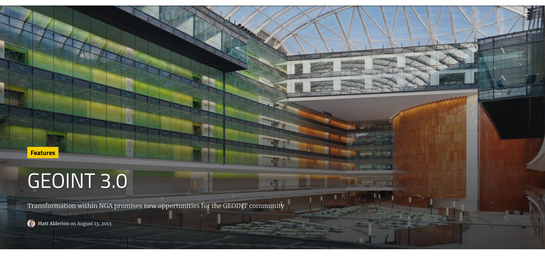

Features

# GEOINT 3.0

Transformation within NGA promises new opportunities for the GEOINT community

Matt Alderton on August 13, 2013

At approximately 1 a.m. local time on May 2, 2011, two Black Hawk helicopters containing Navy SEALs descended upon a sleepy compound in Abbottabad, Pakistan. Their target: Osama bin Laden, the jihadist architect behind the Sept. 11 terrorist attacks on the United States. Thanks in large part to the **National Geospatial-Intelligence Agency** (NGA) — whose analysts waded through a complex tangle of maps and satellite imagery in order to locate the compound, then helped U.S. Special Forces contextualize, simulate, and navigate it — bin Laden was found and killed in a matter of minutes.

Operation Neptune Spear illustrates perfectly NGA's burgeoning role in national security, intelligence, and defense. Armed with dynamic and detailed location data, NGA customers have an unprecedented ability to plan and execute place-based missions. The successful mission spoke not only to the training and talent of those who carried it out, but also to the integrity of the data upon which it relied. An outdated image, an imprecise coordinate, or an unavailable insight easily could have cost SEAL Team Six its target, not to mention the lives of team members or innocent bystanders.

Unfortunately, outdated imagery, imprecise coordinates, and unavailable insights aren't just risks — they're realities. A reality that grows more common when the distance increases between those who collect location data and those who use it.

To close this gap, NGA Director Letitia Long recently introduced a five-year strategic plan—formally known as "NGA Strategy 2013-2017" —designed to position NGA for a new era of national security challenges and opportunities. The result is a new, more integrated way of doing business based on agility, speed, collaboration, and user engagement. Long has dubbed the strategy "GEOINT 3.0"—aiming to turn the agency on its head in pursuit of increased mission capabilities and improved mission outcomes.

Faced with transformational change, the larger GEOINT community has two choices, according to senior NGA officials: Embrace it, or get out of the way.

## Future State Vision

Shortly after her appointment as NGA director, Long addressed the GEOINT community at USGIF's GEOINT 2010 Symposium in New Orleans.

"NGA is ready to take GEOINT to the next level and put the power of GEOINT in your hands. I'd say this is our version of GEOINT 3.0," she said. "I see two principal near-term goals in order to do this. First: Provide online, on-demand access to our GEOINT knowledge. Give our customers — from novice to expert — access to our content, our services, our expertise and to our support, and to tools that allow them to serve themselves. Second: Create new value by broadening and deepening our analytic expertise. By providing deeper, contextual analysis of places informed not only by the earth's physical features and imagery intelligence, but also by human geography."

The seeds of change were planted. Two years later, in June 2012, Long indicated harvest time had come when "NGA Strategy: 2013-2017" was published, followed in April 2013 by NGA Future State Vision (FSV), which describes how the agency will operate upon successful completion of the new strategy.

"In 2018, NGA operates as an online, on-demand GEOINT and knowledge service that delivers value by both producing and providing products and services to our customers and partners," reads FSV. "Through outreach and engagement, we form close relationships with our customers and deeply understand their mission requirements. Using advanced business analytics, we understand the degree to which GEOINT fulfills customers' expectations and seize the initiative to continuously improve our products, services, and delivery methods."

Simply put: The NGA of tomorrow won't prescribe products and services to end users; it will use an agile acquisition methodology to deploy on-demand digital data for end users to access and utilize whenever, wherever, and however they see fit.

"NGA appears to be shifting focus from an agency that makes products to an agency that brokers information by providing data-as-a-service," explained **Patrick Ernst**, chief operating officer at PIXIA Corp. "This is a departure from the old way of doing business where individual platforms had unique TCPED requirements and specialized analysts. This is exciting because the commercial sector has made great strides over the last 10 years to improve the way we store, access, analyze, process, and generate knowledge from data ... Providing full data access directly to end users will exponentially increase the realized value of that data."

## The Case for Change

According to NGA, moving to on-demand delivery will yield numerous benefits. One is cost savings, which will be achieved by developing new models for how the agency partners with, relates to, and compensates industry.

"The budget decline that is impacting all of the IC and NGA ... is really one of the primary impetuses for why we want to look at new methods of engaging industry, new methods for payment with industry, and new methods for getting ideas and capabilities from industry," said Polly Shaffer, NGA's executive in charge of industry engagement.

New business models likewise will catalyze time savings, allowing NGA to reallocate limited resources around its core competency: data analysis.

"As you make data more easily discoverable, and the tools to exploit that data more easily available, you automate the labor-intensive portions of the process and move toward a situation where your resources are now being spent on your core mission of producing intelligence, as opposed to all the legwork and labor that goes into preparing to produce the product," said Lee Hall, director of operations for Lockheed Martin's GeoVision line of business.

Although time and cost savings are no doubt advantageous, that core mission is the ultimate beneficiary — and therefore the core driver — of GEOINT 3.0.

"Ms. Long has been very open about saying, 'We're aware that there are budget savings, but we're not doing this because we're trying to cut costs; we're doing this because we're trying to improve mission capabilities and respond to a new threat environment,'" explains former NGA director of Online GEOINT Services Barry Barlow, now chief technology officer at The SI Organization.

