

# The “Now,” the “Next,” and the “After Next” of Geospatial Intelligence

**Lt. Gen. James R. Clapper Jr., USAF (ret.)  
National Geospatial-Intelligence Agency Director**

**F**ormed from several defense and intelligence organizations, the National Geospatial-Intelligence Agency merges imagery, maps, charts, and environmental data to produce geospatial intelligence—the analysis and visual representation of security-related activities across the globe. Using state-of-the-art software and hardware, NGA can create animated renditions of imagery and geospatial data, allowing users to visualize inaccessible terrain.

NGA has contributed to homeland defense efforts, helped resolve international disputes, aided disaster relief efforts, helped the armed forces overseas, developed safer airways charts, and remapped the world.

Serving as director of this complex organization is retired Air Force Lt. Gen. James R. Clapper Jr. Chosen for his extensive experience in intelligence matters and knowledge of the needs

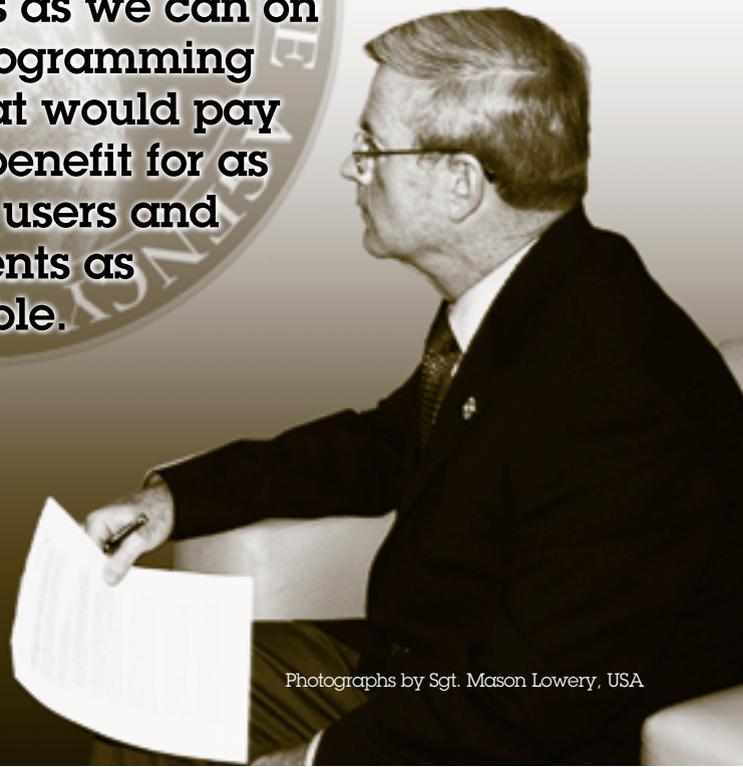
of combat commanders, Clapper became the first civilian director of NGA on Sept. 13, 2001.

Late in 2004, from his office in Bethesda, Md., Clapper spoke with James P. McNulty, Defense Acquisition University professor of systems acquisition management. Clapper explained how he has seen the demand for geospatial intelligence skyrocket during his tenure, and he described some of NGA's key contributions and accomplishments in meeting this demand, as well the challenges that lie ahead for the agency.

**Q:**

*On Nov. 24, 2003, the president signed the 2004 Defense Authorization Bill, a provision of which authorized NIMA [National Imagery and Mapping Agency] to change its name to the National Geospatial-Intelligence Agency. What is the significance of this change?*

**Invariably, you're faced with 30 pounds of requirements and probably no more than 20 pounds of money. So this year we tried a new process for being as rigorous as we can on evaluating programming alternatives that would pay the most cost-benefit for as many of our users and constituents as possible.**



**A:**

Well, I think the major significance is that it's a visible affirmation that this is not two separate organizations or two separate cultures or two separate endeavors, which was the case when the Defense Mapping Agency was combined with some other organizations to form what was called the National Imagery and Mapping Agency. That name itself essentially perpetuated the separateness: imagery and mapping. What the new name symbolizes or connotes is the synthesis of mapping, charting, and geodesy on one hand, and imagery analysis and imagery intelligence on the other, into the concept of geospatial intelligence, which is really what this agency is about. That represents, in a word, our vision of where we need to go to support our customers.

