Remarks as Prepared for
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Thank you, Joan, for your kind introduction. It is great to be here with you today – finally. It was a difficult fall and a long winter, but we have made it! Throughout this challenging period – and for the past 10 years – USGIF's support for the GEOINT community has been steadfast.

I would like to thank Stu Shea, former Chairman of USGIF, for his decade of leadership and congratulate him for leading us all to where we are today. And I want to share with you some important news that I have just learned. I would like to congratulate and welcome Jeff Harris. He has been named new Chairman of USGIF. Jeff, you have long been one of the premier leaders in the Intelligence Community. I sincerely welcome the opportunity to work even more closely with you.

And a big "Thank You!" – of course – to CEO Keith Masback for his commitment to GEOINT and to this 10th Symposium. It is truly a milestone in USGIF's history. Congratulations!

I would also like to give a special greeting to our partners from SOCOM and CENTCOM here with us this week. As a combat support agency, NGA is proud to serve alongside you and all of the Combatant Commands and warfighters around the world. What you do inspires NGA to be even better. Thank you – and thank you to all our warfighters – and to your families – for all you do each and every day in defense of our nation.

I am here today to say that NGA is at a decisive moment in our history. NGA is driving intelligence integration, and NGA is leading the way from integration to the next phase of intelligence. Since I first spoke at this Symposium in 2010, we have pursued the DNI's highest priority – intelligence integration. We have pursued our Vision to put the power of GEOINT in the hands of the user with total dedication. We have pursued our goals with firm resolve:

- To provide online, on-demand access to our GEOINT knowledge and
- To create new value by broadening and deepening analytic expertise.

And we have persevered with our promise to fundamentally change the user's experience. Today, I can say – beyond any doubt – that we are achieving our goals, we

have crossed the tipping point in realizing our Vision, and we are leading the way to the next phase of intelligence. Today our momentum is irreversible. And we owe our momentum to the tireless efforts of the women and men of NGA and all of our many partners.

All of you here today – and hundreds of organizations and tens of thousands of people around the world – help make GEOINT indispensable.

Consider these facts: NGA cooperates with more than 80 nations worldwide through a variety of agreements to promote safety of navigation; produce worldwide mapping data; and improve the quality, timeliness, and cost of our geospatial products.

In addition, commercial providers satisfy almost 90 percent of our imagery requirements for foundation GEOINT. Commercial imagery – both U.S. and international – contributes much needed support to all of our missions, especially critical disaster recovery operations like those ongoing in the aftermath of the mudslide in Washington state.

Systems integrators, application developers, and IT professionals make worldwide GEOINT systems operate seamlessly day after day. Academia, research corporations, and companies – both large and small – help develop leading edge technologies that enhance NGA's role as the global GEOINT leader. Academia is also essential to help close future gaps in GEOINT expertise. To help achieve this goal, NGA is establishing Centers of Academic Excellence in Geospatial Science with universities across the country. Industry helps us improve how we manage our critical operations more effectively in these budget-constrained times.

And our partners in the National System for Geospatial-Intelligence – the NSG – and our Allies help us to transform how we create new analytic value for decision makers. We share information and analytic expertise better than ever before.

Let me cite just a few examples of how all of you here are making a difference:
- Penn State University has advanced research in 3-D Voxel technology, creating 3-D models from various imagery sources, a real step forward in visualizing integrated data in meaningful ways.
- In-Q-Tel is fostering a number of innovative small business ideas, like Boundless Spatial and others.
- And Oak Ridge National Labs is leading research into how we put Big Data computing to work to understand the complexities of human geography.

NGA has reached this decisive moment in our history as the Intelligence Community has evolved through three phases. We have evolved from separation with stovepiped disciplines, through connection – where information was shared, to today's integration. The lessons we have learned during each phase clearly demonstrate why we must integrate all of our disciplines more tightly than ever before.

NGA will realize our potential only if the Community achieves the DNI's integration goals. And intelligence integration will succeed only if NGA is the driver for that integration and GEOINT serves as the very foundation.

