

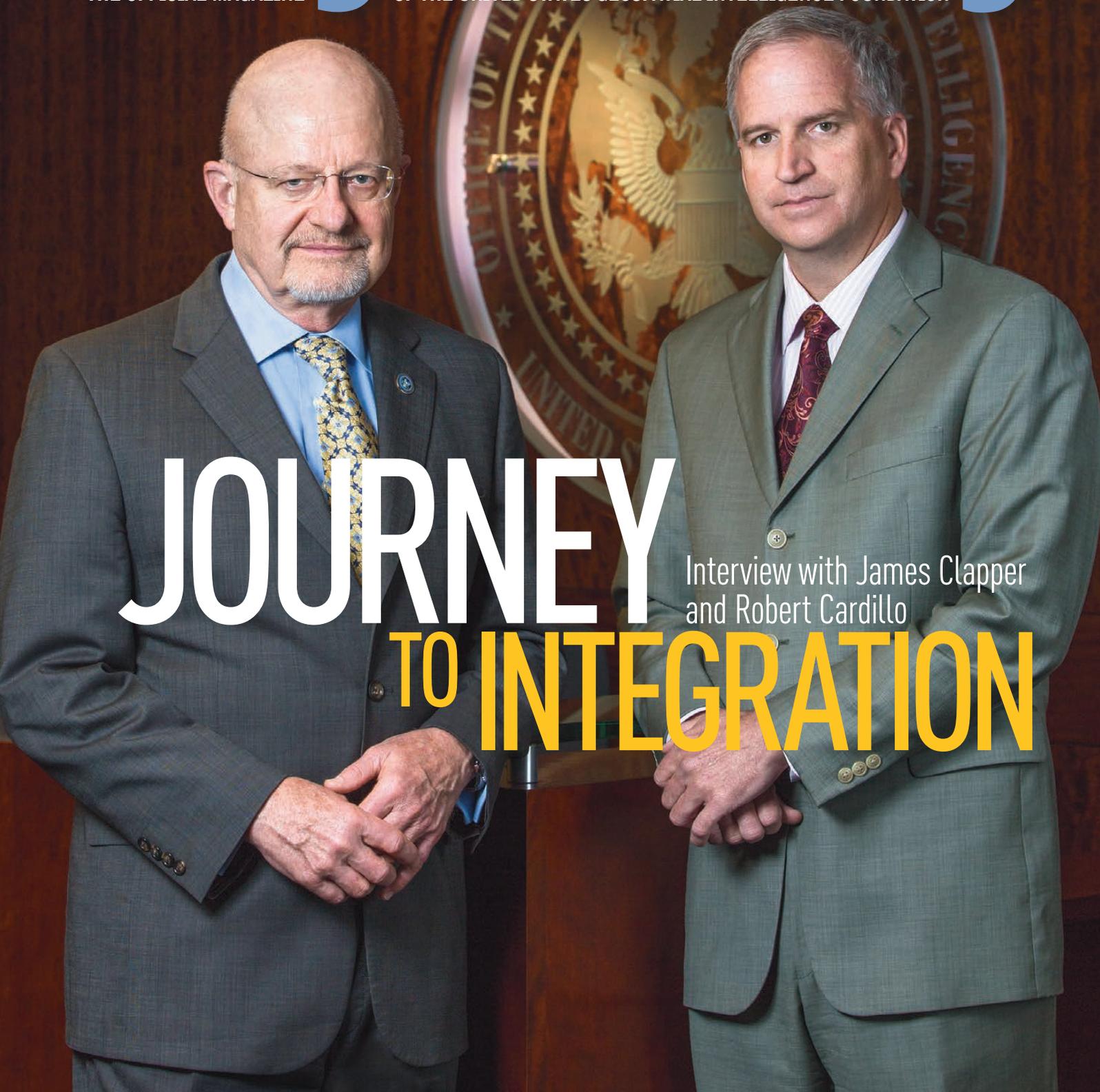
» 10 YEARS OF GEOINT SYMPOSIA » GLOBAL SOF NETWORK » GEOSPATIAL STANDARDS

2013 ISSUE 3

trajectory

THE OFFICIAL MAGAZINE

OF THE UNITED STATES GEOSPATIAL INTELLIGENCE FOUNDATION



JOURNEY

TO INTEGRATION

Interview with James Clapper
and Robert Cardillo



SIGINT

Cellular signal detected in remote mountain location.

IMINT

Ongoing aerial surveillance. En route to detected cellular signal.

HUMINT

Army personnel identified mine-like object on primary transportation route.

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U.S. AIR FORCE PHOTO BY AIRMAN 1ST CLASS MATTHEW J. BRUCH



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Cover photo by Eric Brown of ODNI

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BONUS CONTENT

Read the full transcript of our exclusive cover story interview.



GEOINT 3.0

Don't miss this web exclusive feature on the transformation of NGA.



VIDEO

View a collection of videos from previous GEOINT Symposia.



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the free *trajectory* tablet app to view bonus material and integrated multimedia content.

THE VALUE OF AN EDUCATED END USER

Growing up in the suburbs of New York City, I was constantly bombarded with marketing messages coming out of one of the world's most prolific media engines. A message that always stood out to me was the personally delivered tagline of clothing retailer Sy Syms: "An educated consumer is our best customer." On the surface, it is a relatively simple statement. However, when one pauses to reflect upon it, there is a richness to it—and even a bit of a challenge. Something about the phrase made an indelible impression upon me.



Many years later, as a senior executive in the government responsible for the 24/7/365 tasking of our Nation's overhead GEOINT collection assets, I adopted Sy's slogan. The agencies, organizations, services, and units that gained the most out of these capabilities were those with the most knowledge about what the systems could do. My message to the incredibly talented workforce I led was to aggressively share expertise and encourage our diverse set of customers to learn the recipe for the "secret sauce" of

GEOINT collection planning and execution.

The very best users were the ones who endeavored to be educated and weren't simply satisfied to have us translate their requirements. Being at war for the past decade has created an abundance of savvy GEOINT users, and some that stood out among the most demanding and engaged customers were JSOC, SOCOM, and JIATF-South. Their commanders, operational staff, and intelligence staff understood the power of integrated intelligence as well as how to make each "INT" work for them. The culture in these organizations encouraged a common level of sophistication regarding intelligence capabilities and their application to their respective missions.

We at USGIF are excited to be in Tampa this year for the 10th annual GEOINT Symposium. The 2013 theme,

"Operationalizing Intelligence for Global Missions," is indicative of the opportunity presented by the location of this year's event. The GEOINT 2013 Symposium will be richer thanks to the significant engagement of those highly educated—and highly demanding—consumers. It promises to be uniquely influenced by the operators at SOCOM and CENTCOM from nearby MacDill AFB, as well as by the large contingent of co-located international partners.

The content in this issue of *trajectory* reflects some important aspects of the way forward for the GEOINT Community. First, an exclusive interview with DNI Jim Clapper and DDNI/II Robert Cardillo provides fascinating insight into their perspectives on the Nation's quest for an integrated Intelligence Community. This piece is complemented by an articulation of the vision for the future of U.S. Special Operations Forces and their truly global mission. These two articles represent both the most knowledgeable, demanding consumers and the community striving to align to meet the needs of these, and indeed, all intelligence customers.

I hope you enjoy this issue of *trajectory*, and I look forward to seeing you at GEOINT 2013 in Tampa!

"An educated consumer is our best customer."

—Sy Syms

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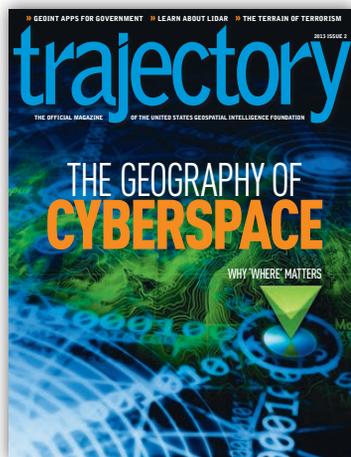
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Letters are the opinions of the author alone and do not represent the views or opinions of his or her respective company or organization.



X, Y, Z, AND TIME

The *trajectory* cover story on “Cyber-Location Nexus” was a great article. The ability for having a cyber “common operational picture” has been a source of need for years. Even with events moving at the speed of light, we cannot rationalize what is happening if we can’t understand where and potentially how it is happening. This is not just a computer



ABI IN SPACE

We are thrilled that *trajectory*’s Winter 2012 cover story, “A Better Toolbox,” shone a light on the growing need for activity-based intelligence (ABI) to address the “unknown unknowns,” i.e., an adversary’s actions that up to that point had been unknown.

Most intelligence issues can be geo-registered on the surface of the Earth.

in space for “unknown unknowns.” The Earth has 20,000 orbiting objects and counting. Approximately 1,000 are thought to be active satellites. The rest are assumed to be debris or dead satellites. The intelligence concern is that some of those 19,000+ objects are miscategorized and may be “sleepers.” Software already exists that can continuously analyze the entire catalog (all 20,000 objects) and detect unusual behavior even by objects not classified as active.

Further, using ABI methodologies, capabilities are being developed to leverage evidential reasoning (fuzzy logic, neural networks, and Bayesian relief networks) to build a history of maneuvers and predict likely future maneuvers for each object. Thus, activity in space that in the past would have gone unnoticed will be detected, and automated analysis of the intent of the activity will be possible. This new capability enables the application of ABI methodology to the space domain and will operationally ensure that a key goal of ABI—detecting and understanding important “unknown unknowns”—will be achieved 24/7/365.

We clearly can’t ignore the application of ABI methodology to the space domain. Many of our potential adversaries understand and utilize the space domain as we do and it is possible that the first moves in a conflict could occur in orbit, not on the Earth. Implementing the ability to monitor all of the objects in the space catalog could provide a crucial edge in a conflict. With the affordable availability of cloud computing, the capabilities we’ve discussed here are not just a wish list. They are in the process of being implemented, and can be running automated and in near real-time.

—Dr. Peter Aves and Jeff DeTroye,
Analytical Graphics Inc.

*Jeff DeTroye is chair of USGIF’s
ABI Working Group

“Even with events moving at the speed of light, we cannot rationalize what is happening if we can’t understand where and potentially how it is happening.”

—Frank Prautzsch, President, Velocity Technology Partners LLC

network defense topic, but all offensive network operations, and also relates to several other electronic warfare, PNT, and virtual worlds that require event culpability, geospatial understanding and wisdom...not just data and intelligence. The worlds converge in four places (x,y,z, and time), be that a platform, a threat, a capability, an obstacle, a sensor, or an effector. I think that good enough is important here. We could polish this requirements apple until we see our teeth only to die of hunger.

—Frank Prautzsch, President, Velocity
Technology Partners LLC

This naturally draws us to think of our intelligence work, and thus ABI, as being applied to somewhere on land, in the sea, or in the air. However, limiting our focus to intel problems on the Earth limits the value of ABI. Space has long been recognized as an essential element of any campaign because assets in space provide critical civil and military comms, SIGINT, IMINT, and GPS. It is therefore important that we look upward and understand how ABI can be applied to space.

Until recently, it was very difficult to monitor all of the tracked objects



SUBMISSIONS

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IMAGE COURTESY OF ESA/J. HUART

DARPA's SeeMe program aims to develop small, low-cost satellites.

CAN YOU SeeMe NOW?

DARPA has launched multiple intelligence initiatives recently, pursuing low-cost satellites, offensive cyber capabilities, and situational awareness technologies. ATK was recently awarded a contract to support DARPA for the Space Enabled Effects for Military Engagements (SeeMe) program. SeeMe will develop technologies to provide surveillance data to soldiers in the field using small, low-cost satellites.

DARPA also outlined a plan to address increasing cyber threats. DARPA scientists are working on "Plan X," developing new cyber weapons and tools with the hopes to bring cyber weapons on par with other weapons capabilities. The agency is also building a new suite of technologies for position, navigation, and timing so it won't continue to be so reliant on GPS.

DARPA is also seeking new situational awareness technologies, such as geo-location, non-optical remote sensing, and soldier health technologies, to help dismounted soldiers anticipate threats and respond in real time.

DARPA SCIENTISTS ARE WORKING ON

"PLAN X,"

DEVELOPING NEW CYBER WEAPONS AND TOOLS WITH THE HOPES TO BRING CYBER WEAPONS ON PAR WITH OTHER WEAPONS CAPABILITIES.

