



# NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

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**Remarks as Prepared for  
Robert Cardillo  
Director, National Geospatial-Intelligence Agency  
for  
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## ***The Seismic Shift in GEOINT***

First, I would like to thank Steve Richey, Jake Jacoby, and of course, NGA's own Lloyd Rowland – for setting the stage so well.

Today marks the 14<sup>th</sup> AFCEA-NGA Industry Day. This milestone is a true testament to the strength of our partnership and its positive impact not only on geospatial intelligence – GEOINT – but, more importantly on national security.

By the way, at the beginning of the AFCEA-NGA partnership, I was the first NGA rep on the AFCEA Intelligence Committee. So I have a long and fond relationship with you – a relationship that I to strengthen further as the Director.

As I have often said, we in NGA and the entire Intelligence Community cannot do what we do – secure and protect the nation – without you as partners.

So, I offer a heartfelt “Thank You” to the more than 650 industry partners here with us today. You share the privileged responsibility in the gravity of our mission – and the pride in our accomplishments.

It is very gratifying – and a bit humbling – to see a crowd this size. Icons of industry. Pillars of our profession. Mentors. Colleagues. Friends. I know that all of you are deeply committed to NGA and the geospatial intelligence community and profession. And for that, I thank you for all you do every day to strengthen NGA and our vital mission.

What we do together is essential because, as Team NGA, we have a privileged responsibility to serve an indispensable country in a markedly less stable world. Our nation has never been so challenged by traditional and new forces – symmetric and otherwise – shiny metal objects – and discordant ideas.

What a great time to be in our profession!

By the way, I include everyone here today to be a member of Team NGA.

I am here to speak with you today because NGA, our community, and our discipline are at the edge of what I call a “Seismic Shift” – pun intended -- in geospatial intelligence.

I will discuss with you what I mean by this “Seismic Shift” and what it means to NGA, to you, and to the future of national security.

And I will share with you how and why I believe a deeper partnership will enable us to enhance our success in our shared mission to protect our national security.

First, what is this “Seismic Shift”? Let me briefly explain.

In a recent report, In-Q-Tel called the small satellite revolution the “Cosmic Shift” in the commercial satellite industry.

- That report predicted that within three years, constellations totaling hundreds of small sats will continuously image the earth every day.
- Imagine the world is being sliced into millions of one-meter slices every day—and everyone can access those slices.
- That Cosmic Shift is driving what I call the “democratization” of GEOINT. Our content is becoming more commoditized and commercialized every day.
- Like an ever-expanding, endless universe, the explosion of “social-local-mobile” data on the Internet continues unabated.

This rapid democratization through the social media explosion depends on one common element: geolocation.

Every local, regional, and global challenge—violent extremism in the Middle East and Africa, Russian aggression, the rise of China, Iranian and North Korean nuclear weapons, cyber security, energy resources, and many more—has geolocation at its heart.

Today, there are more than 3.1 billion Internet users and more than 2 billion smart phones. That is expected to be 4 billion by 2020 – around 80% of all adults will have a smart phone.

During the next decade, the impact of the Internet and the smart phone will spread quickly to the “O3”—that is, the other 3 billion people who will have access in the future, and

The Internet of Things will emerge with geolocation sensors in everything.

Thanks in part to this Cosmic Shift in geolocation devices, we in the GEOINT Community face a revolution of similar size, scope, and scale.

That provides the *potential* for our “Seismic Shift” – but a more fundamental ingredient is needed.

These mandatory changes include:

- Business policies;
- Acquisition processes;
- The need for a highly trained, techno-savvy workforce; and
- Our culture – this last item being the most difficult and the most important.

Taken together, these trends must drive a major change in our mindset.

We must open up GEOINT far more toward the unclassified world.

In the past, we have excelled in our closed system. We enjoyed a monopoly on sources and methods.

That monopoly has long since ended. Today and in the future, we must thrive and excel in the open.

Moving forward, a large part of GEOINT's value proposition will come from delivering meaningful consequences to our customers from mutually dependent classified and unclassified sources.

How? We must reduce the barriers between our system and the commercial market.

On this new level playing field between classified and unclassified, NGA's advantage – our value proposition – will be our exquisite expertise.

In fact, to demonstrate the potential of this new mindset, today I am announcing a completely unclassified project – the GEOINT Pathfinder.

This project will attempt to answer key intelligence questions with only unclassified data, commercial information technology, and micro-contracts.

It will stress the delivery of high-quality GEOINT at the unclassified, FOUO, and LIMDIS levels to our customers on their mobile devices.

The project will operate through a network of in-house labs and off-site locations.

They will be connected on virtual teams through a secure collaborative service called Sage. Sage is an unclassified version of i-Space that can be accessed from anywhere.