At this critical moment, we cannot rest. Together, we must press forward with an even greater sense of urgency. Whether we face an adversary, a political crisis, or a natural disaster, we must continue to drive the leading edge of GEOINT. That is exactly why we at NGA are accelerating our momentum. That is exactly why we are building the platform for Community-wide integration.

This platform is NGA's declaration of our principles and priorities that drive integration forward and deliver the next phase of intelligence – immersion. By immersion, I mean living, interacting, and experimenting with the data in a multimedia, multi-sensory experience with GEOINT as its core. Immersion will break down the barriers between collectors, analysts, customers, and decision makers.

Living together in this experience, they will share rich content and robust expertise. Their more meaningful, more predictive insights will occur on a scale we could not have imagined just a few years ago. To evolve to this phase, NGA must complete its transformation from a provider of static products into a dynamic resource for GEOINT content, analysis, and services.

This platform reflects our priorities that enable us to complete our transformation and shape the immersive experience for the entire intelligence enterprise. The platform is upheld by a number of strong "pillars."

They include:
- The Map of the World,
- Analytic Capabilities,
- Next Generation Collection,
- the Globe,
- Open Information Technology,
- and Research and Technology.

Together, the pillars establish a completely integrated GEOINT enterprise. All support and reinforce one another. Ultimately, the pillars bring to bear the power of GEOINT to discover the unknown and deliver faster, more predictive insights to decision makers. These pillars are so critical that we are changing the way we do our mission and manage our enterprise. We have realigned hundreds of millions of dollars across our budget to implement them.

Securely positioned on these pillars, NGA is uniquely capable of building the IC-wide platform. Why? Because the platform establishes the geospatial foundation for intelligence integration. It maximizes the impact of NGA's unique capabilities, our highly skilled workforce, and our decades of experience. Integrating multiple disciplines and multiple sources is part of our "genetic code." It is in our DNA.

Given the significance of these pillars, let me briefly tell you about each one.

The first pillar, the Map of the World, is a seamless environment where we integrate and expose all GEOINT-related and multi-source content. Fueled by rich content and analytic insight, the dynamic Map of the World is the foundation for intelligence integration. During the past year, we have made tremendous progress making the Map of the World a reality. We are integrating and exposing content to our customers through the Map of the World on our Top Secret, Secret, and Unclassified networks.

To build the Map of the World, we are assembling 12 views of data. Nine of them – including maritime and aeronautical – are online now, and topography will be online in the next two weeks. The remaining two will be available by this August. As we integrate these views and add analysts' observations, we can deliver deeper analysis more quickly than ever before.

Let me cite just a few of our industry partners who are powering the Map of the World with a number of "firsts":
- Ball Aerospace is producing our new feature database uniting all foundation features—for the first time,
- Leidos is producing our new surface database uniting terrain and bathymetry—for the first time,
- And a number of companies will be creating our foundation data—producing worldwide content stores—for the first time.

With the Map of the World as our foundation, we are transforming our analytic approach. The next pillar – Analytic Capabilities – is based on two key initiatives:
- Structuring our GEOINT content with common standards that support the Community's Object Based Production Framework – OBP, and
- Developing advanced analytic tools.

These initiatives are driving our transition from what we have always done - watching what we know – to discovering what we do not know – the unknowns.

The key to transforming analysis has always been this: Give analysts the tools they need to improve their analysis, and they will quickly answer key questions with the deeper insight that leads to more successful decisions. Our advanced analytics, including Activity Based Intelligence, do just that. Advanced analytics is based on a fundamental shift across the IC and the military Services toward object based production.

With OBP, we associate information with objects – regardless of the intelligence discipline. An object can be anything or any activity of interest – a vehicle on a road, an airplane, a building, even a person. At NGA, we are storing observations – both our own and from our partners – in the Map of the World in the Community Cloud. We are

working to capture the years of data and experience that analysts have always kept in their heads and in their folders.

Then, object by object, question by question, together, the Community builds a rich reservoir of continuously updated content so we can give our customers the most timely, deepest insight. For example, during major natural disasters, our mission partners, such as FEMA at home and the International Red Cross abroad, need to know the up-to-date conditions on the ground. They need to assign their scarce resources as quickly as possible to save lives.