GPUs FOR GEOINT

NVIDIA has unveiled its GEOINT Accelerator, which the company bills as the world's first GPU-accelerated geospatial intelligence platform. Using GPUs can enable analysts to find actionable insights quicker and more accurately from raw data, images, and video.



GEOINT Accelerator provides defense and homeland security analysts with tools for faster processing of high-resolution satellite imagery, facial recognition in surveillance video, combat mission planning using GIS data, and object recognition in UAV video.

The entire platform includes the NVIDIA Tesla GPU accelerated system, software applications for GEOINT analysis, and advanced application development libraries.

IMAGE COURTESY NVIDIA

got geoint? got geoint?

It would take

400

Washington Monuments stacked on top of each other to reach the height of DigitalGlobe's GeoEye-1 satellite in orbit.

IMAGE COURTESY OF OVERWATCH



THE ELT SERIES software suite allows users to customize image processing tools to their individual needs and preferences.

CUSTOMIZABLE ANALYST SOFTWARE

Overwatch of Textron Systems has updated its ELT GEOINT software to feature a new customizable user interface. The software combines image processing functionality with GIS support, and is used by analysts for military intelligence, mission planning, and disaster management. The new version allows users to customize the screen, offers high-resolution icons, and provides improved workflow processes.

BIG DATA

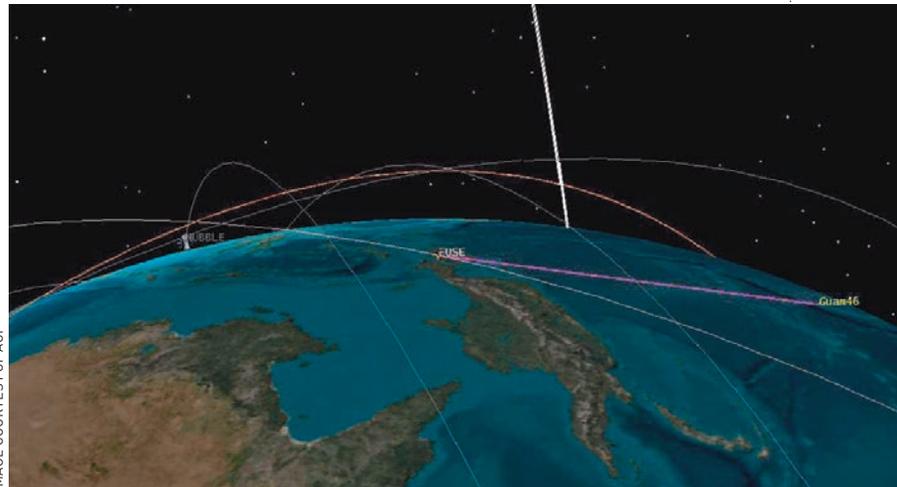
BAE SYSTEMS TO PROVIDE DATA MANAGEMENT TO NGA

The National Geospatial-Intelligence Agency (NGA) awarded BAE Systems a contract to provide advanced data management capabilities in support of the National System for Geospatial-Intelligence sites and users. BAE Systems will provide its iSToRE XP software, which is built on its commercial product, GXP Xplorer, and enables analysts to easily access local data and connect to remote geospatial data stores and libraries.

ORBIT LOGIC AWARDED DIGITALGLOBE, AIR FORCE CONTRACTS

Orbit Logic was awarded a Phase II SBIR contract by the Air Force Research Laboratory for the development of a flexible and scalable flight software planner to support onboard planning for any mission. The software will move mission planning, scheduling, collection planning, and tasking—which have traditionally been performed on the ground, with the resulting plans transmitted to the satellite for execution—directly to the satellite, enabling a more agile response.

Orbit Logic was also awarded a contract from DigitalGlobe to integrate the GeoEye-1 satellite into Orbit Logic's Direct Access Facility Collection Planning System (DAF CPS) software for DigitalGlobe's Direct Access Program (DAP) customers. The new version of DAF CPS will integrate former GeoEye international ground station partners into standard DigitalGlobe DAP operations and will be available for deployment by the end of 2013. Under the contract, Orbit Logic will also upgrade legacy GeoEye headquarters planning software for integration with the DigitalGlobe headquarters planning processes and systems.



ORBIT LOGIC is developing flexible and scalable software for onboard satellite flight planning.

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stacked Mount Everests equals the height of the GeoEye-1 satellite in orbit.



NGA COO DISCUSSES 2013-2017 STRATEGY AT GEOINTERACTION TUESDAY

ELLEN MCCARTHY, chief operating officer of the National Geospatial-Intelligence Agency (NGA), addressed more than 100 attendees at a special edition of GEOINteraction Tuesday during GEOINT Community Week.

McCarthy spoke about NGA's strategy for 2013-2017 and highlighted the agency's transformation from product producer to content provider.

"Transforming a government bureaucracy to one that operates more like a business in terms of its ability to refocus resources on its competitive advantage is really hard," said McCarthy. "No one else in government has done this before, so we really are blazing a new trail."

McCarthy listed four mission objectives that will realign NGA's resources, people, and programs. These objectives include an open IT environment, GEOINT content, customer service, and analytic capability.

McCarthy also discussed the emerging analytic methodology of activity-based intelligence (ABI), describing it as cutting-edge technology and tradecraft that facilitates the discovery of more critical information.

"ABI reveals what we don't know and helps us find what doesn't want to be found—the 'unknown-unknowns,'" said McCarthy.

In McCarthy's concluding remarks, she encouraged a healthy interaction between government and industry.

"We need the most innovative companies in the world to help us. This is not just good policy—this is good business," McCarthy said.



SISTERS TAKE ON NGA INTERNSHIPS

Former USGIF intern Briana Neuberger and her sister, Danielle, interned at the National Geospatial-Intelligence Agency (NGA) this summer. The sisters are studying geospatial intelligence at the Rochester Institute of Technology (RIT).

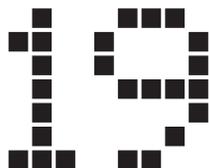
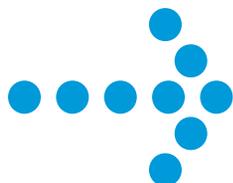
Danielle, a junior, is getting her degree in software engineering, while Briana, a sophomore, is pursuing industrial system engineering and imaging science.

Briana was the recipient of a USGIF Scholarship in 2012 as a senior at Chantilly High School. Briana then interned with USGIF during the summer of 2012.

"Briana and I went to a career fair at RIT and NGA had a booth set up," Danielle said. "We approached them and were both interested in what the internship had to offer. We didn't plan on doing the internship together—it was a coincidence."

Briana believes her scholarship and internship with USGIF helped her land the NGA internship.

"I think having the experience and being so young helped me stand out and made me more noticeable," Briana said.



THE NUMBER OF TRAINING COURSES OFFERED DURING USGIF TECHNOLOGY DAY 2013



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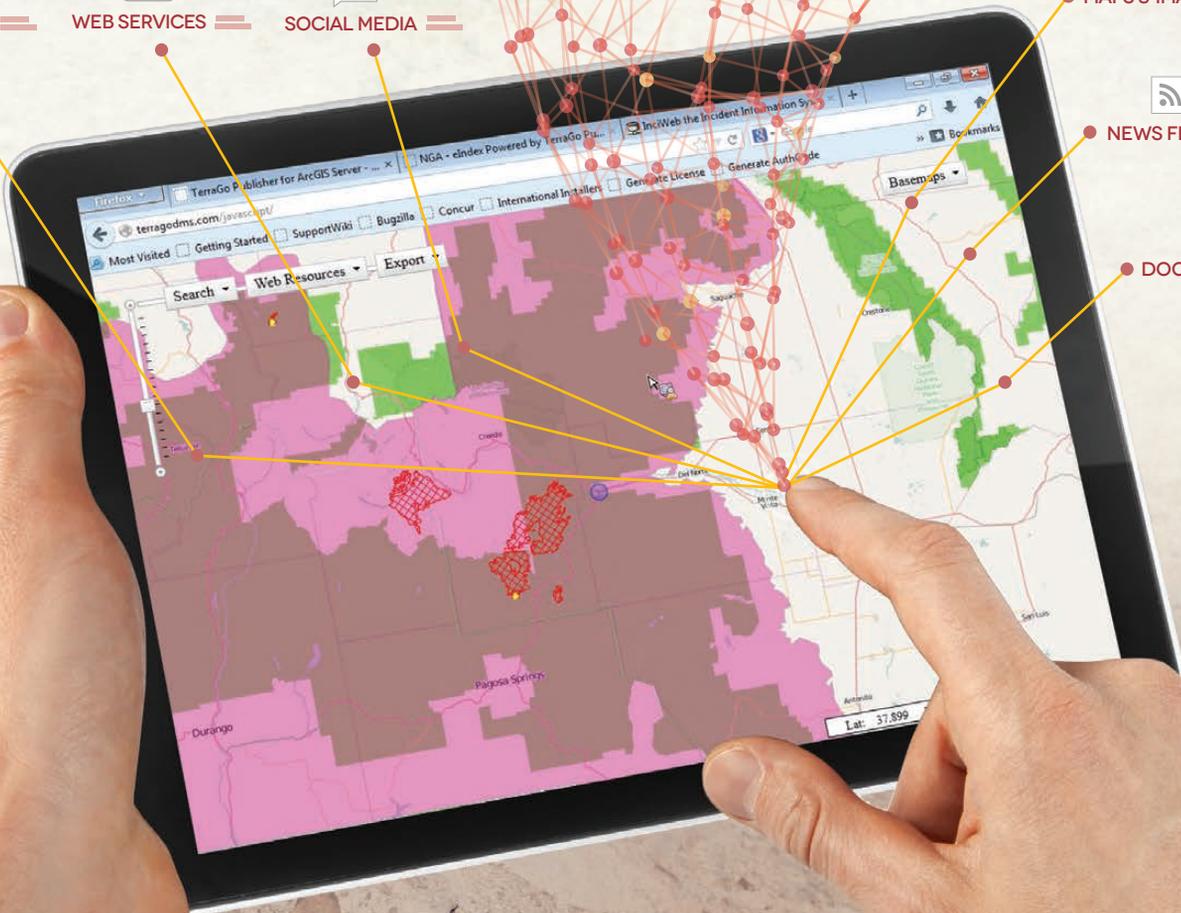


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YOUNG PROFESSIONALS MENTOR HIGH SCHOOL GIS STUDENTS

FIFTEEN MEMBERS of USGIF's Young Professionals Group (YPG) mentored GIS students from Centreville High School (CVHS) in Centreville, Va. YPG members assisted GIS students with their final projects, which were presented at the Loudon County GIS Forum Poster Contest May 3.

"It's nice for the students to have a professional in their back pocket who they can easily contact and ask for help on their project," said CVHS GIS instructor Tish McKinstry.

Three student projects took top spots at the GIS Forum, and one student was even invited to present at a regional science fair.

"Students came up to us and were very appreciative of our help," said YPG member and TASC employee Sam Unger. "YPG's goal is

to help high schools with GIS programs in the Northern Virginia area by promoting GIS, and for students to see the application and relevance it has in our day-to-day lives."

Eighteen GIS students displayed projects at USGIF Technology Day, part of GEOINT Community Week, where they presented their work to GEOINT professionals and NGA Director Letitia Long.

Phillip, a senior at CVHS, said, "It was interesting to talk to Director Long about how our projects could be used. She also encouraged us to look at NGA internships and potential GEOINT jobs if we chose to study the field in college."

The YPG plans to continue the mentorship program with CVHS next school year.



MORE THAN 300 ATTEND TRAINING AT USGIF TECHNOLOGY DAY

GEOINT Community Week 2013 took a particular focus on training and education, offering 19 training courses to attendees at USGIF Technology Day. Nearly 300 people completed courses in various GEOINT-related topics, including "Mobile Access to Human Geography and Crowd Sourcing," "The Power of Spatial Statistics," "JEMA Workflow Process & Model Building," and "LiDAR Point Clouds 101." Additionally, 17 of the 19 training courses offered continuing education certificates upon completion.



GIS STUDENTS from Centreville High School had the opportunity to share their projects with NGA Director Letitia Long at USGIF Technology Day, part of GEOINT Community Week.

