, I've kind of summed it up. I also kind of was struck -- and I'm keeping in mind that imitation is the highest form of flattery. That's one way to look at it.

Their plan includes forming a national artificial intelligence center that bridges academia to industry to implement artificial intelligence technologies. It is fashioned after, and they actually state it, fashioned after the recently announced United States' Joint Artificial Intelligence Center. We call it the JAIC.

They want to form big data and AI consortiums across their ministries. They're holding artificial intelligence war games to determine the impact of artificial intelligence on the changing nature of military operations. And they want to hold an AI conference to be on the world stage.

So that gives us some insight into our peer adversaries, peer competitors, where they want to go and how they want to approach it. It struck me as very obvious, we have one that has a lot of purse strings and one that has a lot of desire, so we have to see how this plays out. We also see, what are they doing? They are competing. As I stated, they are competing against the United States, so we need to really make sure we understand that.

We are again in an age measured by application in order to create chaos and confusion in one's adversary decision-making capability. We'll need to inspire the next generation of young men and women alike. Luckily these young men and women, I like to call them airmen, are our most vital asset that we have. They actually are ready to accept the challenge on the world stage.

So, I'm going to give you one macro takeaway. Our number one priority in the United States Air Force is to empower and unleash our airmen, and I'm going to give you some examples of why this is our number one priority. Over the past couple of months -- I'm going to give you a few vignettes of the young Airmen I've met. And when I'm talking about young Airmen, I'm talking about captains, lieutenants, staff, senior airmen, airmen first class, and airmen, because they are 100 percent millennials and Generation Zers who only know the blending of a physical and virtual world.

One captain actually was 3D printing white boards, and he placed them on the top of the ground control systems. He did this in order to make mission notes, so it was seamless. He didn't have to take an eye away from the chat box, what he was viewing and how he was guiding, sensors. It was right there. He didn't want to look at his knee. He wanted to look up front where all his screens were.

He did this because, as a pilot I have more time to focus my effort on war fighting. Simple, 3D printed, boom, done. We've met Airmen who have coded and developed tools to streamline correction between various platforms. Interesting.

Airmen are using commercially available software for training analysts who specialize in advanced analytic and critical thinking. This one is the one that blew my mind. Let me give you this example.

Airmen at the 485 SAR Wing realized the software they were using in their favorite video game -- and let me just tell you what that means -- it allowed for the coordination between approximately 55 users on other games in real-time. So, they realized the software that they were using in their favorite video game -- in order to complete an assignment -- could be used for training in their unit. So, what am I talking about?

What I'm talking about is we have a weapons system, a DGS weapons system, and we have no trainer for that weapons system. So, these brilliant Airmen -- and the weapons system is called the Sentinel -- these brilliant airmen went, oh my gosh, this video game could be used to train us. They didn't just think that, the team built a military version, they call it Sentinel SIM, with a handful of computers and \$60 worth of additional expenses. If we had put that out it probably, because we have, would cost us millions of dollars to institutional a MOD SIM capability. So, this is what I'm talking about when I say we have to have a paradigm shift. We have to partner and understand and enable and allow our Airmen to do their thing.

Let me talk about that a little bit more. Our Airmen are extremely talented. We have about eight seconds to actually grab their attention and make sure that the technology that we give them mimics what they use in everyday life. Because if we don't do that, they're going to take that eight seconds and they're going to develop their own and they're going to go down a different path.

Yes, we need to synchronize and we need to have a standard and be baselined before we can replicate, train and repeat at scale. We've got to partner together. We want them to solve their own problems, but we want them to team with all of you in doing so.

So, what does that mean to all of us in the room? As I start to wrap up, as I see people trying to pick at their breakfast, I want to tell you first there is no greater compliment to industry than when we say to you, partner with an airman. I'm not talking about partnering with me, an old dog, or my senior leaders. I'm talking about partnering with a captain, a senior airman to actually sit down together and collaborate.

Second, previous operating procedures of providing a capability that we could not develop along the way, is no longer standard norm. As I just told you, they want to take, they want to develop, they want to iterate. That is no longer intellectual property, but the algorithms developed for insights -- find out the priority. These algorithms can be developed by you, by me, our Airmen. It doesn't matter. It's now a team sport and we've got to look at things that way. We need collaborative work environments, iterative deliveries, minimum viable products that we can do development on, and cross-functional teams to get this job done.

Ultimately, we know we can't do it alone. We all have to partner. We all have to partner because we know we've got China pressing ahead with a lot of money in the purse; and we have Russia going, I am the great instigator and I'm not going to be left behind.

So, I appreciate your time this morning, your enthusiasm and not falling asleep. I look forward to any questions you may have. And I want to give a plug. On the second of August at the Mitchell Institute we are going to roll out the ISR Flight Plan. It's at 9:30 a.m. and most of you should be receiving invitations today and tomorrow from the Mitchell Institute.

Thank you so much and I look forward to seeing a lot of you there.

(Applause).