During Typhoon Haiyan in the Philippines – as the typhoon gathered strength – we created an open Event Page on our unclassified web site. The site allowed the disaster response community to access NGA GEOINT data and services. And it served as a single focal point for sharing everyone's content. Our crisis response partners included PACOM, the State Department, FEMA, the United Nations, and the Red Cross. Our partners accessed the observations we made from imagery, open sources, and weather, ground, and sea operational reports. Field teams accessed and loaded up-to-date data on their tablets and smartphones in the devastated area. That helped planners allocate scarce resources to the hardest hit areas.

For the first responders, our content was immediately available – when they needed it. It was true online, on-demand access serving a vital international mission – saving time, money, and lives!

While analysts must have the most advanced capabilities and the best tradecraft, they also must have access to data from a rapidly expanding array of sources – both traditional and new. Only with our unmatched capabilities, tradecraft, and content can they be effective today and anticipate – even predict – the future.

From mobile devices, to commercial imagery, to television station broadcasts, the incredible amount of data from this array of sources was unimaginable just a few years ago. The third pillar, Next Generation Collection, transforms – with a new strategy – how and why we collect all of the data for our mission.

Our goal is to revolutionize our collection strategy. We will employ innovative and persistent collection so that we can anticipate the needs of planners and decision makers. We are moving our customers away from how we have done things in the past – customers asking for images they need – to anticipating collection needs based on world events and automated tipping and cueing.

Next Generation Collection is going to enable us to "collect to discover" the unknowns. It is also changing how we measure the value of our collection effort. The difference is this: Rather than ask, "Did we image what you asked for," we will ask, "Did we give you the insight you needed to help you solve your real problem?"

As Next Generation Collection anticipates customers' questions and the Map of the World shares GEOINT content, a single NGA "touch point" will connect our customers with all of our content, tools, and services. The fourth pillar in the platform, this emerging "touch point" is called the Globe. It not only will build on our efforts to unify our web presence, it also will deliver a fundamentally different customer experience.

Users will interact with dynamic, comprehensive GEOINT on all three security domains. The Globe includes both a single, online location and a 'service of services.' The service is going to allow users to consume content when, where, and how they want it. With the Globe, we are blending the art of customer engagement with the science of business analytics.

We are gaining insight into how our customers can benefit from GEOINT through trend analysis, focus groups, and online surveys. This information also gives us a deeper understanding of what our customers need and how we deliver it to them now and in the future.

Of course, underpinning the Map of the World, the Globe, and our leading edge analysis, we must have a solid IT infrastructure. And that infrastructure must be based on an open IT environment. NGA is a leader in the transition to that environment with the fifth pillar – NGA's Open IT Enterprise. Our Open IT approach creates the GEOINT-based environment for intelligence integration. We are building this environment through IC ITE and the DOD Joint Information Environment or JIE.

Working with the DNI CIO, we are ensuring the success of IC ITE:
- We are partnering with DIA to install the common desktop across the Community. We have installed more than 5,000 desktops to date, and we are adding hundreds more each month in a phased rollout.
- We have had great success integrating into a Cloud environment since we moved to our new headquarters three years ago.
- That success has prepared us to move our content into the NSA Government Cloud now.
- We are working with the CIA to add our data to its Commercial Cloud when it comes on line in a few months.
- Of course, we know we must secure our content. As we move our content to these Clouds, we are tagging the data and working with the IC to tag our people so we can share our data safely.

We are also aligning with IC ITE's Common Services' initiatives, and we are retiring legacy systems. We are partnering with DIA on a joint agile acquisition effort based on DIA's Open Innovation Gateway and NGA's GEOINT Solutions Marketplace. End to end, our Open IT Enterprise is driven by a Unified Data Strategy. This strategy drives GEOINT-based integration, advances the GEOINT mission, achieves greater efficiencies, and enables the warfighter to be even more effective.