SPOTLIGHT: USGIF SCHOLARSHIP RECIPIENT

ANTHONY BARRON won a USGIF scholarship not once, but twice, in both 2009 and 2012 while attending the University of Texas at Austin as an undergraduate. Barron graduated in 2012 with a bachelor's degree in geography and is now a collections manager for L-3 Stratis. He also serves as a GEOINT analyst for the U.S. Navy, where he collects geospatial data from multiple sources and applies it to provide situational awareness for decision makers.

Previously, Barron worked as a GEOINT analyst for both Texas Natural Resources Information System and Third Coast Geospatial Technologies.

Barron also had the opportunity to attend the GEOINT Symposium in 2009 and 2012.

"Students should realize the scholarship is a huge benefit if you take advantage of it," Barron said. "It not only helped me financially through college, but I was able to shake hands and network with many agencies at the GEOINT Symposium. It was an exciting experience."



HIGHER INTELLIGENCE

The National Intelligence University transforms education and culture



PHOTOS COURTESY OF NIU

THE NATIONAL INTELLIGENCE UNIVERSITY is within the Defense Intelligence Agency building at Joint Base Anacostia-Bolling in Washington, D.C.

WHEN KRIS YOUNG describes the transformation of the intelligence landscape throughout the past 50 years, from the Cold War to Al Qaeda, she's also outlining the evolution of the National Intelligence University (NIU).

"Education equips the intelligence analyst for an uncertain world, and the NIU is in the business of educating the analyst for this uncertainty," said Young, a retired Army lieutenant colonel, NIU alumna, and now a faculty member at the university.

Preparing for uncertainty is a point NIU President Rear Adm. (ret.) David Ellison hammers home when he contrasts the university's former emphasis on tradecraft with its present mission. And when he describes NIU's ambitious future.

"Education is an off-ramp along your career where you get a chance to step off the conveyor belt and do some stimulating, intellectual writing and reading," said Ellison. "You get to challenge your critical thinking."

Located within the Defense Intelligence Agency (DIA) at Washington, D.C.'s Joint Base Anacostia-Bolling, NIU brings together students and faculty from across the Intelligence Community and draws from the experiences of each individual.

The military offers methods but federal agencies such as the Department of State, National Geospatial-Intelligence Agency, and DIA also bring invaluable perspective to a problem, according to Army Capt. Francesca Graham, an NIU master's degree student.

"Of these [agencies], my interaction with the Department of State is the most interesting," Graham said. "They think about the problem, but they also think about the people."

Elsewhere in the DIA complex is the office of Lt. Gen. Michael Flynn. Renowned for his oft-stated opinion that a lack of cultural understanding impeded military progress in Afghanistan, Flynn leads DIA, the executive agent of NIU.

"We've got an entire university inside the DIA that is the only university in the world that is accredited at the master's level ... for a Top Secret/Sensitive Compartmented Information master's degree," Flynn said, "And we will continue to invest in it."

NIU is championed by Director of National Intelligence James Clapper, who, like NIU, has served the Intelligence Community for 50 years. Clapper spearheaded the transformation of the National Defense Intelligence College into the National Intelligence University two years ago.



INCLUDING PART-TIME AND EXECUTIVE STUDENTS, NIU HAS A TOTAL ENROLLMENT OF





LT. GEN. MICHAEL FLYNN addresses the NIU graduating class of 2012.

Guided by a strategic plan built on the premise that a former military school would now serve the entire Intelligence Community, NIU's transformation also includes an outreach program and a planned move in 2015 to Bethesda, Md., where renovations on the old NGA campus are being made to handle a full-time student body expected to grow incrementally from 250 to 325.

The current full-time student body composition is 75 percent military and 25 percent civilian, but the plan is for the

make sure that other departments in the government who have the potential in intelligence are involved with NIU."

This outreach program, which includes media advertising targeting a wide range of government employees, describes the NIU mission as "Integrating intelligence, one student at a time."

"It's education, it's research, it's stimulating collaboration, and it's integration," Ellison said of NIU's role. "Director Clapper is always talking about integration. That's his big thing.

And collaboration is a big component."

To reinforce outreach, Clapper announced students at General Government 11—a category often used in the Intelligence Community—or above on the federal government pay scale can receive civilian joint duty credit for attending NIU, a two-for-one career boost that adds to the degrees available.

It's a step to make the university more inclusive of civilians. While the military allows time for schooling as part of an intelligence career path, federal agencies find it more difficult to replace a valued employee for a year to attend NIU.

The university is also working to become more valuable to civilians, both with education and the integration and collaboration that are part of Clapper's mantra about a whole-of-government approach to intelligence.

Some see the transformations taking place at NIU as a way to begin dismantling intelligence stovepipes by exposing students to each other's work after they have learned their own organizations' intelligence cultures.

ratio to be 60 percent civilian and 40 percent military when the new capacity is reached, Ellison said.

When part-time and executive students are included, the university has a total enrollment of 715. Of these non-traditional students, about 60 percent are civilian.

"Actually, we're trying to broaden it out—not just to the Intelligence Community ... but across the government," Clapper said. "General Flynn is reaching out in a campaign to

Part of Ellison's vision for the next five years is to improve NIU's 8-to-1 student-to-faculty ratio to 4-to-1 and foster faculty research. Half of the faculty hold doctoral degrees.

"Right now ... each faculty is overseeing eight to 10 theses each year," Ellison said. "They're teaching their courses and doing education, but most of their research time has to be spent working with students' theses projects, as opposed to their own research."

Add to that a burgeoning demand for executive-level certificates—NIU has eight programs, with more being developed—and the university's satellite education offerings, and the plate becomes that much fuller. NIU has a campus at RAF Molesworth, UK, to serve EUCOM and AFRICOM, as well as one in Tampa, Fla., to support SOUTHCOM, CENTCOM, and SOCOM. And NIU is working with the FBI to set up a facility at Marine Corps Base Quantico, Va.

NIU is also examining the possibility of adding a cyber program. The university has reached out to industry and academia to add parts beyond what could be an NIU cyber intelligence degree.

Some see the transformations taking place at NIU as a way to begin dismantling intelligence stovepipes by exposing



NIU PRESIDENT Rear Adm. (Ret.) David Ellison envisions an ambitious future for the university.

students to each other's work after they have learned their own organizations' intelligence cultures.

"I think what you'll see over time is the same thing that's happening in the military," Ellison said. "We'll know we're successful when the deputy at FBI calls the deputy over at CIA and says, 'Hey, classmate, I need help.' That's what we're striving for."

It's the next step in the evolution of intelligence. ■

A graphic with a dark background, a bright sunburst in the center, and a map of the United States on the left side. The text is white and bold.

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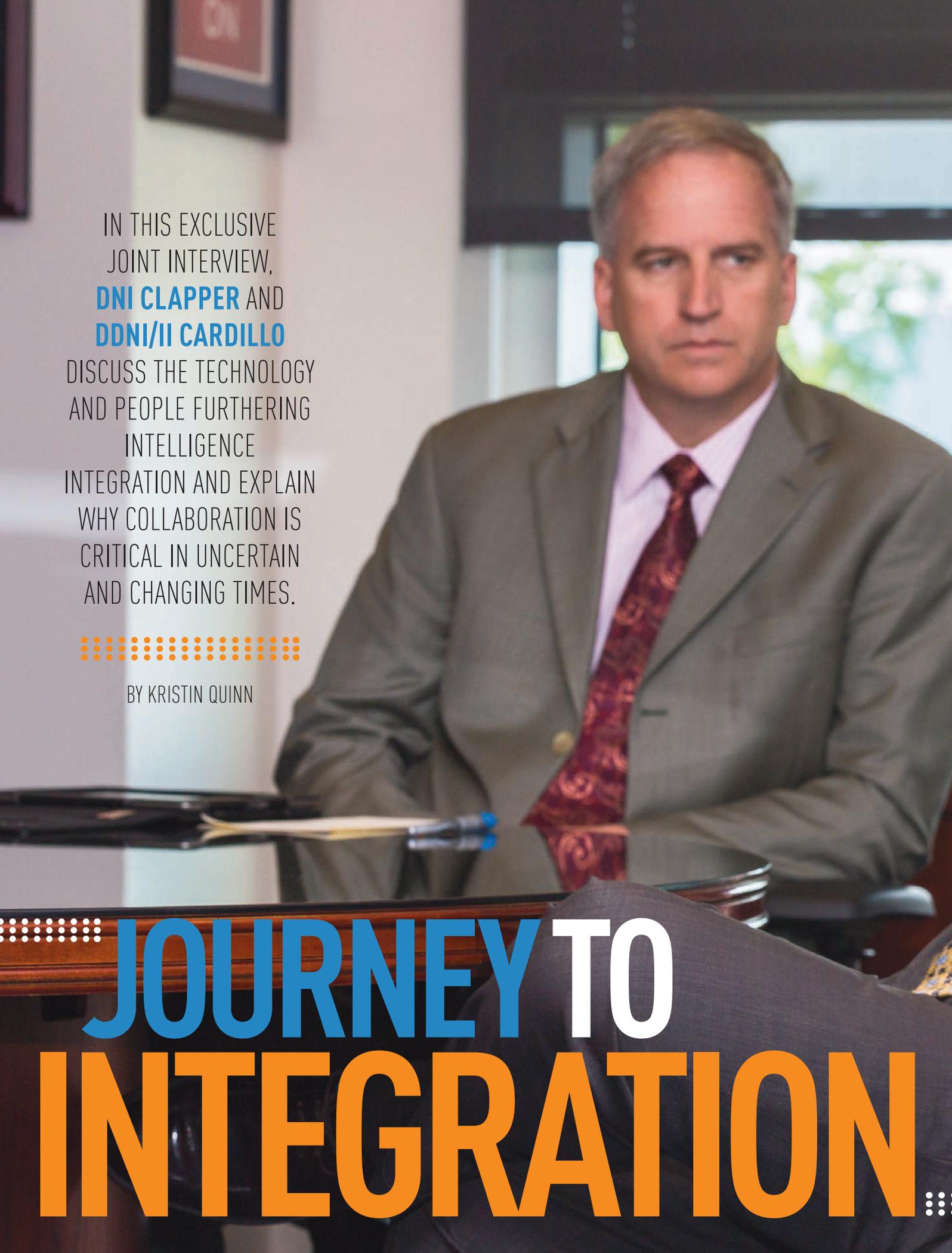
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JOINT INTERVIEW,
DNI CLAPPER AND
DDNI/II CARDILLO
DISCUSS THE TECHNOLOGY
AND PEOPLE FURTHERING
INTELLIGENCE
INTEGRATION AND EXPLAIN
WHY COLLABORATION IS
CRITICAL IN UNCERTAIN
AND CHANGING TIMES.



BY KRISTIN QUINN

JOURNEY TO INTEGRATION



PHOTO BY ERIC BROWN, ODNI



SINCE

taking the helm as Director of National Intelligence in 2010, James Clapper has dedicated his tenure as DNI to fostering intelligence integration among the 17 intelligence agencies. Robert Cardillo, who was sworn in as the first Deputy Director of National Intelligence for Intelligence Integration shortly after Clapper became DNI, leads this charge day-to-day, facilitating information sharing through the integration of collection and analysis. *Trajectory* managing editor Kristin Quinn had the opportunity to visit Clapper and Cardillo at their Tysons, Va., office in May. The leaders shared anecdotal evidence of intelligence integration's importance, and discussed integration's progress, the

something that you can see, feel, touch, measure necessarily. It's a process. It will go on hopefully after Robert and I have left. Letter grades are very relative because this is a journey more than some finite conclusion, or we've reached nirvana or some shining city on a hill or something, which some people seem to think this is about, but it isn't. Intelligence has really always been integrated, sometimes in spite of itself, throughout history.

The thought after 9/11 was that we needed to do a better job of integrating the Intelligence Community, and that the IC needed an official and appropriate staff that could just foster that as opposed to someone having a second hat whose main job was running an agency. So, we got here, and Robert and I had given this some thought before we arrived, and we thought one thing we could do was establish—capitalizing on that mission manager approach [from the WMD Commission]—a kind of universal template for how we could manage the Intelligence Community. So we set up what are called NIMs (National Intelligence Managers), about

example of integration was the Abbotabad raid. I don't think either of us would take credit for something we did that caused that to happen, but in my mind it is the manifestation of the culture that's emerging. The sum is really greater than the parts and you do produce a better product, a better service—the Intelligence Community does—when it's done on an integrated, collaborative basis.

