



A Conversation with Letitia Long Director, National Geospatial-Intelligence Agency

The end of the Cold War and the dawn of a new era in global security brought about tumultuous changes in the U.S. intelligence community. The shift in the threat environment, the evolving nature of conflict, and the revolutionary technologies of the digital age prompted many of these changes and a need to rethink approaches to national security. Leveraging intelligence based on the earth's physical and manmade attributes and practicing the art and science of interpreting that information have become valuable assets for the country.

As both a member of the U.S. intelligence community and a Department of Defense (DOD) combat support agency, the National Geospatial-Intelligence Agency (NGA) has sought to produce timely, relevant, and accurate geospatial intelligence (GEOINT) for government leaders in responding to and anticipating the country's most critical national security challenges. How is NGA putting the power of geospatial intelligence into the hands of its users? How does NGA support disaster relief, homeland security, and war fighter operations? Letitia Long, director of the National Geospatial-Intelligence Agency, joined me on The Business of Government Hour to explore these questions and so much more. The following provides an edited excerpt from our interview. —MJK

On the History and Mission of the NGA

We were established as an agency in 1996 as the National Imagery and Mapping Agency (NIMA). The origins really came out of Desert Shield/ Desert Storm when there was the recognition that we weren't getting as much as we could out of our imagery intelligence, imagery analysis, and our mapping initiatives. The NIMA combined the Defense Mapping Agency (DMA), the imagery analysis portion of the CIA, along with the imagery exploitation, dissemination, and processing elements of a host of other agencies, such as the Defense Intelligence Agency and some smaller organizations. [With the creation of NGA in 2003, this area of intelligence took another leap forward, allowing us to integrate multiple sources of information, intelligence, and tradecrafts to produce an innovative and sophisticated new discipline that then-NGA director James Clapper named geospatial intelligence, or GEOINT.]



It is the use of imagery, imagery intelligence and geospatial data to describe and depict features and activities and their location on the Earth, helping users visualize what is happening, where it is happening, and why it is happening.

On Managing NGA

NGA has about 16,000 government personnel: civilian, military, as well as contractors. We receive our resources from both the intelligence community and from the DOD side. We receive priorities from both that flow from the President through the Director of National Intelligence and from the Secretary of Defense as well as from the combatant commanders. We certainly have a presence in Afghanistan and in other areas where we have troops on the ground. We're embedded with them; we're also embedded with each of the 10 combatant commanders. We're also embedded in other federal agencies—the Department of Homeland Security, FBI, as well as in the intelligence community with

the CIA and the Defense Intelligence Agency. Part of our way of doing business is to embed with our mission partners, so we understand their priorities and tempo. We are often able to anticipate their needs, even before they might know they need something, and therefore provide that support—it's very proactive. NGA is a great agency with a very important mission: to provide that geospatial intelligence where it's needed, when it's needed, to our combat forces, to our military forces, to the policy-maker, to the first responder, as well as to the rest of the intelligence community.

I actually have two roles, one as the director of the agency and the other as the geospatial intelligence functional manager. I am responsible for all GEOINT resources within the U.S. government, not just those within NGA. The military services have GEOINT resources as well as other organizations in the intelligence community. What that means is I'm ensuring that we're not duplicating effort, that there's a clear delineation of who is doing what. I set standards for GEOINT tradecraft and training so that we are all trained to the same level and providing the same type of information in the same types of formats.

On the Challenges Facing NGA

I look at challenges as opportunities. Challenge one is making sense of the increasing quantity and amounts of information that we're collecting. Data is good; more data is better. Another challenge, again as I see it an opportunity, is properly integrating new types of sensors and new types of phenomenology to enhance the work we do. It's not only pictures. It's wide-area and high-definition, full motion video that contains lots of information. It includes infrared imagery; imagery that shows heat, so we can tell if a nuclear power plant is operating or not. It's anything that can tell us where something is on the face of the earth ... and it's also providing the context. "Why is it there? What are they doing? What might they do next?" so that we can anticipate what might happen and why. Ultimately, all we do involves putting the right information into our users' hands.