**Q:**

*You began your tenure as NGA director by introducing an organization principle that focused on three elements: the "now," the "next," and the "after next." The current challenge facing NGA is dealing with the now mission—the war on terrorism—while continuing to attend to the next, as well as planning for the after next and the future. In the face of the accelerated work flow triggered by our current situation, how do you encourage personnel to allocate time and resources to keep a focus on the future?*

**A:**

I served previously as director of DIA [Defense Intelligence Agency], and for four years on the NSA [National Security Agency] Advisory Board after I retired. So I came to this position with the recognition of how difficult it is to do 24/7 response to the daily crisis kind of missions all operational intelligence agencies confront and focus on transforming in the future.

I decided that given that difficulty, I wanted to introduce an organizing principle revolving around the temporal dimension of time so that there is a conscious, overt identification in the minds of the employees that we have to keep straight these three dimensions. The "now," which is our here, today, 24/7—essentially our operational warfighting mission. The "next," which is the acquisition. Approximately a third of our program each year is tied up in acquisition, which is a lot for an operational intelligence agency. And the "after next," which is keeping a view of the more distant future, what's out there in terms of technology, new software, and new processes that we can introduce to continue to transform the business. You have to keep—in my mind at least—those three dimensions reasonably separate, and we try to do that both functionally and organizationally so that there is clarity for the employees.

**Q:**

*What structures exist within the current system to help shape the next and the after next?*

**A:**

Organizationally, we have directorates that are quintessentially committed to each one of those dimensions. That's not to say that the rest of the agency doesn't have to think in terms of now, next, and after next, but our analysis and production organization—which is by far the largest, and the basic reason we exist—is essentially the now organization. We have an acquisition directorate that attends to the next. And for after next, there is what we call "Innovation," a term we use for our futurists and our research and development activities. Institutionally or structurally or organizationally, those three directorates represent the three dimensions.

Now that's not to say that each directorate has a singular focus. For example, enterprise operations, which runs our information technology and what we call source operations and management, and which operates our collection task, must think in those three terms as well. So it's not a one-on-one binary relationship between a temporal dimension and an organization. There is some organizational congruence, but it's also a mindset or a way of organizing how we approach things in terms of running the business and transforming.

**Q:**

*It's not an easy task trying to strike that balance is it?*

**A:**

No!

**Q:**

*In a memorandum that was sent to the entire agency, you strongly outlined the NGA plan as "not government business as usual." You described a typical government budget as burning through as much money as possible per fiscal year, guided by the philosophy that the more you spend, the more you get and the more successful you can be. NGA, you declared, is doing business differently. How is NGA approaching the budget process?*

**A:**

The elusive holy grail, I suppose, is the extent to which you can possibly inject commercial or business processes into what we do in government. And having spent six years in industry, I know that's not exactly possible, since what we do is essentially produce free goods and services. People don't have to pay for what we do. Nevertheless, there are many practices we can inject into our "business," if you will—the enterprise—and how we manage it that are commercial-like.

So this year, we radically changed the process that we use to build our program objective memorandum and did more rigorous analysis independent of the rest of the agency. We essentially set up our own mini-program analysis and evaluation organization to weigh the proposals

**Lt. Gen. James R. Clapper Jr., USAF (ret.)**  
*Director, National Geospatial-Intelligence Agency*

**A**ir Force Lt. Gen. (ret.) James R. Clapper Jr., has more than 37 years' experience in intelligence, working at all levels and phases of the field. He retired from the Air Force in September 1995 as a lieutenant general after a four-year tour as the director of the Defense Intelligence Agency. Since his retirement, he has served successively as executive vice president of Vredenburg, a systems acquisition services company headquartered in Reston, Va.; executive director, military intelligence, for Booz, Allen & Hamilton, McLean, Va.; and most recently, as vice president, director of intelligence programs for SRA International, Fairfax, Va. He was a senior member of the Downing Assessment Task Force, which investigated the terrorist bombing of Khobar Towers in June 1996.