Another very graphic example where there has been a profound change is whenever I travel overseas and go to an embassy. Of course there is the standard model where the CIA chief of station is dual-hatted as the DNI rep, my representative, and he or she in that role does what we try to do here in Washington—promote intelligence integration in that embassy, in that country team. You can see it a lot more clearly, because you've got a single environment, a single country, one boss—the ambassador—and one senior intelligence officer who runs his or her own operation. Also, the standard more and more overseas is that in the embassies you invariably have other representatives from the IC, and integration becomes natural.

Cardillo: Well, you won't hear me give a letter grade either then [laughs]. But integration is a continuum. It's at least as much mental as it is physical, even though there are really physical inhibitors. Information technology is a great example of the opportunity for reducing, opening, eliminating, connecting physically the community. But we needn't go around lecturing people on integration. There's not a whole lot of debate, "Hey segregation or integration, which is better?" I spend most of my days removing inhibitors and setting conditions to enable it to happen, not just on hour X or day Y, but all the time.

I agree with the Director. The conditions are better than they were a year, or two years ago, or five years ago. And I firmly believe they're going to be way better five and 10 years from now because of what we're learning in Washington. The Director talked about embassies. Well, the same thing happens at tactical operations centers, joint intel centers, and fusion centers forward. As

"We're trying to remove bureaucratic, cultural, and technological impediments and to facilitate it so that people do it routinely."

—DNI James Clapper

advent of mobile technology, the paramount role of people in the Intelligence Community, and much more.

Editor's note: Following are excerpts from the interview. To read the full transcript, go to www.trajectorymagazine.com or download the trajectory tablet app.

Q If you had to give a letter grade describing the Intelligence Community's progress toward integration, what would it be?

Clapper: Well, would you give a letter grade to your life? I'm reluctant to describe a letter grade because this is not

16 of them, that Robert manages and runs, and they cover the waterfront from either the regional approach to the transnational problems like terrorism and proliferation, etc.

Then we try to inculcate the rest of our staff with our mantra, which is integration. We're trying to remove bureaucratic, cultural, and technological impediments and to facilitate it so that people do it routinely. It's not like, "Here's our main business, and oh, on the side we do integration." What integration needs to be is just the accepted standard, the way we do business.

To me a very dramatic, public

Washington has begun to benefit from those experiences, people now build integration into the routine, which is what we want it to be.

Q You listed some major inhibitors: bureaucratic, technical, cultural. What are some examples of these?

Clapper: The biggest one that we've started to fix is technological. A lot of the policy and cultural barriers have accrued because of the technology and the way our IT enterprises are set up. They're all separate. Each of the agencies representing that collection endeavor—SIGINT, GEOINT, etc.—have their own IT enterprise. So that creates a technological barrier, which we're going to try to remove with IC ITE (the Intelligence Community Information Technology Environment). I think IC ITE alone, in ways we haven't thought of yet, is going to take integration to the next level. It's something we've talked about for years in the Intelligence Community and never really did because we didn't have to and maybe the technology wasn't there. But now, cloud computing and identity management processes are conducive to it. I think IC ITE will profoundly change the whole culture of the Intelligence Community.

Cardillo: As big of a fan, and as dependent as we are on IC ITE's success, it will be necessary but not sufficient. We could be completely successful in IC ITE, but if we don't deal with the mental inhibitors, we'll miss our opportunities. We have to keep pushing on that mental aspect, so that once we free people from these IT islands and connect them up, they are ready to engage. The bulk of the workforce is ready for that. We'll run into the cultural barriers, but at least we'll have a fighting chance to say, "OK, everyone in the pool. Let's get this market competition back."

Q How do the people in the Intelligence Community play a role in furthering integration, and how has workforce culture shifted since this initiative began?

Clapper: I'm very glad you asked. Because in many ways our job is to

remove the obstacles that inhibit what is becoming a more collaborative workforce. The new talent we've been fortunate enough to bring into the IC since 9/11 has expectations that simply did not exist in my day. These expectations include continual learning, data transparency, and connectivity across disciplines, domains, and agencies. When you combine these built-in characteristics with the lessons learned from multiple operational deployments, we gain a workforce that is literally driving and

demanding intelligence integration—and they'll accept no less.

Cardillo: I couldn't agree more. Our challenge is to build on and leverage this internal force by incentivizing, recognizing, and rewarding the right behaviors. We need to evolve the by-line mentality to accredit and reward the best partners within and across disciplines. The good news is, as this generation moves up the career ladder into leadership positions, their integrative DNA will literally redefine our corporate culture.



PHOTO BY USGIF

“I went to Vietnam in 1965. Integration was acetate, a grease pencil, and two corporals. We integrated history. Intelligence was after the fact.”

—DNI James Clapper

Q Isn't there the perception that the Intelligence Community has historically been taught to guard its data. How does this change when training the next generation in the IC for an integrated, collaborative future?

Clapper: I don't think we teach people to be that way. On the contrary we teach them not to be that way. Younger generations who come to the Intelligence Community are instinctively collaborationists—iPads, Facebook, Twitter accounts. There's kind of a revolution under our feet, and it manifests every time one of our officers says, "What, you're not doing that here in the Intelligence Community?" I went out to NSA last week to visit the Emerson building, which is a wireless SCIF. People bring their iPads in—it's all secure. Well, that's going to be the way of the future, when the whole IC is like that. It's not like people want to be separate.

Q What specifically would you ask from the Community, industry, and academia, to help advance intelligence integration?

Cardillo: I'd ask industry especially to recognize where we intend to go. Transparent—we'll tag data, we'll tag people, we can monitor, be secure, and the like. Whatever they can provide to facilitate, enable, or push that transparency further is welcomed. I brought the iPad in for a reason, too, because I have another plea [holds iPad up]. We're going more and more to online visualizations, and given our consumers, different ways to digest very complex issues. This is a good example [gestures to visuals on iPad screen]: It shows Syria and all of the various factors that go into that war. But it's exceptional. This is an exceptional product today, and it can't be in the future. We need to figure out how to get this routinely done. It's a different way to think about our business—we probably have a sub-tradecraft that we need to develop, or buy, or rent, or whatever: presentation and visualization. And by the way, I have no illusion that we're not going through the same thing *The New York Times* and *The Economist* are going through now. How do you turn print into digital? We need help. We need ideas.

Clapper: Robert just reminded me of another emerging trend in the community. I'm seeing teams of folks—analysts—coming together representing separate disciplines to work a problem. And part of that team is what is notionally called a data scientist—someone sitting at the crossroads of information science, social science, and computer science. The analyst says, "Here's my problem, can you figure this out?" NSA in particular is doing this fairly well. That's a great example of integration at an operational level.

Cardillo: To play on that, big data in itself can be confusing and clumsy and it can distract. So we need people who think differently about big data to array it, filter it, and pair it. I continuously use this example. I still don't know how to use social media in my job because it's just noisy to me. And so I get the charts, I see what's trending in Egypt, but I'm not sure how to use that as I try to understand government stability, economic viability, etc. That's another example of how people can help us think through what we're trying to do, which is to be much more open to the world's communication reality. Just getting access to it can be negative if you don't have a way to filter it. Big data can bog you down. This is yet another reason that we need to better connect to our partners in industry, academia, and at the state and local levels. It is exactly that sort of engagement that will build on the potential intelligence value that comes from local knowledge.

Clapper: That reminds me of another example. I credit JSOC (Joint Special Operations Command) with a lot of this, in particular the five-year tenure of General McChrystal when he was JSOC commander, as sort of evolving this "find, fix, finish" cycle for prosecuting counterterrorism. He built the foundation for substantiating and synthesizing all forms of intelligence, be it HUMINT, GEOINT, SIGINT, and to include new forms—exploiting open source media. Pocket litter back in the day used to be paper. Now pocket litter can be thumb drives, cell phones, that sort of thing—it needs to be exploited on the fly so that you can continue the cycle to capture



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“We want to tell the Community through this interview: A) Their work matters tremendously, and B) Our business has never been more important.”

—DDNI/II Robert Cardillo

someone. Discover the electronic pocket litter, exploit that, and continue the “find, fix, finish.” That whole process revolves around the integration of all disciplines of intelligence.

You’re asking about progress in integration. I went to Vietnam in 1965. Integration was acetate, a grease pencil, and two corporals. We integrated history. Intelligence was after the fact. It couldn’t be collected, annotated, and disseminated quickly enough where it impacted decisions in time. Well, it’s all very different now. That’s a geezer war story I guess [laughs]. So if I were to grade myself on that compared to what we do now, I think it’s an “A,” but everything is relative.

Q Given the exponential rate of technological change, do you think intelligence integration will ever be complete, or will it continue to be an ongoing process?

Clapper: It will always be ongoing. If you’re working together with one other person, that’s an integration challenge just because you’re two different people and you come at the problem a different way. That’s never going to go away, and as a matter of fact that’s a good thing. One thing we don’t want to do is promote so much uniformity that you have no dissenting views. You want that. Integration doesn’t mean...

Cardillo: ...homogenization.

Clapper: Yes, thank you. We’ve been hanging out together too long [laughter].

Cardillo: If we think we’re done that would be dangerous.

Clapper: Yeah, exactly. You never want to be in a position where you’ll say, “Well, integration is all done. What’s next?” It’ll never happen. It shouldn’t happen.

Q What would you describe as any lessons learned throughout this process of promoting integration?

Cardillo: The Director’s style for as long as I’ve known him is substantiate the idea, articulate the vision, but don’t spend a whole lot of time perfecting the operation. Get enough of it and then get on with it. If I think back two and half years ago, it was a little dicey. It was a lot of vision and a lot of good intentions, but we certainly didn’t have fully formed concepts of operations and we didn’t have all of our charters and directives in place. I think there’s a lesson there. Maybe the lesson learned is that we really need to be in a mode of leaning in early: Try it, assess it, adjust if necessary, or stop if it’s not working. If we study too long, we’re going to be back in that irrelevancy mode. I know it’s trite to say it, but time is so of the essence today. I would say the lesson is lean in, give it a try, and iterate it.

Q You have each dedicated your careers to intelligence integration. Why is this effort so important to you personally?

Clapper: To me, what’s the alternative? It’s the right thing to do. We’ve both spent a lot of time in this business and we’ve grown up seeing the merits of integration, and in the end the sum is greater than the parts. To us it’s an obvious thing to promote, and now that we’re in the position to promote it or

impose it (depending on your point of view), it just seemed like the right thing to do.

Cardillo: We have the luxury, and I call it a privilege, to see the result. We get to turn in the Intelligence Community’s homework, which is the summation of the traditional national level agencies, but just as important, it includes our Service Centers, Combatant Commands, and—more and more—our domestic partners, such as DHS, FBI, DEA, Coast Guard, etc. That homework can take the form of the President’s Daily Brief, National Intelligence Estimates, or a briefing to Congress.

Don’t get me wrong, they’re not always doing cartwheels around the room as we’re telling them how wonderful the world is or how well the policies are doing. But we can really see the impact. We often can hear it, and it’s not always, “Thank you very much for that wonderful piece of intelligence.”

Especially if somebody used to live in the basement of buildings with no windows, looking through microscopes at the Soviet Union, wondering, “Does anybody care that I’m counting these tanks? Is anybody reading my report?” Well, we get to see it happen. And that confluence of intelligence and policy, once again, is a whole messy business. But I get a great return on investment when you see a table, like a deputies committee, actually turn because of the intelligence. It doesn’t always reverse decisions or turn out to be that dramatic. But you can see and hear people think differently about that problem set or understand opportunities they didn’t see before. We don’t get to share that experience with many people. We want to tell the Community through this interview: A) Their work matters tremendously, and B) Our business has never been more important. The world is so messy. Yeah, they’re not always applauding, but they are respecting, appreciating, and using this information.

