



# NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Office of Corporate Communications

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**Remarks as prepared for delivery by  
Robert Cardillo  
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Thanks for that kind introduction, Joan – and good morning to all. What a gift this symposium is – for Team NGA and for Team GEOINT. The confluence of people, technology, ideas, and conversations – enrich, reward, and grow our profession and thus to those who depend on us. My personal and professional thanks to all those responsible for the GEOINT 2016 Symposium.

And, speaking of gifts – for his innovative work and inspirational presentation – how about another hand for Dr. Parag Khanna? Thank you so much, Parag for crystalizing a challenging opportunity that everyone in this room would love to pursue.

It's with some irony that we meet here today on the 100th anniversary of the signing of the Sykes–Picot Agreement. The misunderstanding of the human terrain in 1916 laid the seeds for the instability in the physical and political terrain that we continue to confront today. As one way to apply the lessons from history, I'm open to the idea of May 16th becoming "Human Geography Day" to celebrate and recognize the import of our craft. Fortunately, those of us at this symposium – a century later – gather to make the world a safer place. It is, in fact, why we exist.

Last year, I told you where I intended to take Team GEOINT, our global enterprise of government, industry, academia and international partners. And, I asked you to hold me accountable at this year's symposium. So I do need to hear from you on how you think we've done.

But first, my assessment of our implementation of the NGA Strategy that we unveiled at last year's symposium.

We've not changed our focus areas – People, Partners, Profession, and Value – or our goals and we're driven to deliver. The agency I'm privileged to lead celebrates a major anniversary this fall. It's been a remarkable 20 years – from NIMA stand-up, to NGA transition, to the GEOINT Revolution.

And I can proudly – and confidently – say that GEOINT is on the rise, more relevant than ever to our customers today and poised for a tomorrow that's filled with possibility. I'd like to draw on another anniversary for context and inspiration.



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Seventy-five years ago, the Mount Rushmore National Memorial was dedicated in the Black Hills of South Dakota. It was a phenomenal achievement of art and science – resulting in an iconic memorial to four great Americans George Washington, Thomas Jefferson, Abraham Lincoln and Theodore Roosevelt. So let's use these four remarkable Americans as a framework to look at our progress against the four elements of our Strategy. Let's start with value – and our first President – George Washington.

In addition to his other accomplishments, the GEOINT profession can claim him as one of our own – since he was a surveyor, a mapmaker and a spymaster. Thus, in the IPO that we launched on the 4th of July, 1776, he is our Employee #1.

Enabling customers' success is what compels us and what impels us every day. We are driven forward by our fear of failing them. They – you – are our priority – our reason for being.

Our GEOINT Services initiative is our focal point for this mindset. This critical effort is championed by Justin Poole and led by Jim Long and Ben Tuttle. It spans all security domains and, most importantly, it's open-ended. We're smashing the false boundary conditions that have always separated tasking, processing, exploitation and dissemination. In other words, GEOINT Services replaces the transactional and outdated TPED mindset. Working closely with the Open Geospatial Consortium, our partner for more than two decades, Ben and Jim are using standardized and interoperable strategies to maximize mission impact.

Under the leadership of Shishu Gupta, we'll be “all in” the Cloud by the end of 2017 – presenting value on all domains – including the World Wide Web. I further challenged Team NGA to “succeed in the open.”

To do so we must reject outdated ideas about the value of open source data. We must overcome our historic reluctance to allow analysts to engage externally. We must embrace the imperative to release appropriate information on our unclassified network. We must do all of this – and we must do it smartly. And we will.

Let me clear up any confusion there may be around this drive to the open – we will go wherever the data exists and apply it wherever the mission demands. That means, of course, that we continue to value classified sources. With our mission partner, the NRO, we will deliver game-changing, unique capabilities around the clock and across the spectrum.

How can you help improve our value?

We need you to “game-ify” the technologies, the platforms, and the solutions that you deliver, in ways that help us quantify our tradecraft. Make our work a constructive competition to bring out the best collaboration, and thus the best intelligence.

We must enrich our customer relationships by delivering innovative interfaces. Whether it's through chat-bot-enabled virtual assistants, Next-Gen customer relationship management, or other innovative ideas that I cannot yet see. But I bet you can.



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And offer us more trial accounts – and API keys. Being able to test-drive the car using real missions and real data will help us accelerate the contractual conversation on tangible results. Many Pathfinder 2 partners offered us such test-drives in Pathfinder 1.

Next, to illustrate our Profession let's turn to Thomas Jefferson. He was an expert in many fields architecture, land survey and linguistics to name a few. Important in our history, he commissioned the Lewis and Clark expedition and created one of the first cipher systems to transmit coded information in advance of the Louisiana Purchase when the expedition was a covert mapping mission.