Clapper began his service with a brief period of enlisted service in the U.S. Marine Corps Reserve, followed by a transfer to the Air Force Reserve Officer Training Corps program and a commission as a distinguished military graduate from the University of Maryland. He commanded a signals intelligence detachment in Thailand (where he flew 73 combat-support missions in EC-47s); a signals intelligence wing at Fort George G. Meade, Md.; and the Air Force Technical Applications Center, Patrick Air Force Base, Fla. The general served as director of intelligence for three of the unified commands: U.S. Forces Korea, U.S. Pacific Command, and Strategic Air Command. He also served as senior intelligence officer for the Air Force.

given by various constituencies within the agency, as well as by our larger community, the National System for Geospatial-Intelligence, which involves military departments, the commands, and a variety of civil customers and constituents. Invariably, you're faced with 30 pounds of requirements and probably no more than 20 pounds of money. So this year we tried a new process for being as rigorous as we can on evaluating programming alternatives that would pay the most cost-benefit for as many of our users and constituents as possible. The process analyzes, as though we were a profit-making enterprise—which, of course, we're not—what would derive the greatest "profit" in terms of utility for our users.

**Q:**  
*So it's not really a matter of just cutting out anything; it's a matter of getting the best value for your money.*

**A:**  
Exactly. It's maximizing the utility of the funding that we do have.

**Q:**  
*The war on terrorism has greatly increased the operations tempo at NGA. Faced with an urgent demand for intelligence on a region of the world not fully covered in its databases, the agency turned to private industry for products and services. You've noticed the importance of your industry partners in meeting the increased tempo and need for information. Can you comment on the role of industry in your organization?*

**A:**  
It's quite prominent. We depend very heavily on our contract workforce in two dimensions: one, those who are embedded in the organization as full-time equivalents, and two, products and services that we derive from our industry colleagues. The trend has been to rely even more on our industry partners, and it's one that's projected to continue.

What that does, though, is to reinforce the importance of our overseeing what the contractors do for us and to ensure that we carry out our contractual and fiduciary oversight responsibilities. Even though our government workforce is growing as a proportion of the total workforce, it is actually smaller proportionally than the totality of our workforce when you include the contractors.