Clapper: Just to sum up, that impact and credibility is enhanced when you can present an integrated product and an integrated report. It takes the whole community to generate these insights, every day. ■



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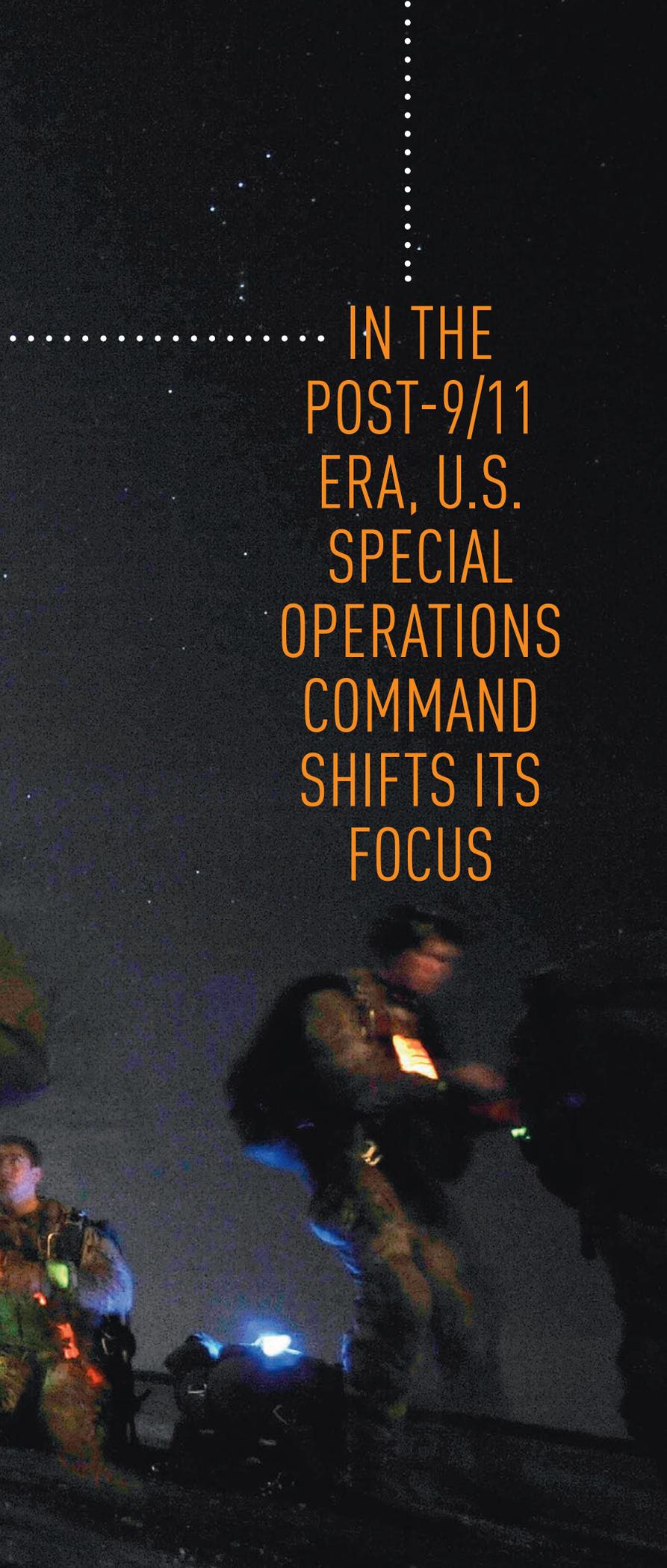
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POISED FOR A GLOBAL FUTURE

BY JIM HODGES

U.S. Air Force members conduct a high altitude, low opening mission during Emerald Warrior 2012, Hurlburt Field, Fla., March 4, 2012. The purpose of Emerald Warrior is to exercise special operations components in urban and irregular warfare settings.



IN THE
POST-9/11
ERA, U.S.
SPECIAL
OPERATIONS
COMMAND
SHIFTS ITS
FOCUS

Special Operations is more than Hollywood makes it out to be, according to Adm. William McRaven, who commanded the team that carried out the raid that killed Osama Bin Laden. It's not all kicking down doors and dealing with villains in the dark of night, McRaven expressed to an audience gathered at the Woodrow Wilson International Center for Scholars in May. Special forces don't play pingpong and toss around a football at a forward operating base, just waiting idly for a call to check weapons, jump on a helicopter, and get rid of a bad guy. Many played football in school, yes, but now they play chess and have mortgages and families they wish they could be at home with more often.

U.S. AIR FORCE PHOTO BY STAFF SGT. CLAY LANCASTER

“The reality of the matter is the counterterrorism piece, the direct-action piece of what we do is a very small part of our portfolio,” said McRaven, who heads U.S. Special Operations Command (SOCOM) at MacDill Air Force Base in Tampa, Fla. “The more important part of what we do is building partner capability [and] our day-to-day interaction with our allies and partners around the globe.”

McRaven went on to discuss his vision for the future of Special Operations. Shaping the future of the command has been his goal since assuming leadership two years ago, often drawing from assessments by two former high-ranking government officials.

In May 2012, then Secretary of State Hillary Clinton spoke of terrorism threats becoming “so complex, fast-moving, and cross-cutting that no one nation could ever hope to solve them alone.”

Three months earlier, Defense Secretary Leon Panetta signed a strategic guidance calling for light and agile units with smaller footprints that can partner

with other nations and disperse throughout the world.

“These sorts of things are core competencies of our U.S. Special Operations Command,” McRaven said. “We have had Special Operations operators out around the globe for decades, but now we have the ability through communications technology to be able to kind of knit this capability together.”

To perform the knitting, McRaven meets with elected officials, academics, and industry leaders. He educates decision makers and their influencers that Special Operations Forces (SOF) should have a future different from the decade past. Or, at least, a future different from the Iraq and Afghanistan portrayed in movies, books, and video games.

“You have to understand, we now have field grade officers who came into the military after 9/11,” said Col. Stuart Bradin, who is leading the creation of a vision for a global SOF network by the next decade, known as “SOCOM 2020.” “We’ve got people in government who only know what we have done in Iraq and Afghanistan, so absolutely it’s

an education piece—internally and externally.”

SEEKING BALANCE

After a dozen years of highly publicized success, SOCOM aims to work to the left of war, helping other countries stop conflict before it starts or at least keep it contained. To do so, the command needs help.

“We’re building a network of stakeholders,” said Bradin. “It’s not just us ... It’s not just [Department of Defense]. We’re looking for a lot of stakeholders who collaborate and communicate inside what we call the Phase 1 and Phase Zero activities, which are pre-hostility.”

The State Department is among these stakeholders, because, “We do not do anything—nothing—that doesn’t have the approval of the chief of mission, of the ambassador who’s there,” McRaven said.

However, the Department of State is among those agencies wary of SOCOM ramping up its influence.

“First, we have the question of authorities,” said Gregory Kausner, deputy

MEMBERS of Combined Joint Special Operations Task Force-Afghanistan provide medical aid for local villagers in Nagahan, Afghanistan, April 5, 2010.



U.S. ARMY PHOTO BY SGT. PATRICIA BALLOU

assistant secretary and head of the State Department's Bureau of Political-Military Affairs, in remarks on a panel at the Institute for Foreign Policy Analysis in June.

"Some have urged for the creation of separate and unique authorities for SOCOM to conduct long-term, train-and-equip activities. I think it's important to note, however, that there is a wide range of existing State and DoD security cooperation mechanisms out there, which can be used to build partner capacity without duplicating or substantially overlapping existing authorities."

Kausner said the State Department applauds SOCOM's goal to become an increasingly flexible, agile, and ready command. However, he added, "We also see the need for continued improvement in balancing and synchronizing SOF programs with broader U.S. foreign policy goals."

MILITARY FIRST

From front to back, Special Operations is military. While its personnel in a global network would work with host nation counterparts and the local U.S. embassy team, they would answer to Theater Special Operations Commanders (TSOCs) and, through them, to the theater geographic commanders.

This is done now, to some extent, in a less formal arrangement. At any given time, Special Operations Forces has as few as one person stationed in 75-100 countries, conducting exercises, testing, and teaching.

But, how many SOF nodes would it take to cover the entire globe, and where would they all be located?

"To be honest with you, we don't know," Bradin said. "Now, each of the TSOCs are framing or mentoring this process. It all depends on what form it takes. It's a little premature."

BUILDING INTELLIGENCE

What is known is that a global SOF network will require specialized intelligence.

Working with local defense forces requires more cultural understanding. More formal intelligence, surveillance, and reconnaissance will also be necessary to find and target enemies for the



PHOTO BY MASTER SGT. LARRY CARPENTER

local warriors. The question is, how formal should the ISR be?

"In Afghanistan, because it's a declared war zone, there's a lot of latitude about types of ISR," said Rear Adm. Thomas Brown, a former Special Operations chief with U.S. Southern Command, and now the director of military support with the National Geospatial-Intelligence Agency (NGA). "But when you get outside a declared war zone, you have to work with a partner nation to figure out what they're comfortable with."

To do so, there will be an emphasis on versatility and agility, said Lt. Gen. Joseph Votel, chief of the Joint Special Operations Command (JSOC), which studies Special Operations requirements and tactics, at a recent conference in Tampa.

"Plug-and-play ISR is very important to [JSOC]," he said. "We need to be able to select the right tool for the right environment."

Disparate environments will tax ISR resources to the point where inter-service partnerships will become essential.

"For SOF to go global, it can't own the entire architecture," said Val Shuey, intelligence program manager for SOCOM. "We have to partner out [with all of the services]. With everything we do within SOF, we're looking to share the data, use other people's data, use other people's tools and applications."

MARSOC MARINES learn to maneuver a Zodiac, a rigid hull inflatable boat, during an amphibious assault course in Key West, Fla., March 2012.

What is known is that a global SOF network will require specialized intelligence.

THE GEOGRAPHY OF A DRAWDOWN

In September 2010, Lt. Gen. Lloyd Austin took command of United States Forces in Iraq, leading Operation New Dawn. He was tasked to oversee the drawdown of American troops from the country, which was accomplished 15 months later, when the last military convoy unit rolled quietly over Khabari Crossing into Kuwait at dawn.

In March of this year, Austin took over U.S. Central Command (CENTCOM), which is now undergoing a drawdown in Afghanistan. A similar mission? Perhaps, but the circumstances are radically different.

"Our units in Afghanistan are still performing the train, advise, and assist mission, under the threat of enemy attacks," said Maj. Thomas Campbell, a spokesperson for the 1st Theater Sustainment Command, from Afghanistan. "In Iraq, we weren't fighting to the very end, providing the assistance like we are now."

The scope of the drawdown is massive, billed by some as the largest retrograde mission in U.S. military history.

As summer began, more than 20,000 U.S. military vehicles and trailers, more than 95,000 shipping containers, and thousands of pieces of equipment were leaving the country, Campbell said.

Geography also differentiates the Afghanistan drawdown from that in Iraq.

"There are three major challenges: The road network is not as developed, the country is land-locked and thus has no access to port facilities, and we have no neighboring country with facilities for staging and processing equipment," Campbell said. "Kuwait served like a catcher's mitt for the redeployment effort in Iraq, with areas to stage equipment before conducting port operations. Everything that we did in Kuwait when we retrograded from Iraq now has to be done in Afghanistan."

The decisions about what leaves, what stays, what goes to allies, and what is destroyed in place are made by CENTCOM's Materiel Recovery Element (CMRE), stood up in 2012 as a result of lessons learned from Iraq. Comprised of engineers and logisticians, the CMRE oversees removal of bases and equipment. The initiative has significantly improved the command's ability to retrograde equipment off the battlefield, according to Campbell.

The goal is to move any equipment not needed to support the 34,000 troops that will remain in Afghanistan by February 2014, a timetable established in President Obama's January 2013 State of the Union address.

"We have done the math, and we are confident that we can meet deadlines, regardless of what contingencies we may face," Campbell said. "Right now, we are focused on getting to 34,000 by February 2014."

"Fundamentally, picturing human geography for users has an underlying geospatial aspect to it because you have to visualize where this tribe's boundaries end and where the tribal chief lives. It's how the operators interact with the information in the geospatial layer."

—Rear Adm. Thomas Brown

INTELLIGENCE FOUNDATION

In spanning the globe, Special Operations will build on lessons learned in Iraq and Afghanistan, but intelligence won't end with full-motion video and signals. It may not begin with them, either. After more than a decade of operations on known terrain, Special Operations will now infiltrate areas where there is little baseline knowledge.