The GEOINT Pathfinder team will consist of a world-class group of data scientists, application developers, open source researchers, methodologists, and analysts. We will open participation to our NSG (National System for Geospatial-Intelligence) and ASG (Allied System for Geospatial-Intelligence System) partners as well.

It will take a couple months to set up the team. But as soon as they start, they will do a 90-day sprint to address several Key Intelligence Questions.

However, this project and our shift toward the unclassified world do not mean the end of our classified world. Far from it.

It means that we must drive the synergy of our new unclassified sources and our sophisticated classified sources to enable more exquisite insights and understanding on the new, higher open playing field.

This shift requires major changes in every aspect of our discipline. Let me reiterate, TPED is dead. TPED is a linear process in an asymmetrical world. If we continue to think linearly, we lose.

We must think asymmetrically to understand and out-maneuver our adversaries.

For example, object based production – OBP – and NGA’s Map of the World platform allows analysts to continuously refine -- and combine and compete -- our answers to every intelligence question.

They allow us to be flexible, adaptable thinkers who can constantly add to our knowledge about any object, any activity, and any problem.

We can apply every type of content and examine every problem from every analytic angle with every relevant source.

It means that no intelligence product is ever “finished.” So add finished intelligence product to the list of extinct terms at NGA.

In fact, we need to stop referring to “products” and focus on the content, context, methods, media, and services through which we convey our value to our customers.

Let me show you a brief demonstration of the Map of the World and how it enables the synergy of all these sources of content and context.

Craig Kiley from the Source Content Management Office and Jennifer Chavarro from IT Services Content Solutions, please join me on the stage.

(5-Minute Map of the World current capabilities demonstration.)

Thank you, Craig and Jennifer.

Of course, this demo shows only the beginning of how Map of the World is rapidly becoming the platform for intelligence integration and the most integral component of the Shift toward open GEOINT.

As we master this Shift, we also will be able to further realize the needed persistence.

We must see persistence as a mindset, not as a system of collection platforms. It is a mindset that encourages analysts to use any combination of methods to answer intelligence questions.

We have always persisted with the means available to answer intelligence questions, even when those means were only grainy black and white images.

The shift in the variety and combination of collectors allows us to choose from many more and more effective ways to persist over critical targets:

- The Darkening Skies of small sat constellations,
- Our deeper partnerships with commercial imagery vendors,
- New fleets of airborne collectors, and
- New national technical means.

All of these layers enable more persistence – more time over more targets when and where we need it.

In short, the Seismic Shift combines the impact of democratization of unclassified content, the integration of content and context, and the persistent mindset.

To master this Shift requires industry and NGA to form an even more powerful partnership than the strong one we now enjoy.

NGA depends on you to provide the precise tools, advanced technology, sophisticated techniques, and specialized expertise that enable Team NGA to enable the consequence our customers demand.

But we face a threat—maybe the only threat—that can prevent us from mastering the Seismic Shift. Frankly, that threat is our choice to embrace the shift, ignore it, or worse, reject it.

Will we stand firm during the tremors of change and move forward, or will we lose our balance and fall?

Our choice will determine whether together, we succeed during the coming decade.

Our new path may seem shaky at times.

But if we stay poised and cooperate as true partners, we can—and I am confident, we will—succeed.

Our goal is what I call “spatial-temporal dominance.” That is, we analyze content and context to create awareness, gain insight, and ultimately, understand the world and all its elements and activities better than anyone else.

We gain awareness from the multiple sources of content we gather through the Map of the World – imagery, many layers of geospatial data, unclassified sources, human geography, and cross-discipline content.

We derive insight when we apply our expertise and integrate our awareness with that of other intelligence analysts.

Those insights lead to a thorough understanding that we convey to our customers. That true understanding provides real consequence, real value to our customers.

That is, our customers reach their goals and accomplish their missions faster and better than before. They rely on NGA to deliver what they need when they need it to make the right decision.

We also must spread our spectral and geospatial dominance around the clock – put another way, “10 and 2” won’t do anymore. It must be continuous 24-7-365.

That is how we will define our success: If our customers succeed, we succeed. If they are not successful, we fail.

To accelerate our drive to enhance customer success, we are shifting our investment priorities for 2015 and beyond.

For the short-term, our key priorities are to

- Launch the Globe portal on JWICS and SPIRNet by the end of this fiscal year,
- Integrate persistent GEOINT to master the flood of Big Data,
- Continue to enhance activity based intelligence – ABI – by investing in advanced analytic training and tradecraft and specialized software,
- Invest in cyber security, both internal and external, with new capabilities and analytic depth, and
- Improve the quality of our analysis to make our stories more visually compelling and technologically advanced.