While we can have the best collection, analysis, infrastructure, and customer experience to succeed today, we still must have the most robust research and technology to continue to succeed tomorrow. Our R&T investments make up the sixth pillar. NGA invests in numerous partnerships, agreements, grants, and initiatives that are leading us to the immersion phase. Our investments are focused on three building blocks: persistence, anticipatory analytics, and immersive intelligence. Persistent coverage requires state-of-the-art research to optimize how we process Big Data from all GEOINT sources. Our goal is turn our sensors and processes into a global persistent asset. Anticipatory analytics places GEOINT at the center of contextual intelligence – that is, the ability to accurately assess and anticipate events and trends. To foster the immersive experience, we aim to increase the ability to intuit, perceive, and create meaningful insights from the vast amounts of complex content.

With all of the pillars working together and supporting the platform, NGA is realizing our vision. And we are leading the Community into the next phase – immersion. So, what does this phase look like? How will it be different? What impact will it have on analysts and decision makers?

Recall the future state video that we showed. You saw the young analyst, her virtual team meeting, and her virtual tag-up with the warfighter. You saw how they interacted, how they used natural user interfaces – voice, touch, gesture, and glance – to act at the speed of cognition.

Now, imagine – in the not-too-distant future – you are a member of that virtual team. Your team's key question is to anticipate the impact of civil unrest on an unstable country, its growing humanitarian crisis, and the potential response of an embattled government. Your team must keep warfighters, planners, and decision makers informed in real time.

You can do that because your teammates "live in the data" and collaborate through a variety of virtual environments, including:
- A virtual multimedia and gaming environment,
- Constant access to multi-source data in the Cloud,
- Simulations, and
- Online, on-demand, dynamic 3D models.

As you begin your day, your automated data mining app warns you about anomalies in troop movements, puts video of overnight protests on screen, and notifies the rest of your team. You quickly scan your queue of open source reports and classified data. Your teammates from across the IC and the DOD gather in your virtual meeting space. With the Map of the World as your common reference, you share and discuss fresh content from multiple sources and add it to your constantly evolving "model of the moment."

You use advanced natural user interfaces to share your content and navigate the model. The sound of your voice, the sweep of your hand, the touch of your fingers, and

the glance of your eyes quickly organize clear, meaningful visuals. Applying advanced analytic tools to your models, your team discovers a critical unknown. You display a 3-D graphic that identifies a network of extremists trying to infiltrate the protestors' camp.

Your team anticipates that within days, the extremists will try to provoke violence in what had been peaceful protests and the government will respond with a strong crackdown. Two other team members quickly visualize the story for senior leaders. You make your team's discovery and insight immediately available to key planners and COCOM analysts, uploading it to the Map of the World with instant access through the Globe. Minutes later, the Combatant Commander herself joins your team on screen and asks you to confirm your assessment, provide more details, and offer her options for action. Your team stands by your judgment, shares more visuals, and discusses the implications with the Commander.

Two days later, your team watches a live video feed as a multinational force raids the extremists' camp and captures them. Living in an immersive experience, you and your team created cutting-edge analysis. It gave the decision maker what she really needed: more warning, more time, more space, and therefore – more options for action. Your unique insights had real consequences, and you and your team saved real lives.

We are making this dream a reality through our new platform for intelligence integration. We are driving the next phase so that our ability to predict and warn becomes the norm – not the exception. I strongly encourage everyone here – and everyone in the GEOINT enterprise – to become an even more active partner with us.

We have major opportunities for you in every area. Let me cite just a couple of key areas:
- Conflation – Automated tools to precisely align information from many sources on the fly.
- Visualization – Visualizing the wide variety of data – tagged in space and time – so analysts can identify the patterns and networks.
- And Automated Activity Detection – Going well beyond just change detection, it means creating models so we can automatically detect anomalies in those activities.

For specific opportunities, I encourage you to attend the presentations on the Government Pavilion stage during the next three days. NGA senior leaders will be on hand to discuss how we can work together to drive toward this next phase.

In closing, I want to stress three points:
- The powerful forces reshaping our world today are driving our momentum toward total intelligence integration.
- Our momentum is revealing the enormous potential of immersion.
- Most importantly – in this rapidly changing world and with our constrained resources – we must come together as a unified community to realize this potential.

Only together can we maximize our strengths. Only together can we turn our great ideas into great results. Only together can we see what our adversaries cannot, know what we should know, and act first. Thank you.

END