Because for Jefferson mapping was – as it is today – a vital intelligence activity. In looking at our profession, we've made good progress on five fronts. First, we've overhauled how we think about and shape the future.

Three months ago, we launched NGA Research led by Dr. Peter Highnam. Some of you were fortunate enough to hear Peter speak yesterday. NGA Research builds on tech talent, ingenuity and expertise – from national labs, universities and businesses. It moves us away from internal research, and allows us to deliver more minds on tasks bringing fresh ideas, innovative research techniques, and path-breaking science.

Second, we plan to leave our desks, and engage partners where they are. This summer, we'll go to the geographic heart of American innovation – Silicon Valley – and create a presence there, what we'll call NGA Outpost Valley. This "N-O-V" will leverage the organic capabilities and energy of the Valley's open, vibrant, geospatial community. It's a beachhead that will have the authority to reach out to all innovation centers.

For example, we're jumping in with both feet into the Cortex Innovation Community in St. Louis – a growing new hub of tech development. We'll go wherever necessary to create the service the world demands, and our customers deserve.

The third way to advance our profession is to rededicate ourselves to excellence in our craft – to include the standards that will create a community. Our GEOINT Professional Certification Program is now mandated at NGA and for the Services. Even the Director has to be certified.

I did pass...

Since the program began in 2013, we've awarded more than 6,000 certifications. Twenty percent of those have gone to teammates outside of NGA to GEOINT practitioners in the military services.

Now, what about our colleagues in industry?

Because GEOINT is a team sport, Keith Masback and I are pleased to announce a major milestone. NGA and USGIF will recognize functional equivalence between our respective professional certifications. This agreement will provide parity and equivalence across certification programs to create



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portable, transparent knowledge and standards to build a true profession. We're so convinced of the power of achieving functional equivalency, that we'll take on the bureaucratic challenges, and deliver this capability. We are not confused about the difficulties. But we're motivated to make it so.

Fourth, it's critical that we transition to an Object Based Production environment. OBP creates a new and necessary way to create intelligence value – championed by Gary Dunow and led by Skip Krakie and Dr. Mike Foster. OBP extracts the important information from the frame of an image, to produce intelligence that's more clear, more relevant and more useful.

We began transitioning to OBP four months ago. And it includes the conditioning, standardization, and migration of data into a Structured Observation Management – or SOM – framework. SOM and OBP are the fundamental building blocks of Activity Based Intelligence. And thanks to ABI, we'll automate manually intensive workflows – so we can detect patterns and behaviors hidden in the noise today. That's necessary, given the exciting increases in commercial data and open sources as we move from imaging a small percentage of the Earth each day to sensing all of it every day.

As SOM, OBP, and ABI come into full practice – by the next GEOINT Symposium – I can envision a work unit that puts analysts, human geographers, geospatial information specialists, web-developers, and data scientists in the same virtual and virtuous circle – creating that elusive, yet necessary, coherence from chaos.

Finally, improving our profession means further committing to the use of innovative capabilities being developed and deployed by commercial data providers and analytic companies for mission accomplishment. Our commercial space partners will provide meaningful, higher revisit capabilities this year and we look forward to turning their exciting potential into our mission reality.

We're well aware that we need to change how we procure both data and services. An important example of this change is our CIBORG Program. CIBORG – one of the best acronyms ever – stands for Commercial Initiative to Buy Operationally Responsive GEOINT. It's a partnership with GSA to leverage their schedules and contractual instruments to purchase commercial GEOINT data and services. CIBORG will be operational by early 2017.

How can you help to improve our profession? Like many, we need help with Big Data analysis.

In this fiscal year, NGA has contributed nearly 4 million elements of analytic content to the vast sea of human knowledge. We have holdings of more than 20 million intelligence observations with hundreds of thousands more coming every month. Add to that the billions of data points and elements of Foundation GEOINT and you quickly realize how big our data challenge is. So we must have tools and techniques to allow us to quickly make sense of Big Data then visualize and disseminate that clarity to our customers.

We don't just need pixels. Offer us subscriptions that will provide us alerts, observations and insights that we'll meld with our own to drive deeper analysis of all that incoming data and lead to more meaningful conclusions.



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Industry and academia: Take full advantage of the road to professionalization offered by the USGIF GEOINT Certifications. We'd like industry and universities to jointly accelerate and strengthen science with us – to create, test, and transition world-leading capabilities into NGA.

I'd like to pivot to our Partners.

President Roosevelt is known for negotiating the end of the Russo-Japanese War – which earned him a Nobel Peace Prize – and for deploying the Navy to circumnavigate the planet. He was the first to put the United States on the global stage, which is the very essence of GEOINT. He's less well known for radically reforming the New York Police Department – fighting corruption, reducing political appointments and implementing new standards for recruits. As Police Commissioner, he actually walked a beat late at night and early in the morning. He believed that the NYPD should be true, trusted partners dedicated to those they protect and serve.