"Two things of importance are ABI (activity-based intelligence) ... and the human geography effort," Brown said of SOF needs for the future.

NGA, which anticipates placing representatives in the global Special Operations nodes, is among the trailblazers in activity-based intelligence methodology.

"That's a kind of intelligence where, rather than focusing on a particular plane or ship or space, you're focusing on activity and transactions," said Brown. "And that's what SOCOM needs [in order] to understand what an adversarial network might be doing."

Human geography will be especially important in far-flung Special Operations nodes, according to Brown.

"Fundamentally, picturing human geography for users has an underlying geospatial aspect to it because you have to visualize where this tribe's boundaries end and where the tribal chief lives," Brown said. "It's how the operators interact with the information in the geospatial layer."

Human geography is critical "for the guy on the ground, because he's operating at a disadvantage in a place he doesn't know, with people, perhaps, that he doesn't know that well," Brown added. "Human geography can give him a leg up in understanding their environment."

SOCOM 2020 will focus on different environments than SOF has been concentrated in for the past decade, and command leadership's hope is to keep it that way.

But the Hollywood Special Forces image will likely linger long after *Zero Dark Thirty* is shown on cable television. ■



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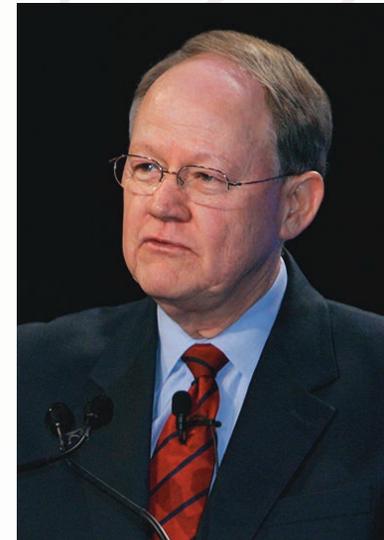
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Reflecting on a decade of innovation, collaboration, and change

GEOINT 2013 marks the 10th annual GEOINT Symposium. Although the numbers of attendees, breadth of the event, and conference agenda have grown considerably over the years, the quality of the Symposium’s content, speakers, and networking opportunities remains high. Also for certain, the Symposium’s mission—bringing the defense, intelligence, and homeland security communities together to further the GEOINT tradecraft and national security—is unwavering.

“Planning for the very first Symposium was all about hope,” said Stu Shea, founder and chairman of the board of the United States Geospatial Intelligence Foundation (USGIF), which hosts the GEOINT Symposium. “We wanted to accelerate innovation and bring recognition to this little-known foundation for security that we all knew the importance of. GEOINT had become the cornerstone of our national security transformation through its place at the center of many intelligence functions.”

Transforming the Symposium from a fledgling event supporting a newly coined term into the highest-profile intelligence gathering in the world has been no minor task.

“In the early days, we used every connection we had to convince senior leaders to view the Symposium as a platform for discussion,” Shea said. “We created a venue for diverse players to exchange ideas, share best practices, and promote the education and importance of a national GEOINT agenda.”

Today, the Symposium has grown beyond the dynamic keynote addresses, panel discussions, and exhibit hall demos, to include a pre-conference session devoted to innovation, a young professionals track and service project, an unprecedented GEOINT technology showcase, and unique training and education opportunities.

“Over the past 10 years, I’ve had the unique opportunity to experience the GEOINT Symposium from every angle: attendee, award winner, exhibitor, panelist, and now as CEO of USGIF,” said Keith Masback. “It’s been a remarkable journey since the earliest days in New Orleans. The Symposium serves as a common frame of reference, a shared set of experiences, that rallies people around the idea of geospatial intelligence. The threads of every GEOINT Symposium are integral to the fabric that is the GEOINT Community.”

2004 THEME Driving Transformation Through Integration and Partnership

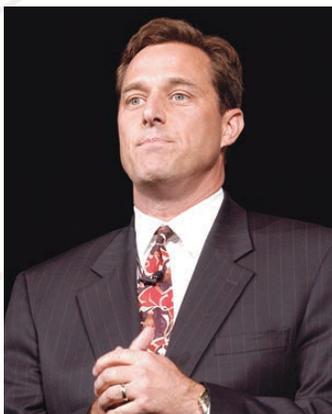


Charlie Allen, then assistant director of Central Intelligence for Collection with the Central Intelligence Agency, and now a principal with The Chertoff Group, gives a keynote address at GEOINT 2004.



Robert Cardillo (left), then director of Source Operations and Management at the National Geospatial-Intelligence Agency, now deputy director for intelligence integration with the Office of the Director of National Intelligence, and Scott Large, then director of the Imagery Systems Acquisitions and Operations Directorate with the National Reconnaissance Office, now a director with Deloitte, sit on a panel together at GEOINT 2004.

Kevin Meiners, then Director of Intelligence Strategies, Assessments, and Technologies with the Office of the Under Secretary of Defense (Intelligence), and now Assistant Director of National Intelligence for Acquisition, Technology, and Facilities, gives a keynote address at GEOINT 2004.



2005 THEME Securing Freedom, Defeating Threats, Saving Lives



At GEOINT 2005, Gen. Michael Hayden (left), then Principal Deputy Director of National Intelligence, now a principal with The Chertoff Group, and Gen. James Clapper, then director of the National Geospatial-Intelligence Agency, now Director of National Intelligence, gave a joint keynote address describing how “the eyes and ears” of the Intelligence Community work together.

PREVIOUS PAGE (clockwise from top left): Stu Shea, USGIF founder and chairman of the board of directors, gives opening remarks at GEOINT 2011; National Geospatial-Intelligence Agency Director Letitia Long gives a keynote address at GEOINT 2012; Mike McConnell, then Director of National Intelligence, now vice chairman of Booz Allen Hamilton, gives a keynote address at GEOINT 2008; Skunk Baxter, famed lead guitarist for Steely Dan and the Doobie Brothers, as well as a defense intelligence expert, plays the national anthem at GEOINT 2011; USGIF’s Young Professionals Group (YPG) hosted a young professionals lounge in the exhibit hall for the first time at GEOINT 2012.

2006 THEME Harness the Power: Actionable Intelligence in a Changing World



GEOINT 2006 attendees enjoy the Hall of Fame dinner at which cable news host Joe Scarborough gave remarks. The Hall of Fame dinner was a tradition retired in 2007.



Ambassador John Neproponte, then Director of National Intelligence, now vice-chairman of McLarty Associates, gives a keynote address at GEOINT 2006.



An exhibitor demonstrates touch table geospatial technology in the GEOINT 2006 exhibit hall.



Michele Weslander-Quaid, then Principal Deputy Associate Director of National Intelligence and deputy chief information officer for the Office of the Director of National Intelligence, and now chief technology officer for Google Federal, moderates a panel on interoperability challenges during GEOINT 2006.



>FACT In 2004, the first GEOINT Symposium had 80 exhibitors. By 2012, the event had grown to 265 exhibiting companies and organizations.



The **GEOINT 2006** closing general session included a special panel titled, "10 Years of GEOINT Excellence," featuring leaders that were instrumental in the founding of the former National Intelligence Mapping Agency (NIMA) and current National Geospatial-Intelligence Agency (NGA). Panelists were, from left to right: former director of Central Intelligence John Deutch, who helped convince Congress to create NIMA; Ret. Army Lt. Gen. James King, who was the director of NIMA from 1998 to 2001; DNI James Clapper, who was the first civilian director of NIMA and stayed through its transformation to NGA; and Ret. Vice Adm. Robert Murrett, who was then the fourth director of NGA.



Air Force Maj. Gen. David Scott, then deputy director of the Center for Special Operations with U.S. Special Operations Command, now retired, gives a keynote address at GEOINT 2006.

"It's about stewardship versus ownership, realizing that no agency owns the data they collect. They are the stewards not only on behalf of the Intelligence Community, but on behalf of American people." — Michele Weslander-Quaid, moderator, GEOINT 2006

2007-2009

“Re-wickering the acquisition process or the requirements process is not just taking something that was a chapter or a paragraph out of the main body and moving it to a tab ... We have to fundamentally go after the incentive structure that makes it produce what we need, not what we can get.”

— Gen. James Cartwright, keynote speaker, GEOINT 2007

2007 THEME Integration for Collaboration: Enabling a Seamless Enterprise



Gen. James Cartwright, then vice chairman of the Joint Chiefs of Staff, now retired, provides the opening keynote address at GEOINT 2007.



The Presentation of Colors kicks off the GEOINT 2007 Symposium.



GEOINT 2007 attendees enjoy GeoWalk hospitality night in San Antonio, Texas.



Gen. Russel Honore, then commanding general of the First Army, now a retired consultant, gives a keynote address during GEOINT 2007.

2008 THEME Mission Focused: Transitioning to the Future



Then USGIF President Keith Masback (far left), now CEO, presents the 2008 USGIF Awards, along with Kevin Jackson (far right), assistant vice president of business development for SAIC and USGIF's Awards Subcommittee chair.



Maj. Gen. John Custer, then commander of the U.S. Army Intelligence Center at Fort Huachuca, now director of federal strategic missions and programs for EMC Corporation, gives a keynote address at GEOINT 2008.

“The GEOINT Symposium is not a ‘touch-and-go event.’ It’s not, ‘be seen at the opening keynote’ and then get back into the office. The GEOINT Symposium is an event to savor throughout. It’s the total package.”

— Jim Bower, vice president of strategic planning & business development, Riverside Research



The 2008 Allder Golf Classic raised \$25,000 for the USGIF Scholarship Fund. To date, the fund has awarded more than \$691,000 in scholarships to students pursuing degrees in the geospatial sciences.



Air Chief Marshal Sir Stuart Peach, then chief of Defence Intelligence and deputy chairman of the Joint Intelligence Committee for the U.K. Ministry of Defence, and now vice chief of the Defence Staff, gives a keynote address at GEOINT 2008.



In 2008, country music artist Phil Vassar performed at the "5 Years of GEOINT Symposia" celebration in Nashville, Tenn.

2009 THEME Build the Community, Accelerate Innovation, Advance the Tradecraft



GEOINT 2009 attendees had the opportunity to participate in an exclusive, after-hours tour of the Alamo in San Antonio, Texas.



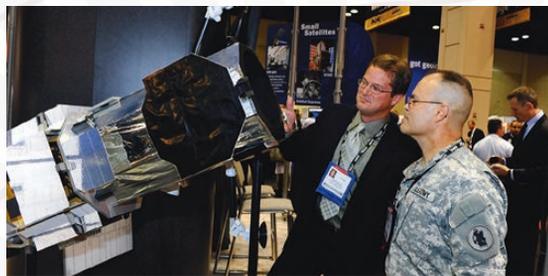
At *GEOINT 2009*, the World Classic Rockers performed at the closing celebration, featuring original members from Journey, Steppenwolf, Santana, Lynyrd Skynyrd, and Boston.



>FACT Each morning of the GEOINT Symposium, approximately 64 gallons of coffee and tea are consumed, while about 5,660 hors d'oeuvres are passed at each exhibit hall reception.



Dr. Regina Dupan, then director of the Defense Advanced Research Projects Agency, now a senior executive with Google, gives a keynote address at GEOINT 2009.



A *U.S. Army* attendee views a satellite model in the GEOINT 2009 exhibit hall.



USQIF's ever-popular "got geoint?" slogan (named for the Foundation's GEOINT news blog) is always a favorite for swag items in the Symposium exhibit hall. In 2009, "got geoint?" graced the T-shirts of tiny teddy bears.



Congressman C.A. Dutch Rupp, ranking member of the House Permanent Select Committee on Intelligence, gives a keynote address at GEOINT 2009.

2010-2012

“As a younger employee in the Community, GEOINT has provided me the opportunity to not only meet, but spend quality time with seniors and career professionals from across the IC and DoD. The GEOINT Symposium has helped me grow personally and professionally over the last decade. I can honestly say that my career would not be where it is without USGIF.”

— John Ayers, president, Red Lattice

2010 THEME Geospatial Intelligence 3.0: A New Era of GEOINT



The 2010 closing celebration in New Orleans was held at the Superdome and featured former NFL quarterback Archie Manning and the New Orleans Saints cheerleaders.