Under the traditional acquisition process, Barlow said, it often can take months or even years to deliver new capabilities to NGA customers. With agile acquisition—whereby industry will develop applications based on user-defined needs—the timeline could be reduced to weeks, enabling a more flexible, timely, and targeted response to mission threats and objectives.

"We've become in NGA this brilliant acquisition organization," said Karyn Hayes-Ryan, NGA's strategic initiative lead for agile acquisition. "But ... it's sort of like being 'Ms. Congeniality' in a beauty contest. We followed the right processes and we opened up and shared everything with our overseers, but we weren't necessarily delivering dramatic revolutions in capability. We were delivering steady, slow, process-obedient capabilities. And in some cases—I'm sure the users would say in many cases—we delivered them and they were perfect. They were just two years late."

## Engineering Success

Achieving rapid delivery of new capabilities requires NGA to prioritize people over processes.

"The most important tenet of our approach to agile acquisition is user engagement," Hayes-Ryan said. "It's having the user right there with us throughout the entire [development] process. Or, actually, it's sitting us with them."

Sitting "us with them" isn't as simple as it sounds. NGA and the broader National System for Geospatial-Intelligence (NSG) are both comprised of dozens of disparate systems across a swath of geographies. For this reason, uniting content creators with users requires building an integrated and open IT infrastructure that makes it easy to discover, access, share, and rate NGA solutions across multiple security domains.

Enter the Systems Engineering and Integration for the National System for Geospatial-Intelligence (SEIN) Program.

"This is not your grandfather's systems engineering contract," Hayes-Ryan said. "We're taking the NSG and we're trying to morph it from a system of systems ... into a set of interoperable GEOINT services."

Unlike a traditional systems engineering contract, which applies finite resources to local problems, SEIN takes a dynamic, enterprise-level approach.

"It's really an outcomes-based contract," Barlow said. "It's not as much about a specific task and a person to accomplish that task as it is bringing to bear whatever resources and skill sets are necessary to achieve the [capabilities] that [NGA] customers are demanding."

In order to maximize the benefits of agile acquisition, SEIN calls for the creation of a "GEOINT Solutions Marketplace," which consolidates tools and capabilities that have already been developed by industry, academia, and government, and thus eliminates redundancies, exploits existing solutions, and creates a virtual community where NGA partners and users can collaborate to fill GEOINT solution gaps.

"The SEIN approach is a great idea for ensuring one team has a total site picture of what NGA has in its current portfolio, what the NSG needs to achieve its future goals, and compare that knowledge to technologies the commercial sector has to offer," Ernst said. "In industry we often see parts of problems and don't often have insight into what the government is doing now, what didn't work then, and where it wants to be both politically in the future. So to have SEIN's forward-thinking approach to better inform what to look for in industry and, conversely, how industry can shape their requirements or enable their missions, is a great idea."

## The Way Forward

By physically and philosophically integrating NSG systems and solutions, SEIN will help NGA overcome the technical hurdles to achieving GEOINT 3.0. Conquering the cultural challenges, however, will require uniting more than machines.

Inside NGA and within the broader NSG, this means educating staff about the value of an enterprise architecture while also allaying fears about competing budgets and perceived loss of control through interdependencies. This, in turn, requires coalescing individuals at all levels and from all disciplines around the mission opportunities that GEOINT 3.0 will enable, according to former National Reconnaissance Office (NRO) Director Martin Faga.

"At NRO, I was director during the first Gulf War," recalled Faga, who during this time was visited by a general who had led a surprise attack on Iraqi forces. "This general said to me, 'People think the Iraqis didn't mount a significant defense, but they did mount a significant defense and tried to lure us into any number of artillery traps. Because of satellite reconnaissance and rapid communications I always knew what they were doing and could respond. Your people need to know they were the difference between a few casualties and hundreds of casualties.' That's what drives people in government, and it's what drives people at NGA. Every person out in the field knows that without geospatial mapping products they'd be blind. To get people [to embrace a more agile acquisition process] you have to show them what it means to the users whose lives depend on it."

That's exactly what Hayes-Ryan intends to accomplish. For example, when NGA hosts industry events, she said, users will present their needs and requirements directly to suppliers.

"Seeing physically what you're doing to help the country or fight for national security... watching it happen in real time...it's exciting and revolutionary."

Industry will play a critical role in NGA's strategic transformation, according to Shaffer.

"I would challenge industry to think differently about how they intend to work with us," she said. "The model and the paradigm has shifted and industry needs to get on board with that and help us figure out the new economic model that's going to support the pace at which we have to work. They have to be more collaborative amongst themselves and they have to figure out how working together makes better value for them."

Although some companies may view the change as a threat, those who embrace and lead change will be empowered to create new opportunities and profit centers.

"This is the best thing that could possibly happen to industry because it's going to make GEOINT more valuable, which will create more demand [for industry solutions]," Faga said.

Even with the full support of industry, NGA personnel, and the rest of the Intelligence Community, GEOINT 3.0 won't be reached easily or without error. However, the GEOINT community's shared enthusiasm for new mission opportunities will facilitate progress toward a more efficient, more effective NSG, according to Shaffer.

"As a nation we face some significant challenges. The question is, at this point and time, can we all rise to meet those challenges together?" Shaffer asked. "There will be those who don't want to move to a new way of working. The challenge for the rest of us is to push past those obstacles and create a new way. I think there's no reason why we can't, and I think we have to stay positive and forward-leaning."

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