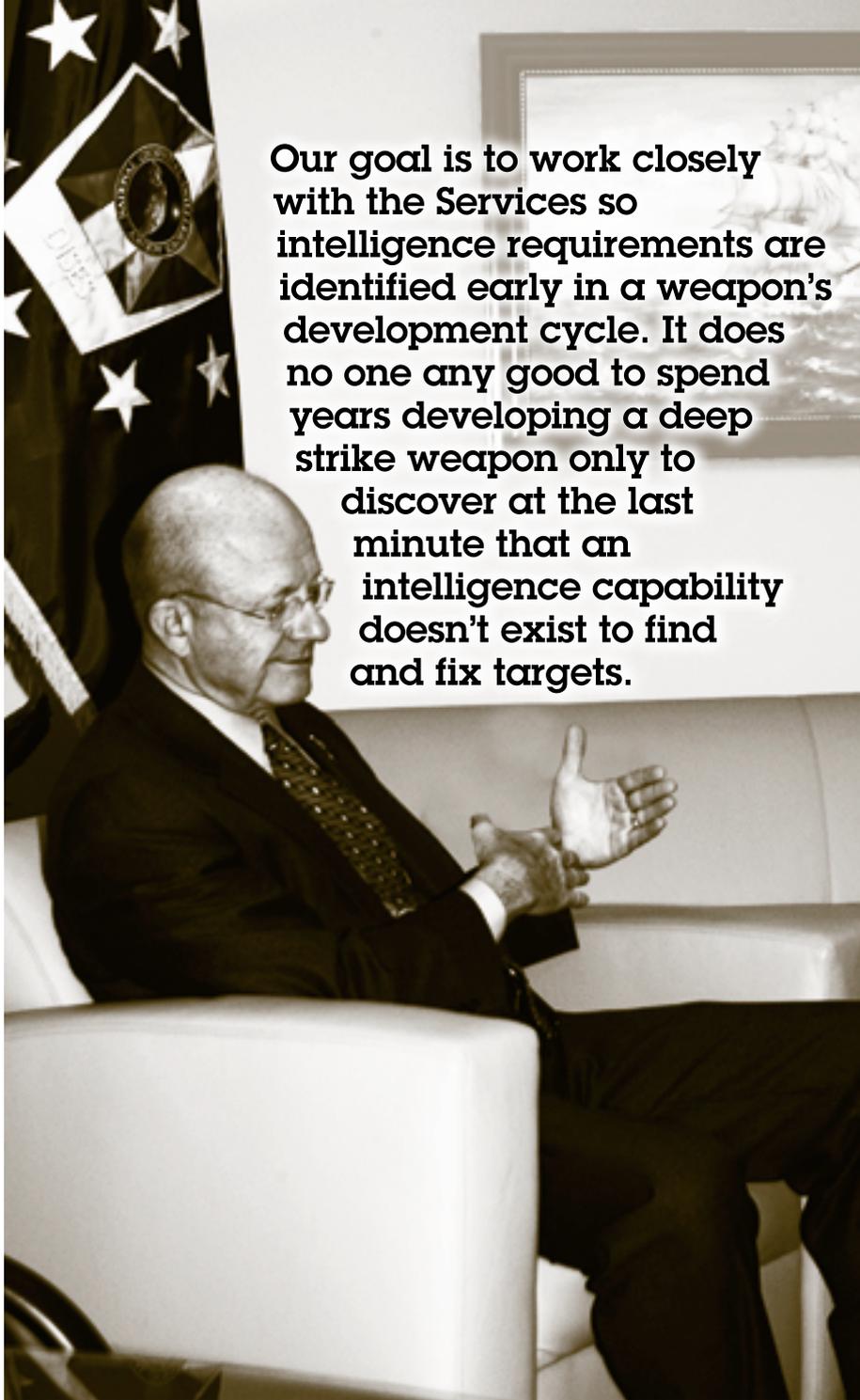
**Q:**  
*With your surveillance activity, have you changed anything about the way you monitor your contracting activities?*

**A:**  
No, we use the traditional methods. I think we've done what we can to expand our contracting office and to professionalize it as much as we can. It's under superb leadership right now. We do have an extensive internal education process. You have to be on guard constantly for conflict-of-interest violations and that sort of thing when you're working elbow to elbow and side by side with the contractors, as we are.

We try to instill a philosophy of teamwork between government and contractor as much as we possibly can, but even so, we still have to be sensitive to and mindful of our obligations to oversee what they do.

**Q:**  
*The cooperation aspect of it is much more productive than a head banging.*

**A:**  
Absolutely. Certainly my own personal attitude about contractors and contracting changed after I retired from ac-



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**A:**

As one example, I think a major thing is automating products and services. I was the chief of Air Force Intelligence during Desert Shield and Desert Storm, and we have progressed a long way, I believe, in conveying intelligence in general to users. Our ability to move it has increased exponentially. So that's one factor. There will always be a need for hard-copy products, but to the extent that we can automate, convey this electronically, we're always going to be fighting laptop wars.

As increased communications bandwidth has been made available to us, we've attempted to maximize the technology, and we're able to move ever-greater amounts of data and imagery. In our case in particular, imagery has traditionally been a voracious bandwidth eater, and our ability to distribute it has increased tremendously.

Another change for this agency has been having representatives present in the forward area, working side-by-side with the customers we serve. We mounted up a substantial deployment for operations Enduring Freedom and Iraqi Freedom. This, I think, also pays big dividends: you have your representatives at the pointy end of the stick who are in the same time zone, enduring the same privation and same hazards, and who understand first-hand the requirements of the customer. They can and do reach back into the larger agency capabilities to provide that kind of support. So those are two

tive duty and spent six years as a contractor working for three different companies that serviced the intelligence community. So that obviously has colored my attitude and philosophy about what contractors can and should do.