On the Agency's Vision: Putting the Power of GEOINT into the Hands of its Users

The way NGA developed this vision was actually talking to the workforce. I spent my first three months on the job walking around, visiting as many NGA sites as I could, listening and learning from the workforce. Our analysts were spending an inordinate amount of time looking for information ... because they spent so much time looking for information, they weren't spending enough time actually analyzing the information, which is why we have analysts—it's to provide that value added and provide needed context.



Putting the power of GEOINT in the hands of the user focuses on making information more readily accessible, easy to access and easy to use ... so our analysts don't have to go query database A, B, C, D, and E to get a complete picture of a particular issue that they're working on.

What we're doing is creating an integrated analytic environment, so an analyst has access to all of the information through a set of applications. Think your smartphone or tablet. We're also creating a similar environment for our customers, so that they can access and find information.

On Transforming the Way NGA Does Business

We are moving from what has been a full-service model for really just about everything we do to a three-tiered service delivery model—self-service, assisted service, and full service. We'll always maintain that full service. I don't expect the president or the director of national intelligence to be surfing our websites and databases. Many of our customers and users can access our standard product or even customize information according to their immediate needs. As part of the self-service delivery model, we also want our users to be able to contribute information. For instance, soldiers in the field can pull the latest imagery, map, or GEOINT. If they see something as they are moving in the field that is different, then they can take a digital picture, upload it to our system.

Our work also supports emergency response and homeland security operations; for example, FEMA teams on an urban search-and-rescue mission. We are able to provide those

on the ground the latest imagery on an unclassified device, commercial imagery, for them to deploy immediately to a sector. They were seeing some things that occurred after the last collection of imagery so they were able to annotate that through text and upload it to our network. We could then get it out to all of the rescue teams. Our three-tiered delivery model changes [the way we do business]; we are also enabling our users to be contributors as well.

On Leveraging Mobile Apps

A growing part of our business area is humanitarian assistance and disaster recovery operations. For first responders, we've been able to develop a whole suite of applications. In the past, an event would occur. We would go into hard-copy production mode. We would produce hardcopy atlases. We would produce the same with before and after imagery, what we call gridded reference graphics ... about one hundred pages depending on the extent of the damage, print hundreds of copies for each of the teams. Our users would go to their section of the atlas and rip out the three or four, five pages they needed. If things continued to develop with the incident—think hurricane, think inland flooding—we'd have to go back to our production mode.

Now the digital updates are immediate with the development of the map atlas application. As soon as we receive and assess the imagery, it is uploaded to our network and downloadable to a tablet or a smart device. With this application,

first responders ...don't have to wait for us to ship documents to them. This approach is green because we're not printing; ... the first responders [can] input data. So we developed that digital map atlas application.

We developed a compass application that allows first responders to find their way in the aftermath of an event. If you think about the tornadoes that hit in Joplin, Missouri—cell phone towers were down, street signs, whole communities were gone. As first responders made their way, they had no idea where they were. With this app, we were able to give them a compass. We know where all of the hospitals are located, where the churches and schools, daycare centers, and hospices are located. Using the compass app, first responders can navigate their way to these locations and respond more effectively. We didn't have that at the time. We were still in hard-copy mode last summer, but by the fall of 2011, for Hurricane Irene, we were in the process of developing about a dozen applications. We said: "What better way to test them than just send them out?" and that's what we did. FEMA has said this has been a real game changer for them. They are able to do so much more in a much shorter period of time. I see the development and use of apps expanding. I also see us developing more applications for our workstations within the workplace, so it's not only apps for mobile devices. It's apps for our integrated analytic environment.

On Measuring Success

We recognized we needed to have metrics so that we could measure progress and evaluate how we were doing in achieving our vision. We set up a very simple measurements.

The first is content. We wanted to ensure that there was access to 100 percent of our content; easy access, transparent access. There was always access ... it was just very time intensive, very laborious in getting to it, so easy access to the content. That is metric number one.