NGA can only be great when we nurture and invest in our partners every step of the way. We must build trust, and walk every beat, with Team GEOINT. We're indebted to our international partners in so many ways.

The United Kingdom has integrated its aeronautic safety of navigation content into our database – a success we've replicated across the Commonwealth and we want to replicate with other international partners.

Our partnership with Germany has led to an alliance of more than 30 nations to create a Digital Elevation Model from data, collected by TanDEM-X. This is a really big deal. It improves spacing from 30 meters to 12 and covers the entire globe. In three years, more than a third of the Earth's surface – including the parts we're most concerned about – will be mapped and shared at this higher resolution. It will save time and save lives.

Now, we're only truly great when we team properly, which is why I take my responsibility as the GEOINT Functional Manager so seriously. We've reinvigorated our GEOINT committee, or GEOCOM, to work together with our NSG Partners. Dustin Gard-Weiss, on loan from the Navy, leads my Functional Management organization.

For the first time, we've reached outside of NGA for this critical responsibility. We have a new community NSG Strategy this year – copies are available at the NSG booth – right next to our NGA exhibit. Come to the government pavilion this afternoon to hear more about it – and learn more about what we're doing with our NSG partners.

One example of a great partner is the Army Geospatial Center and its Director, Dr. Joe Fontanella. The Center's leadership on local terrain data will only become more important to our collective success, as the urbanization that Dr. Khanna spoke about, unfolds before our eyes.

Another great example is Dr. Lee Schwartz from the State Department – THE Geographer of the United States, or as I like to call him – GOTUS.





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Uhh ... it's a play on POTUS ...

You know you're in trouble, when you're explaining your material ...

We've been developing a strong partnership with Lee's team, mapping "Secondary Cities" through open, participatory mapping engagements with local teams in partner nations.

We've also created superb connections to Federal agencies. In collaboration with the White House, we've partnered with the National Science Foundation, the US Geological Survey, the Polar Geospatial Center at the University of Minnesota, and other members of the academic research community and private sector to create the first ever high-resolution elevation map of Alaska. It will come out this summer and it will be posted on the World Wide Web. And we'll create a Digital Elevation Model of the entire Arctic by mid-2017.

Our traditional industry partners remain important – and as the GEOINT Revolution unfolds – we're fortunate to witness a daily proliferation of new commercial geospatial technologies and data sources. I encourage each of you to walk the exhibit hall this afternoon – as I will do – and not be amazed by all the technology and innovation at our fingertips. A revolution is afoot – it's here now – and it's on the show floor.

To put our money where our mouth is, we've doubled our In-Q-Tel investment – to improve our effectiveness in areas like commercial space, visualization, and cybersecurity.

I also want to highlight GSM – our GEOINT Solutions Marketplace. In recent months, we've worked with USGIF to integrate the functionality of their Industry Solutions Marketplace – ISM – with our GSM. The combined result is GSM 2-point-0. USGIF runs the platform – and we manage and adjudicate every submission that's intended for NGA. We've put Dave Cacner in charge of GSM 2-point-0 for us. And if you don't know Dave, you should.

My trusted partner and Deputy Director Sue Gordon and I have charged Dave to remove obstacles within our Agency – and to rapidly integrate new capabilities. Dave and his team will provide you with timely, systemic, and frank feedback to your submissions.

Where can you help?

We need flexible secure technology solutions that let us exchange information between countries on classified and unclassified domains while safeguarding our sources and methods. Imagine international networks like the Commonwealth's Stone Ghost – or NATO's BICES – able to interact seamlessly with the IC's modernized IT infrastructure. Include robust identity and access management features to allow participants to set rules on what they share and with whom.

And we need you to bring ideas to optimize our contract and acquisition processes. We're working hard on this – and Sue will discuss this effort in detail in the government pavilion on Wednesday afternoon.



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We know that you have thoughts on how to make things easier for everybody. And we welcome your input.

Now, let's address the most crucial part of our strategy – our People.

Abraham Lincoln was a surveyor in Illinois – and a first mate on a Mississippi River flatboat. But we seek to emulate his actions as President – when he united people around a goal – to serve a purpose higher than themselves.

So how are we doing?

Like all of you, we're in competition, for the best and brightest minds, with the skills to propel the GEOINT mission. To our advantage, it's very competitive to join Team NGA. Last year, we received nearly 17,000 applications and hired 256. That's about a 1.5 percent acceptance rate. I love how selective we can be to get the best talent, but we must increase our hiring.

Even doubling that number next year would not be enough, for what our mission needs and deserves. Our people processes need to adapt and align, to meet the expectations of our teammates. This is not just about bringing in new talent. It is about growing and unleashing their potential.

All of us struggle with the clearance process – and the length of time it takes to bring in new people. We miss opportunities because of it. So we've done something about it. We recently hired 27 new Aero and Maritime analysts and got them to work – and thus got them to the mission – as the clearance process continued. And we'll scale this best practice.