**Q:**

*To meet the needs of decision makers and warfighters in an accelerated timeframe, NGA has introduced advanced methods and products of its own such as the introduction of geospatial intelligence, or GEOINT. Can you tell us about some of the new initiatives that have taken place during your tenure, and any new capabilities you are delivering to the warfighter?*

things I think I'd cite. The technology improvements and what we do with respect to people representation.

**Q:**

*That feedback gives you some real-time methods of being able to change your products and services, too.*

**A:**

It makes the requirements process a lot more dynamic when you have specific needs for a specific product for a specific mission, let's say, which are invariably time-sensitive. When you have the capability to reach back and get it, that does improve things for the user.

**Q:**

*As the military's need for situational awareness grows, demand for NGA's products increases exponentially. For example, the Army's Future Combat System is expected to require substantial amounts of detailed geospatial intelligence. How are you collaborating with the Services to develop requirements for systems that NGA can support and sustain?*

**A:**

NGA is working across a broad front to ensure collaboration among the various agencies that exist in the Intelligence Community. This is especially true in our interaction with the military services.

We have NGA support teams, called NSTs, embedded with each of the Services. Our goal is to work closely with them so intelligence requirements are identified early in a weapon's development cycle. It does no one any good to spend years developing a deep strike weapon only to discover at the last minute that an intelligence capability doesn't exist to find and fix targets.

These efforts are changing the way people work. When analysts from different tradecrafts and Service backgrounds work together, they gain new perspectives through the insights provided by their disparate disciplines. This collaboration helps them to shorten and streamline the product development process, and it results in more complete and accurate information.

**Q:**

*A significant change since September 11 is that NGA's traditionally foreign-oriented products, services, and capabilities are now being applied to homeland security. Examples include assisting in surveying the World Trade Center site to determine the extent of the destruction, and providing geospatial assistance to the 2002 Winter Olympics in Utah. How is NGA responding to this additional strain on resources? What new skill sets and policies are necessary to turn NGA's efforts to domestic issues?*

**A:**

All NGA domestic activities are in response to specific and formal customer requests for support, and they undergo an intelligence oversight review by our policy and legal offices. The workforce skills and techniques that have served us so well in an overseas context for many years are the same ones we put to use supporting our domestic customers, who are always defined as a "lead federal agency."

NGA has an established and highly capable workforce of analysts and liaison personnel. Workload is distributed on a daily basis to cover the priority overseas and domestic issues, especially those in support of DHS—the Department of Homeland Security—the Defense Department, and NORTHCOM [*U.S. Northern Command*].

The primary daily focus is analyzing information, both classified and unclassified, to support customer requests for geospatial intelligence relative to such topics as critical infrastructure protection, vulnerabilities, security events, exercises, and disaster response.

One way NGA is reducing workload for domestic requirements is by funding the purchase of federal-wide licenses of critical infrastructure datasets. This helps us leverage our funds and provide information to as many people as possible at the same time. We are also collecting imagery and elevation data for the United States Geological Survey national map and customer data archives; providing mobile equipment at the Federal Emergency Management Agency and NORTHCOM to improve deployment capabilities; replicating data holdings at multiple NGA, DHS, and NORTHCOM sites for contingency operations; and funding contract support to data integration and Web-based access.

**Q:**

*The Future Intelligence Requirements Environment or FIRE system developed by NGA and currently still in early prototype stage, offers the ability to store and use data across multiple disciplines and agencies in an integrated fashion. Can you give us any insights into the system and its potential application for U.S. intelligence agencies?*

**A:**

One of my goals as the director of NGA and as the functional manager of the national system for geospatial-intelligence is to champion multi-intelligence collaboration.

FIRE will enable the intelligence community to work in this collaborative environment by providing the data and tools necessary to analyze our future ISR—intelligence, surveillance, and reconnaissance—processes and systems across the diverse intelligence disciplines. We need to be smarter in our design, acquisition, and operation of ISR systems in meeting the intelligence needs of the users; FIRE will help get us there.

The vision for FIRE is as a multi-intelligence database and simulator that will assess the effectiveness and synergy of current and postulated multi-INT concept of operations, collection strategies, systems, and architectures. FIRE will be different from previous ISR modeling tools in that it will consider multi-INT capabilities versus single-INT capability, using "knowledge gained" as the final measure of merit.