Metric number two is to develop an open IT environment and that is part of the user as contributor. The user needs to be able to enter into our environment. Now, we work with a lot of classified information and when I say open, I don't mean unsecure. We still operate at multiple classification levels, but an open IT environment in that it's easy for our analysts to get around, it's easier for our developers to contribute applications, and it's easy for our users to reach in and see our information as well as contribute.

The third metric is customer service. It is all about the user's experience, so this needed to be an environment that



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— *Letitia Long*



was intuitive and easy to use. What we’re using are business analytics to help us understand whether or not we are achieving that. What websites are users accessing? What applications are they using? If an app is not being used it is either not delivering the intended value or it’s too hard to use. We’re trying to listen to the user as we go through this, so business analytics are key.

The fourth metric is deepening analysis. Are we providing better information, better knowledge for our key customers? Are we anticipating what could happen? Are we anticipating what they might need and what they are going to ask, such that they have it before they even ask it or even know they need to ask it? It’s a simple framework, but I think very powerful in measuring how we are doing.

On the Importance of Mapping the Human Geography

Human geography is an analytic approach used in describing spatial and temporal patterns of human behavior in the context of their environment. Fully considering the human element is critical to understanding why people do what they do, where they do it, and how that can influence the environment, which involves understanding the dynamics of people in certain regions—their history, culture, and patterns as a group.

For example, just take some countries in Africa that are lacking in water. Water is a key natural resource, so to understand the natural rainfall, to understand where wells are or where they should be dug, to understand where the vegetation is, where the farming is: that is a way to actually render assistance. Understanding how people interact with their environment is another layer of information that we add to our geospatial intelligence.

On Consolidating NGA’s Physical Operations

We are extremely fortunate to have a new facility at Fort Belvoir in Virginia as part of the 2005 Base Realignment and Closure (BRAC). This is the first time we have been able to

consolidate our East Coast operations into one facility. Being able to have everyone co-located into this facility has a number of benefits. The facility was specifically designed to enhance mission performance, facilitate physical and virtual collaboration, and promote greater information sharing within the agency. First of all, it cuts down on time spent traveling from meeting site to meeting site. More importantly, it gives us the opportunity to have impromptu meetings. Being able to have our developers in the same place as our analysts, in the same place as our collection managers is a huge benefit. The analyst workspaces are open to encourage that collaboration. Having that level of brainpower in one place to really work on hard problems is already paying benefits.

The actual facility is LEED certified. All of our building materials were thought about with the environment in mind. We have a pool where we catch rainwater that we can use to irrigate the grounds. We can also use it for backup water to keep our computer center going. Everything about this design keeps the environment front and center.





On the Importance of Teamwork

No one does what they do on their own. In the end, it is the network that you develop; it is the set of mentors that you acquire along the way, and it really is about teamwork. One of the things that we have learned—and it's been a painful lesson as an intelligence community—is that you need diversity of thought. If everyone's got the same mindset, thinking the same way, then we're not thinking like our adversary. We're not staying a step ahead. I'm not talking consensus on the lowest common denominator. I'm talking about pushing, prodding, and poking at the answer that encompasses "what if" scenarios and red teaming—it is about really considering all of the possibilities.

On the Future

I will to continue to work with our national and international partners. We have many relationships where we burden-share or look for areas where we can opportunity-share

across some of our common national security issues. Another near-term goal is to continue working towards the open IT environment so that we have truly an efficient operating model. I would say in the longer term, I'm really looking to ensure we have a balance between operational and strategic issues. The day-to-day operation of NGA is of utmost importance, but if we're not focused on the strategic, we won't be able to do that day-to-day. I want to leave the agency in a better place than it was when I walked through the door. We've got a number of initiatives underway that will help see that through.

On the Importance of Public Service

I would say just do it! It is an extremely rewarding career choice and just an outstanding opportunity to be able to serve our country—knowing that what you are doing, every single day, is making a difference. It's making a difference for our military forces, first responders, and policy-makers. What we do actually saves lives, and we get that feedback almost every day from our mission partners, who understand and appreciate what it is we're doing. What you are doing is making a difference in the security of our nation. ■

To learn more about the National Geospatial-Intelligence Agency, go to www1.nga.mil/Pages/default.aspx.



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