We've also modernized how our people professionally develop with what we call On-Domain – On-Demand – or “OD squared.” By changing the focus from instructor-centric to learner-centric training, we increased our web-based learning results by almost 300 percent over the past year. And now, we've opened our course catalog to the Commonwealth and extended invitations to British, Australian and New Zealand instructors to become adjuncts at our college. We strive to open up all of our courses – to all of our partners.

One of the best things about being the NGA Director is – after I meet a new teammate, I ask about their personal story. After all, we're a story-telling Agency and fortunately, we have some great ones.

Matt Bain used to work at DreamWorks, entertaining children with the latest visual technology – now Matt uses his 3-D animation skills to enable more compelling NGA assessments.

Navjeet Chhina came to NGA from the Corcoran Gallery – now Navjeet uses his design expertise to lead our wireless tablet interactive development.

As an Egyptian archeologist, Dr. Josh Trampier used declassified CORONA imagery to make discoveries in the Nile Delta. Now Josh is in our Research Directorate – creating applications to uncover subtle threats across the globe.



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While I expect this audience would not confuse our intelligence reports with great literature, we now have an editor – Amelia Cohen-Levy – with a Master of Fine Arts in Poetry. So there is hope. By the way, Amelia's a contractor – we simply could not do our jobs without them.

And our own Dr. Stacey Dixon is on a Joint Duty Assignment as the Deputy Director of IARPA. Stacey studied the pressure of arteries and blood vessels. The circulatory system has parallels with traffic and migration patterns – literally human geography.

I wish I had time to acknowledge all those who've received awards and recognition. But I do want to mention four teammates named to the prestigious Federal 100 – the top tier in the government who work in technology fields. Sue Gordon was on the list. No surprise there. But so were Bruce Farnham, Mitch Smoot and Ray Bauer.

President Obama recently recognized a group of extraordinary early-career scientists. Six of them were from the Intelligence Community. Two of the six were from NGA: Dr. Ashley Holt. And Dr. Whitney Emch.

How cool is that? And what's next?

The NGA Geospatial Exchange – or “eNGAge” for short. It will offer our people immersive experiences with industry and academia – and will also allow us to welcome outside talent into NGA. Our first candidate under eNGAge is due to start work this week at NGA Research – Dr. Cathy Cotell comes to us with experience from both Industry and IARPA.

How can you help, when it comes to our people?

Exchange talent with us. Reach out to the opportunities through our new eNGAge initiative that I just spoke about. You can easily find it on our unclassified website: nga.mil.

Help us to identify the best universities for what we all do, and support their efforts to become NGA-designated schools, for the geospatial sciences. The application period is in July – again – on nga.mil.

So, that's my rundown on our progress over the last year – along with a few highlights of what's about to come – and where we need your help. Some of the trend lines are mixed, but most are favorable. And while we certainly have space to grow, the future holds a great deal of promise. And there are a lot of reasons to be bullish on Team GEOINT.

Not far from our headquarters, the Jefferson Memorial sits on the Tidal Basin in Washington, DC.

On the other side of that Tidal Basin is the newest memorial in our capital – a 30-foot granite statue of Dr. Martin Luther King, Jr. Dr. King understood the power of geospatial language – when it comes to progress. He had a dream – that valleys would be exalted, and hills made low. He sought an oasis – in





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a desert that sweltered with the heat of injustice. And he said, there are “mountains that we must move out of – if we are to go forward in our world – and if civilization is to survive .... We must keep moving.”

“If you can’t fly, run. If you can’t run, walk. If you can’t walk, crawl. But by all means keep moving.”

We’ve all progressed on different journeys in this geospatial intelligence field. Some of us started on light tables, and experienced the amazing transition to digital. Some of us came on board at the end of the Cold War, and marveled at the advent of GPS. And some of us began at the same time as the explosion of open source. But now, all of us recognize that government no longer drives the GEOINT revolution alone. So we’re here today – together – for a reason.

We can see the future. We can feel it. Together, we must deliver it.

Now – 20 years after the creation of NIMA – we’re experiencing a new age of GEOINT. We must go wherever the data, technology, and people exist – and apply the knowledge wherever our customers demand. We must let go of any remnants of ownership and embrace our stewardship of the profession. We must enable outcomes that are bigger than ourselves. If we do these things, and if we do them together, we can actually turn our planet into a better place to live.

So – shoulder to shoulder:

Let’s step up to this critical challenge. Let’s step into the opportunity. And let’s step out into the vibrant future of possibility – together.

We do know the earth! We can show the way! And we will continue to help those who depend on us – to know – and truly understand – their world!

Geospatial Intelligence: It is our purpose. It is our pride. It is our profession. And it is, most definitely, on the rise.