At GEOINT 2010, a breakout session was held to discuss the newly coined concept of the “Cyber-Location Nexus.” Standing is Jeff Jonas, chief scientist with IBM, who moderated the panel. Speakers included Maj. Gen. Suzanne Vautrinot, then director of plans and policy with U.S. Cyber Command, now commander of the 24th Air Force; Bob Gourley, founder and chief technology officer of Crucial Point LLC; John Kelly, founder and lead scientist of Morningside Analytics; and Kevin Pomfret, director of the Centre for Spatial Law and Policy.



>FACT The USGIF Young Professionals Group (YPG) participated in its first GEOINT Symposium in 2010, including the sponsorship of 10 young professional attendees. In 2012, the YPG sponsored 25 young professional attendees.

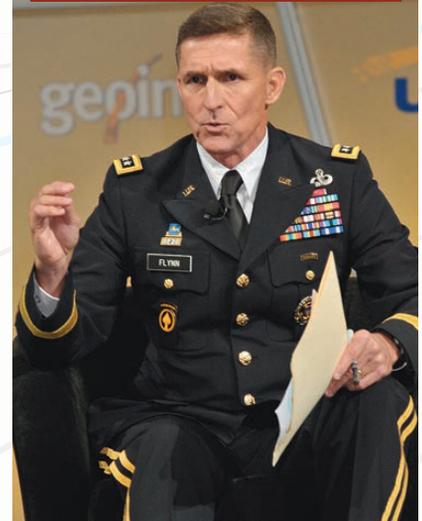


A U.S. Army Stryker armored wheeled vehicle was on display in the GEOINT 2010 exhibit hall.

The USGIF Young Professionals Group held its first service project at GEOINT 2010, helping to map Hurricane Katrina damage in the 7th Ward of New Orleans.



2011 THEME Forging Integrated Intelligence



Lt. Gen. Michael Flynn, then special assistant to the Deputy Chief of Staff, G-2, now director of the Defense Intelligence Agency, moderates a panel on “Forging Collaboration in the Coalition Environment” during GEOINT 2011.



Michael Vickers, Under Secretary of Defense for Intelligence, gives a keynote address during GEOINT 2011.

2012 THEME Creating the Innovation Advantage



NGA Director Letitia Long speaks with young professionals during USGIF's invite-only Chairman's reception at GEOINT 2012.



Gen. Keith Alexander, director of the National Security Agency and commander of U.S. Cyber Command, gives a keynote address at GEOINT 2012.



Exhibitors sport sunglasses in the GEOINT 2012 exhibit hall.



During *GEOINT 2012*, an authentic SA-2 missile from the Cuban Missile Crisis era was on display outside the exhibit hall. The SA-2 is a medium- to high-altitude, two-stage, surface-to-air (anti-aircraft), Soviet Union-designed missile. Here, student workers, who have the opportunity to help out, learn, and make connections at the event, pose with the missile.



Stu Shea (left), chairman of USGIF's board of directors, and *Keith Masback* (right), USGIF CEO, present the Arthur C. Lundhal Lifetime Achievement Award to *Penman R. Gilliam* at GEOINT 2012.

"We're here because we all believe in the power of GEOINT, and the power of geography, and the power of geospatial sciences, but we also have some challenges. We've heard about resources going down. Well, I say that's great; that's a new challenge; that means we can drive innovation further."

— Elizabeth Lyon, panelist, GEOINT 2012



At *GEOINT 2012*, Ball Aerospace provided attendees the opportunity to try out DYNAMAN-DIME, a tool used to emulate live/virtual/constructive flight environments.



A Young Innovators Panel was featured on the main stage for the first time at GEOINT 2012. Here, moderator *Todd Huffman*, a private consultant, introduces the panel.



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ADAPTATION LEADS TO ADVANCEMENT

WHY ITT EXELIS BELIEVES IN COLLABORATION AND OPEN SOURCING

For ITT Exelis, successful growth is defined as developing solutions that are both innovative and can serve the community at large.

Richard Cooke, vice president and general manager of Geospatial Intelligence Solutions, believes collaboration and industry-wide change are key in an era of shifting business models and constrained budgets.

“Anybody who tried to hold on to his or her proprietary solutions has suffered because of it,” he said. “They then got the message and started moving to open software and open hardware architectures, things that will allow plug-and-play, interoperability, and collaboration.”

To keep in stride with the changing industry, ITT Exelis has focused its time, dollars, and energy on migrating desktop programs to the NGA App Store. In May 2013, the company made its Jagwire solution—a program that manages and disseminates geospatial imagery and video data—available on a mobile platform.

“That’s really what we’ve been focusing on,” said Cooke. “How to get the GEOINT tradecraft tools that the community needs to them as quickly and seamlessly as possible.”

PRODUCTIVE CHANGE

One challenge Cooke and his team currently face—along with the overall industry—is data management. According to Cooke, the industry has treated the influx of data as an IT infrastructure problem, when in reality it is a data management problem.

“[We need to] employ analytic techniques to automate somebody’s processes so that we don’t have as many bodies touching the data, which will help us cull down to the relevant data as quickly as possible,” said Cooke, who added companies should take advantage of new, untraditional, and unstructured sources of data. For example, combining social media data with traditional sources to help solve the data management problem.

ITT Exelis has chosen to focus on solving problems the industry has always faced—instead of concentrating too much on budget limitations.

“The budgetary constraints are there—they’re just a fact of life,” said Cooke. He added ITT Exelis addresses its customers’ problem sets with the same approach as before sequestration, because the problems haven’t changed despite new fiscal realities.

PROGRESSIVE CULTURE

Though ITT Exelis isn’t as fast-paced as a startup company may be, leadership considers it innovative by industry standards. Cooke compared ITT Exelis to a progressive IT company. It hires young, often military-trained staff that understand the challenges and problems of the current generation.

“[The younger workforce] looks at and solves problems in a much different way, and that’s extremely important because it helps us innovate much quicker,” Cooke said.

At ITT Exelis, company headquarters are a thing of the past. Though the majority of staff are in Herndon, Va., and Rochester, N.Y., the company also has

employees in Colorado, Ohio, Alabama, and more. Cooke, who is based in Boulder, Colo., said a virtual workforce allows for the best talent to be hired and for collaboration that may not be possible otherwise.

Though ITT Exelis exhibits at numerous conferences annually, Cooke only attends one: USGIF’s GEOINT Symposium. Because of the strategic planners and policy makers that attend, he never misses it.

“[The GEOINT Symposium] gives us a focused context in which to talk and learn from one another,” Cooke said. “The conference allows us to make connections in a way we wouldn’t otherwise be able to make.”

DIVERSIFYING FOR THE FUTURE

Collaboration is essential for industry-wide progress, according to Cooke.

“I think the more time companies spend trying to retreat into their shell and protect their silo, the less optimal the outcomes are going to be for everybody,” he said. “Tradecraft won’t advance how it needs to advance, money will not bring in the biggest bang for the buck, and we’ll continue to see solutions that take too long to develop.”

In addition to developing more open source and community-wide solutions, industry should also diversify, Cooke said. For example, advanced analytics derived from geospatial techniques, combined with techniques that leverage unstructured and open source information could be applied to more traditional business intelligence problems within customer sets such as health care, finance, transportation, and logistics, explained Cooke.

“Geospatial systems as a whole have an overarching strategy to diversify more into non-DoD and intel markets. We believe pretty strongly that there are going to be opportunities to bring geospatial-based analytics to vertical markets.” ■



ITT EXELIS is a longtime participant in and supporter of the GEOINT Symposium.



“[THE YOUNGER WORKFORCE] LOOKS AT AND SOLVES PROBLEMS IN A MUCH DIFFERENT WAY, AND THAT’S EXTREMELY IMPORTANT BECAUSE IT HELPS US INNOVATE MUCH QUICKER.”

—Richard Cooke, vice president and general manager of Geospatial Intelligence Solutions, ITT Exelis

LITTLE EYES TOWARD THE SKY

YPG inspires youth at Spy Fest



USGIF YPG member Alex Martinez shows children a model satellite and helps them analyze satellite imagery of Washington, D.C.

ON MAY 18, more than 400 people visited the International Spy Museum in Washington, D.C. and pretended to be a spy for the day. At Spy Fest, an annual family spy festival, participants are immersed in the spy experience by dressing in disguise and enjoying mini-missions and demonstrations. USGIF's Young Professionals Group (YPG) taught attendees about satellites and imagery using an entertaining and educational approach.

USGIF set up three interactive stations at its "Eyes in the Sky" display, inviting families to learn about GEOINT in a fun and creative way. YPG members taught participants the basics of a satellite's structure and its capabilities. Volunteers also showed children satellite images on tablets and guided them in identifying the location of each picture, which included the Egyptian pyramids, ground zero, and the Washington Monument.

After analyzing imagery, children made their own model satellites using everyday household items, such as toilet paper rolls, paper plates, pipe cleaners, and aluminum foil. Many added their own unique flair to the models by coloring with markers and decorating with stickers. Families also had the opportunity to watch an introductory video about GEOINT and take home a satellite image provided by DigitalGlobe of northwest Washington, D.C., during peak cherry blossom season.

"We were very excited to participate in Spy Fest for a third year," said Carrie Drake, USGIF's event operations & community relations manager, as well as the coordinator for YPG.

"This was a great opportunity to give kids a glimpse into the GEOINT Community and to get them excited about the many possible paths to becoming a GEOINT professional."

Two Girl Scout troops also stopped by USGIF's presentation. Not only did children learn about satellite imagery, but many adults learned new information as well.

Nine-year-old Benjamin and his mother traveled from New York to tour Washington, D.C., and participated in Spy Fest during their visit to the museum.

"I liked putting together the satellites and learning about the imagery," said Benjamin.

"We're trying to explain the importance of satellites to kids," said Jennifer Stansall, a YPG member and senior account manager with DigitalGlobe. "It's a fun event where they can look at the images, analyze them, and be able to take them home."

Ten-year-old friends Jessica and Grace made model satellites together.

"It was really cool because we got to do a lot of hands-on stuff," one of the girls said.

YPG member Gaby Maldonado said she was pleased with the level of engagement the group had at the event this year.

"Last year we only had a presentation on satellite imagery, so this year was a lot more interactive and fun for the kids," Maldonado said.

The National Geospatial-Intelligence Agency (NGA) and the Federal Bureau of Investigation (FBI) also participated in Spy Fest, offering opportunities to meet a police K-9, a ninja, and a real-life spy. ■ BY LINDSAY TILTON



CHILDREN who attended Spy Fest selected spy disguises to wear as they participated in various activities.

To learn more about USGIF's Young Professionals Group, contact Carrie Drake at carrie.drake@usgif.org.

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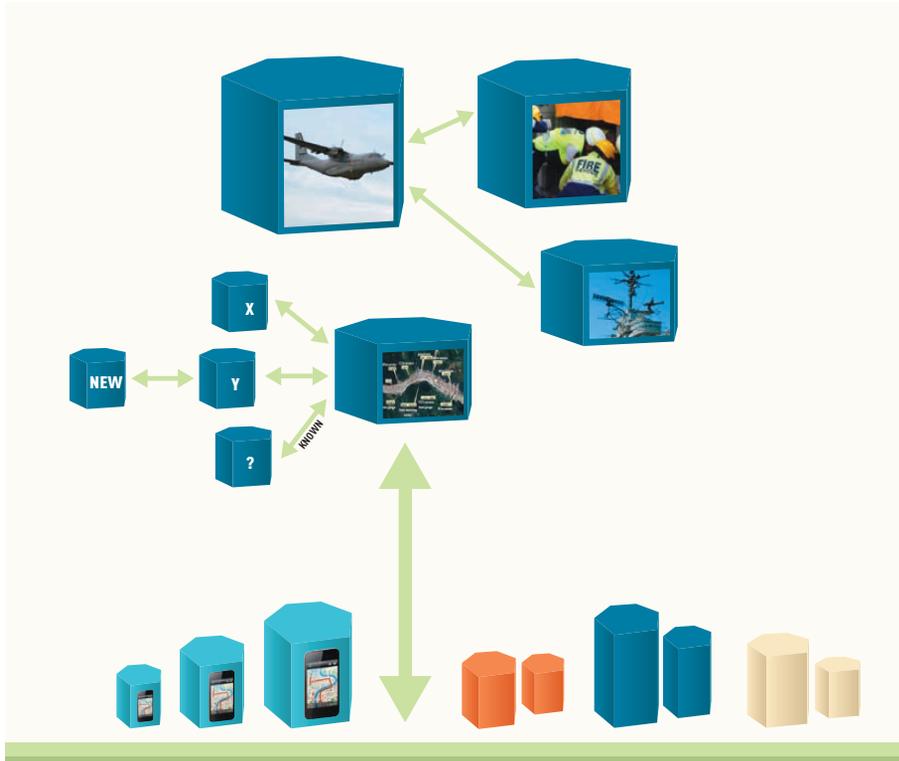
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WHY ARE GEOINT STANDARDS IMPORTANT?