GEN. SPENCER: Thank you so much General Jamieson. We're going to take some questions now. You can't leave yet.

What I would ask is that you identify who you are, what organization you're with, and hold it to one question per person. Quite a pun, but General Jamieson literally has to dash off after this, so if you have a question you need to give it to her now. The floor is open for questions.

MR. COLIN CLARKE: Colin Clarke, Breaking Defense. You currently get your money -- (off mic) -- they are restrictive. Congress likes them that way. I'm wondering if that is the most effective and useful manner for your enterprise in particular to receive funding? If not that, what would work better?

GEN. JAMIESON: I want to be on the record, I really do want funding. Funding is a good thing. Yesterday I believe there was an article from the secretary of the Air Force who stated that she's standing up a Rapid Program Office to get at using some different authorities that she's been given to actually get funding kick-started for what I'm talking about.

This is really not just about my enterprise, it's about all enterprises and all the services. We really do have to change. We need to be accountable to Congress and the American public, but we need to be a little more flexible and adaptive, because the destructive technologies are changing at a rate that our industrial paradigm could not keep up with.

So, I think you're absolutely spot on. We do need to have some different ways to look at things, and the secretary is putting forth some programs to do that. Thank you.

GEN. SPENCER: We'll come back to you in a second.

MR. STEVE HIRSCH: Steve Hirsch, Air Force Magazine.

GEN. JAMIESON: Can everyone else hear, because I can't hear. You're going to have to repeat your question.

MR. HIRSCH: Okay, I'm Steve Hirsch from Air Force Magazine. (Off mic).

GEN. JAMIESON: His question was, could I give some insights on the Reaper and a possible replacement? I'll answer it this way. Our unmanned aerial vehicles have been one of the most successful capabilities that we have fielded and modified and upgraded and continue to do so in a very permissive environment.

We are evaluating and looking at, how do we use such a capability in a more contested environment? Depending on where we place them and how we mission plan and how we use our other capabilities, there are absolute viable ways that they can be utilized. That is not to say we are not looking at some advanced concepts, and I'll talk more about that at the Mitchell Institute on the second of August.

So why don't we pass (the tasking ?)?

MR. : Hi, notwithstanding the trials and tribulations, the pros and cons of the acquisition process -- sorry, I'm Colin from the House Appropriations Committee staff.

GEN. JAMIESON: Please understand, I like funding.

MR. : I'm blushing. Notwithstanding the different acquisition authorities, there's something that you have great influence over, data standards. You mentioned different domains, different platforms, different scenarios. What we're seeing is most vendors use standard platforms that can't talk to each other.

So as much as you load up a Reaper or some other really interesting platforms, advanced algorithms and onboard processing, once you get it to the edge there's nothing you can do with it because they can't talk to each other. It's a real problem. So, without stepping on the proprietary systems, what are you doing to get common data standards amongst users? Without that, it really doesn't matter how much you invest in the other stuff.

GEN. JAMIESON: I couldn't agree with you more, truly. What I would offer you is in our ISR Flight Plan we actually have an entire annex on data strategy, to actually talk about what you just said. We have to have common data standards.

I met with the DNI and the other services too. We are 100 percent aligned on needing to have common data standards. Those are not developed in the military. Those are actually developed by you all in industry, and we need to continue to adhere to our open architecture pathways that says, like an Android phone, here is the standard. You can develop what you need to plug in, but the plug has to be the same, the data has to be

able to move and transport securely and safely within that architecture.

So yes, we do have legacy systems and we're going to have to write some reaper code to get them to them to the best standards. But we have made a commitment that we will not build anything outside of the accepted data standards that we have already established for most of our weapons. So, if you look at Geo or if you look at imagery in full motion video, we have standards. If you look at other intelligence capabilities, we already have standards.

The problem, in the past, has been we didn't actually articulate that to industry and we said, we have a problem, build me a thing. It's no longer about build me a thing. It is now a conversation about the data, how I have to be able to use the data. That's why the data is not proprietary, it is government data. The algorithm that has to go onto a platform that we can all access because it has a common architecture, I can then allow my data to flow. It's your algorithm that you can make your intellectual property, and I'm good with that.

Does that address your question, in concept? I'll give some more detail, but I don't want to get too detailed because we've got to think our way through this. Thank you.

GEN. SPENCER: Over here.

MR. : I was hoping you could talk a little bit more about the cloud and the importance of enterprise by cloud for the DOD and for the Air Force, you being able to leverage technology such as artificial intelligence? And then the second part of my question is, are you at all concerned about delays to the JEDI contract and getting to the cloud? That was supposed to come out, I think this year, and we haven't heard a word on it. I think there's been some delays and some arguments and possible protests. Can you speak to that, please?

GEN. JAMIESON: I'm going to answer the first one because what I heard was, can you please explain the cloud and its significance to your way forward with artificial intelligence? Again, old dog, marketing major, West Virginia University, let me just tell you the truth, I have no social media accounts. I have never been on them. I don't know how to get there. I don't have a personal smart phone. I don't have a personal email account.