FIRE will allow us to break the paradigm of system utilization as a success measure and actually consider what information can be gleaned from multi-INT operations. It will help analyze the design and operation of integrated ISR architectures and answer age-old questions like "How should imagery, signals, and advanced geospatial intelli-

gence be employed as a whole rather than in parts?”

**Q:**

*Technology has enabled the collection of an unprecedented amount of information. Information overload affects people both inside and outside the intelligence community. A concern at NGA is the longstanding end balance between data collection and the ability to process, exploit, and disseminate intelligence. How does your agency cope with such large volumes of data, and what dissemination methods do you use to ferret out what's important?*

**A:**

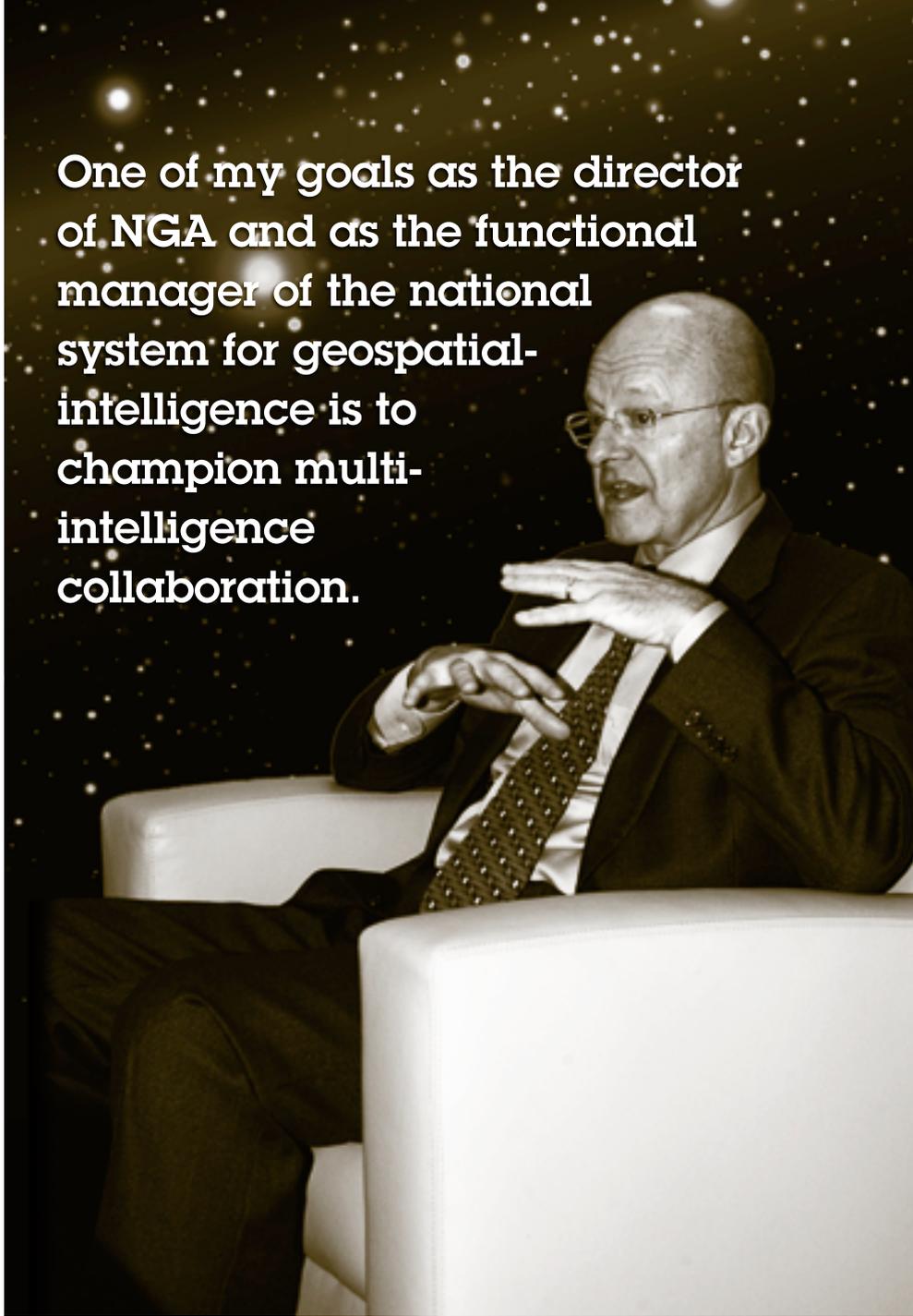
This has been kind of a traditional challenge for us as a community: balancing the front-end collection with the back-end processing, exploitation, dissemination, posting, and all that.