For the long term, we have five priorities:

First, accelerate data to answers. To borrow a term from Dr. Pavel Malachek, founder of Spaceknow, Inc., we will drive from analyzing Big Data toward realizing the potential of Fast Data.

Second, we need a near-real-time, small satellite-based analytics system that will continuously stream data from hundreds of platforms, pre-analyze content, and cue for analysis within minutes of collection.

Third, we will build a self-organizing collection enterprise to replace traditional TCPED with continuous feedback, collaboration, and integration among sensors, automated processors, advanced analytics, and analytic and collection models.

A critical element of real-time, persistent GEOINT is the ability to fully leverage non-traditional sources, especially open sources, and integrate them in continuous, real-time analytics.

Fourth, the key concept on which all of this rests is trustworthy, secure automated systems, driven by learning-based analytic models and state-of-the-art collection platforms.

Fifth and finally, the most important element of all is the people. We must transform the GEOINT cadre by recruiting, training, and retaining technically savvy GEOINT analysts to work in a host of new or transformed occupations. We must grow them into subject matter experts who will lead integrated virtual teams of data scientists, artificial intelligence assistants, and collection experts.

Imagine the impact these changes could have on our ability to monitor Iranian facilities, Chinese missiles, cyber infrastructure, violent extremist movements, and much more.

As you can see, NGA is accelerating our progress as quickly as we can. My direction to Team NGA is to move out.

But we can realize our vision and fulfill our mission only if you – our industry partners - work with us more closely than ever before.

We need your innovative ideas and best thinking across the board:

- Develop and bring to us the disruptive technologies that the Seismic Shift is creating.
- We need you to bring more actionable ideas. Today, you will hear what NGA is doing to help you bring your ideas to fruition more quickly.
- We must ensure the success of the IC Information Technology Enterprise – IC ITE. Solve our issues with identification and access management, Cross Domain services, and integration of new sources.
- In addition, we need you to show us how to better manage Big Data and move quickly so we master the concept of Fast Data.
- On the people side, I urge you to participate in our NGA Training With Industry program. Welcome our people to your organizations to learn more about your processes and problems. We already have two Senior executives on special assignments with other associations—Lisa Spuria at USGIF and Dave White at INSA.
- And I urge you to even more strongly support science, technology, engineering, and mathematics - STEM - initiatives in the schools and colleges.
- Finally, to circle back to where I began, enlighten us about the Cosmic Shift toward small sats. Show us how to use small sats to add value for our

customers, to enable their consequences more quickly, more timely, more accurately, and more insightfully.

- For example, we have commissioned In-Q-Tel to study the small sat revolution. Its experts will soon report to us how the “Cosmic Shift” in the commercial satellite industry can benefit the “Seismic Shift” in GEOINT.

In turn, I pledge to you today that NGA will do our part. During the rest of today’s events, you will hear detailed presentations so you can understand our situation how to best work with us.

Director of Plans and Programs Ellen McCarthy will discuss the practical applications of portfolio management.

Chief Financial Executive Misty Tullar will discuss how we are facing the dual challenges of declining budgets and increasing mission.

Panels will discuss industry support for future GEOINT operations and the drive across the GEOINT Community to build a common IT infrastructure to enable true integration.

Of special interest to many, a panel will discuss how to break down the acquisition barriers with innovative solutions.

And an open forum will have what I am sure will be a lively Q&A to answer your questions.

I hope all of these opportunities today to listen and interact show you one thing: Industry partnerships are one of my highest priorities.

I have put my deputy director Sue Gordon in charge of our industry relationships. As some of you may know, Sue was the driving force in creating In-Q-Tel, so she has many years of experience in nurturing partnerships that deliver innovative capabilities.

Of immediate interest to you, I have put Mike Geggus in Sue’s office as our Industry Innovation Advocate. This afternoon Mike is going to discuss with you our new model for innovation advocacy and adoption.

In short, we are creating an open industry-government innovation environment. We seek to foster unprecedented transparency, market access, collaboration, and agile acquisition and adoption.

But those are words and intentions – I need you to constructively engage with us and hold us accountable – we’ll only succeed together.

I realize that this Seismic Shift will cause tremors across NGA and industry. The way we do business, the way we do collection, the way we do analysis, the way we hire and train, the way we serve our customers all will change.

I ask you to move forward with me to grasp the opportunities that this Shift creates. Perhaps the greatest opportunity of all is the chance to create a future of security and prosperity for the Community and the nation.

It is a challenging opportunity that I am privileged to confront – and I ask you to lock arms with me as we move out and step up – to repeat, what a great time to be in our business! Thank you.

**END**