But I do understand the power of the cloud, and it comes down to two words: speed and scale. Why in the military today cannot push a patch and have everyone instantaneously updated, like Tesla and Netflix that I articulated, is because I can't at speed get my information out. I don't have scale to do that. I have to stop at little pit stops along the way.

What the cloud enables and why I talked about we need a platform, we need infrastructure and we need software. We need to figure out what is going to be done in

the cloud versus what is done on premises for my ISR community? How do I actually at speed and scale get information out to the globe, to my allies. I can't do that without cloud computing, software, platform and architecture infrastructure.

So that's what I would tell you. I would offer you this, I think -- Dashism -- we have to look at multi-cloud. We have multiple industries that have outstanding aspects of the cloud, and I think that's the best way to partner. I think it is good to have a consortium with a multi-cloud approach where we're not dependent on one, not because they're not great, but remember how I view the world. I view the world with the adversaries looking for my vulnerabilities. If I have a multi-cloud I give them a multiple cloud problem. If I have one, I solve that issue. So that's how I would approach it. Thank you.

GEN. SPENCER: We have time for one more question.

MR. : (Off mic) -- as currently designed there's four companies that are of the size to meet that. There's Amazon and Google, Microsoft, maybe IBM. Stan, correct me if I'm wrong on that. If there's somebody else in the running that we haven't heard of I'd love to hear it.

One of them is partnering with the Air Force on your artificial intelligence pilot project. They announced that they weren't going to move the contract, but they were going to see it through to 2019. So, I wonder if you could talk on your relationship right now with Silicon Valley, with some of these folks that are in both of those two areas that you mentioned? Is that a partnership that you feel like you can replace? If so, how?

GEN. JAMIESON: General Spencer, thank you so much for saving me this easy request. I'm going to answer it this way. I'm going to offer you this first, I really can't talk about something that's in contest, we all know that.

But what I will talk about is -- and I mentioned it in my prepared remarks -- we have to have a conversation. We have to have a conversation on ethics and artificial intelligence. Are we going to base it on Western values or are we going to base it on another set of values.

It's fundamental to our being. It's fundamental to our precepts of life, liberty and the pursuit of happiness. What does that mean to us?

So, I say, yes, we have a good dialogue and we have open communication with Silicon Valley and the big five. We are clamoring for a discussion, because like anything else, if there isn't a discussion then there are perceptions and fears. Let's throw that out. Let's have the discussion.

I would offer to you, if the Air Force A2 starts the discussion, I truly believe the perception is, it's going to be biased. So, I actually need to have -- start to have that ethical discussion so that we all can join in. It isn't just about the big five that you talked

about, it's really about the mom and pop.

It's about the defense industry. It's about all of us. It's about the press. Let's have this discussion, because without it we're at a loss.

At our table this morning when we were eating breakfast I thought it's akin to, one could argue at times we're a little chaotic now because of social media, because we didn't have a conversation of the impact on social media and the immediacy that would result. And so, we're living that and we're all trying to work through that. Let's not repeat that. We know artificial intelligence is coming. Let's have this ethical discussion. Let's get it out there so that we can decide, are we going to base it on Western values or are we going to base it on something else? I think it's a great question. You can clearly tell I want -- I think we all need to have this discussion. Thank you very much.

General Spencer, thank you so much. This has been a fantastic opportunity.

GEN. SPENCER: Thank you so much, General Jamieson. Before you take your seat I'd like to offer you the AFA much-coveted coin, sometimes referred to as a manhole cover. Thank you so much for being here.

GEN. JAMIESON: Thank you.

GEN. SPENCER: I think most of you -- I think you've got to run out, so I'm going to give you the holder. Because it's so big, we give you a holder as well.

I think you would all agree with me that our Air Force is in great hands with General Jamieson. We're truly happy for you to be here. We're really proud of you and the job you're doing for the Air Force.

Those of you that attended the Orlando Air Warfare Symposium in Orlando and you saw this Spark Tank that we had there and the young airmen presenting their ideas, that started with General Jamieson with a phone call to me saying, what do you think about? So again, thank you so much for being here. We're so happy to have you leading our Air Force. Good luck and we'll let you dash out.

GEN. JAMIESON: Thank you so much.

(Applause).

GEN. SPENCER: Thank you all for being here. This is what the Air Force Association does. We bring aerospace power experts together to ensure that we remain the dominant aerospace power on the planet.

Thank you all for being here and a part of this group. If you're not a member of the Air Force Association we'd like you to join, and if you are a member I'll encourage you to go ask a friend to join.

I'd also ask you to consider attending our Air Space and Cyber Conference in September over at the Gaylord. Those of you that were there last year will know that we broke attendance records. I can tell you, we're exceeding those number already for September.

Please sign up now to get your seat. It's going to be really an event to remember. We still have a few sponsorships if you're interested. See Mike Basla and Fred Ullman right here. He will take care of you.

Thank you all for being here and have a great Air Force day.

(Applause).