What we are attempting to do comes under the general rubric of what we call convergence, meaning that we're striving for a universal, sensor-agnostic keypad architecture, tasking, processing, posting, exploitation, dissemination, all of that. As new collection capabilities come online, be they from space, be they governmental or commercial, be they airborne or any other sources, we want—with not so much trauma—to ingest and use the data and make them available to users electronically, much in the same way as you would do business on the Internet. That's the objective here, and it requires a robust keypad capability in order to do that.

So the dissemination mechanisms, to the maximum extent possible, will emphasize electronic availability of our data whereby customers can come into our portal and sort of click to their hearts' content and extract the data that they need to build their own products. This is apart from classical hard copy—and believe me, there will always be a requirement for hard-copy mapping, charting, geodesy imagery products, particularly in the combat arms. So this is in addition to that, and it's up to us to populate those data to ensure they're as rich as possible.

Our approach is to build a geospatial-intelligence knowledge base, or GKB as we call it, populate it, and make it available to users at whatever security level they need it.

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Let them extract what they need, rather than our mailing it or shipping it to them.

**Q:**

*Is that part of what you've described as NGA's being the "populator of the grand knowledge map?"*

**A:**

The geospatial-intelligence knowledge base is the formal reference.

**Q:**

*Transformation plays a key role in defining the future of your organization. You've predicted that one result of transformation at NGA will be a "self-service" environment. Is*



**We put a lot of emphasis on having a competent, trained acquisition cadre within the agency.**

**We've emphasized their getting training at Defense Acquisition University and at civilian institutions.**

The self-service, one-stop access portal will make available to our customers the data, information, and tools they need to do what they want, anytime, anywhere.

As we deploy this information service, users will have browser-based Web access to all relevant NGA holdings and will be able to use the data in their environments without having to understand how we are organized, how we produce the geospatial-intelligence product, or where it is physically stored.

Implementing this service delivery concept will also free up our analysts to serve better those customers with unique analytical needs and enable us to devote more resources to deep, long-term analyses of our nation's most challenging problems.

**Q:**

*Are there any other initiatives or programs you'd like to share with Defense AT&L readers?*

**A:**

I think the major one that we're focusing on today is the issue of convergence. Instead of separate stovepiping keypad capabilities tied to a specific collection capability is the marriage or synthesis of all of that. In this day of automation, it's kind of all zeros and ones anyway. It's our view that the extent to which we can build a robust keypad and add new sensor capabilities as they come online to that infrastructure, either for volumetrics or additional functionality, will facilitate the provision and rapid dissemination of geospatial intelligence and do it a lot faster and more efficiently than we're able to do it today.

**Q:**

*And how can Defense Acquisition University better support the people and mission of NGA?*

*this part of the convergence you described? Can you give us an overview of what that might mean for your customers?*

**A:**

The self-service environment is a component of NGA's strategy for providing our geospatial intelligence products and services to our customers. What does all that mean? Think about how we use the Internet these days. We're all used to getting the information we need, when we need it, anytime and anywhere. We demand the ability to pull what we are interested in when we want it.

**A:**

We put a lot of emphasis on having a competent, trained acquisition cadre within the agency. We've emphasized their getting training at Defense Acquisition University and at civilian institutions to get advanced degrees in acquisition. I don't really have any suggestions for you specifically, other than to keep doing what you're doing.

For more information on the National Geospatial-Intelligence Agency, go to < [www.nga.mil](http://www.nga.mil) > .