A common system enables national and international collaboration

by Lance McKee, senior staff writer, Open Geospatial Consortium (OGC)



THE MAIN VALUE of technical interoperability is that it supports institutional collaboration. Other benefits include flexibility, resilience, extended system lifetimes, transparency, cost reductions, and expanded markets that support innovation.

create a cohesive GEOINT Standards Program for the U.S. The NCGIS manages GEOINT standards activities across the National System for Geospatial Intelligence (NSG) community and within NGA itself.

The Geospatial Intelligence Standards Working Group (SWG), chaired by the director of NCGIS, is made up of thematic focus groups that resolve standardization issues related to metadata, geospatial features, portrayal, imagery, and information transfer and data services for posting, discovery, access, and analysis of GEOINT data stores. The SWG also tracks market penetration of candidate GEOINT standards to determine if mandated standards are viable. The Defense Standardization Program (DSP) and the NGA Architecture & Standards Board (NASB) are the other key governance organizations that play a role in GEOINT standards activities in the U.S.

THE COMPUTING revolution has brought the advent of high-resolution imaging devices, UAVs, cell phones, and countless other means of providing GEOINT data. However, the data is useless if it can't be communicated. The communication of GEOINT, like any other kind of communication, involves transmitting or exchanging through a common system of symbols, signs, or behavior. Agreeing on a common system is the purpose of standardization.

In addition to providing better information for decision support, standards bring other benefits, such as reduced IT lifecycle costs, and increased flexibility and adaptability. GEOINT is critically important across the U.S. defense and intelligence agencies, and particularly since 9/11 policy makers have worked to improve GEOINT communication. Technical standards play a key role, enabling the institutional communication that policy makers arrange.

The National Geospatial-Intelligence Agency (NGA) is the functional manager for GEOINT in the U.S. and is responsible for the review and recommendation of technical standards. The National Center for Geospatial Intelligence Standards (NCGIS) was established in 2002 as an entity within NGA to

Of course, not all defense and intelligence standards are geospatial. The SWG is chartered within the broader Information Technology Standards Committee (ITSC). The ITSC is overseen by the DoD Defense Information Systems Agency (DISA) and has the primary goal to incorporate IT and GEOINT standards into the DoD Information Technology Standards and Profile Registry (DISR). Mandated standards contained in the DISR must be used in future systems development efforts within the DoD.

Where possible, the NCGIS fosters the advancement and use of community-developed, consensus-based standards.

INTERNATIONAL INTEROPERABILITY

International geospatial standards have been important to the U.S. since World War II. The revolution in computing and communications has been a global phenomenon, and the U.S. relies on close cooperation with allies around the world.

The Defense Geospatial Information Working Group (DGIWG) is the multi-national body responsible for geospatial standardization for the defense organizations of member



nations. It supports the requirements of NATO and the other alliances in which member nations participate, including United Nations peacekeeping.

The Open Geospatial Consortium (OGC) and the International Organization for Standardization (ISO) are the two international standards development organizations that play a major role in geospatial standards. NGA participates in both of these organizations as well as in DGIWG, and there is cross-representation in the working groups and technical committees of all of these organizations.

CIVIL SECTOR NEEDS

Public safety and law enforcement, city planning and management, and other civil sector activities all depend on the creation, exploitation, and analysis of geospatial data and information, and these civil GEOINT resources are critical for

Technical standards play a key role, enabling the institutional communication that policy makers arrange.

disaster response and relief. Thus, commercial and civil sector representatives participate, along with representatives from federal GEOINT organizations, in national and international geospatial standards processes.

Both civil sector and defense and intelligence organizations stand to benefit from the boom in mobile applications and cloud services, and together can work with commercial representatives to develop and promote implementation of the standards both sectors need. Much work remains, however, in areas such as security, data provenance, model interoperability, and semantics. Mobile apps and cloud computing are driving new ways of storing and discovering data, and existing standards need to evolve to keep up. ■■

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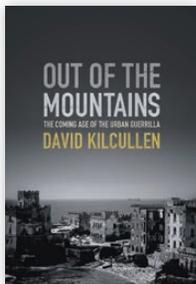


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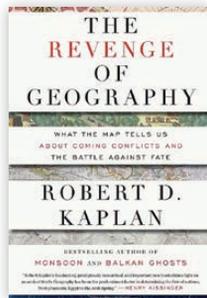


**OUT OF THE MOUNTAINS:
THE COMING AGE OF THE
URBAN GUERRILLA**

by David Kilcullen

Modern warfare expert David Kilcullen takes us into the marginalized slums and complex security threats of the world's coastal cities, where nearly 75 percent of the

global population will live by mid-century. Scrutinizing major environmental trends, such as population growth, coastal urbanization, and increasing digital connectivity, Kilcullen projects a future of feral cities, urban systems under stress, and increasing overlaps between crime and war, internal and external threats, and the real and virtual worlds. Informed by Kilcullen's field work in the Caribbean, Somalia, the Middle East, and Afghanistan, along with that of his field research teams in cities in Central America and Africa, *Out of the Mountains* presents detailed, on-the-ground accounts of the new faces of modern conflict—from the 2008 Mumbai terrorist attacks, to transnational drug networks, local street gangs, and the uprisings of the Arab Spring.



**THE REVENGE OF
GEOGRAPHY: WHAT
THE MAP TELLS US
ABOUT COMING
CONFLICTS AND THE
BATTLE AGAINST FATE**

by Robert Kaplan

In this book, Kaplan takes the discoveries and theories of great geographers and geopolitical thinkers of the past and applies them to the evolving modern global scene.

USGIF EVENTS CALENDAR

SEPTEMBER

10

GEOINTeraction Tuesday
Maggiano's, Tysons, Va.

OCTOBER

13-16

GEOINT 2013 Symposium
Tampa Convention Center,
Tampa, Fla.

NOVEMBER

12

GEOINTeraction Tuesday
Maggiano's, Tysons, Va.



EVENTS For the latest event listings,
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PEER INTEL

The USGIF Board of Directors during its last quarterly meeting, voted on five new members. Joining the USGIF Board for three-year terms are: **Dewey Houck**, vice president and general manager, Information Solutions, The Boeing Company; **Dr. Keith Littlefield**, chief technology officer, TASC; **Gabriela Maldonado**, senior consultant, Booz Allen Hamilton; **Jennifer Stansall**, senior account manager, DigitalGlobe; and **Jeffrey Tarr**, president and CEO, DigitalGlobe.

Mary Grace "MG" Karch joined IDV Solutions as vice president of federal systems, where she will be responsible for developing and expanding federal business for the company's physical security and risk visualization software, known as Visual Command Center.

TASC named **Joseph Pacileo** vice president of its Mission Solutions business unit, where he will oversee TASC operations supporting intelligence and cyber customers at Fort Meade. TASC also appointed **Randy Phillips** as senior vice president of corporate development and chief strategy officer.

Chris Fedde, former president and CEO of SafeNet,

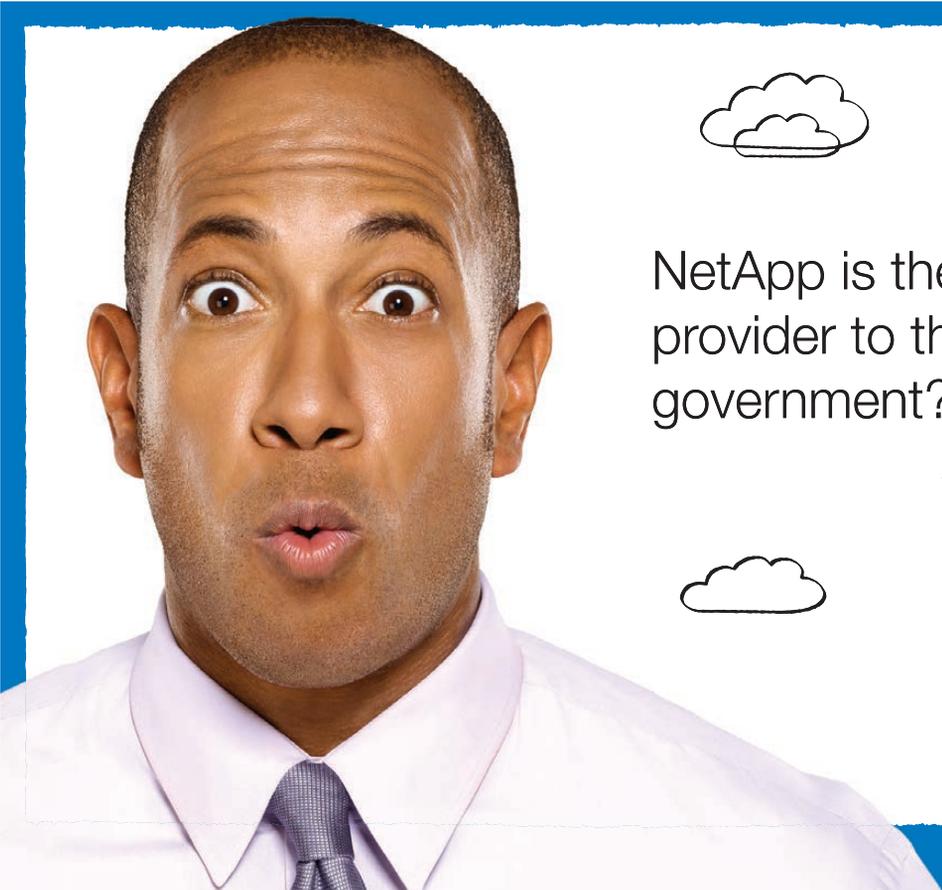
joined KEYW as executive vice president leading the company's expanding commercial products business.

General Dynamics appointed **Thomas W. Kirchmaier** vice president of the corporation and president of General Dynamics Advanced Information Systems. The company also announced **Bernard Guerry** as the new senior vice president and general manager of its Intelligence Solutions division.

Brad Ward joined Intergraph Government Solutions as senior vice president of geospatial solutions. Previously, Ward was founder and president of Integrity Enterprise Solutions.

Mac Curtis, former president and CEO of Vangent was recently appointed as president and CEO of SI Organization, succeeding Bill Graham who served as president and CEO since 2003.

Dr. David Messinger recently joined the USGIF Academic Advisory Board. He is currently an associate research professor in the Chester F. Carlson Center for Imaging Science at Rochester Institute of Technology.







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IMAGE COURTESY OF NASA

Landsat 5 Sets World Record

The year was 1984. Apple released the first Macintosh computer, Ronald Reagan defeated Walter Mondale to win his second term as president, Michael Jackson's *Thriller* was the best-selling album of the year, and NASA launched Landsat 5. This past June, the U.S. Geological Survey (USGS) sent the last command to Landsat 5, instructing it to shut down its transmitter. According to Guinness World Records, Landsat 5 now holds the record for the longest operating Earth-observation satellite. The Landsat program began in 1966 as the Earth Resources Technology Satellites Program, changing its name to Landsat in 1975. The first satellite, retroactively named Landsat 1, was launched in 1972. Landsat 5, equipped with a Multispectral Scanner System (MSS) and Thematic Mapper (TM), was launched as a backup to Landsat 4. After Landsat 4 was decommissioned in 1993, and Landsat 6 failed to reach orbit, Landsat 5 became the primary U.S. satellite for global image acquisition for that period of time and saved the continuity of the Landsat program. Originally designed for a three-year mission, Landsat 5 outlived its life expectancy by a quarter of a century, a remarkable feat considering the far shorter lifespans had by many of its predecessor and successor Landsats. After 29 years, 3 months, and 4 days of operation, more than 150,000 orbits, and 2.5 million images collected, a gyroscope failure finally ended its mission. According to the USGS, Landsat 5 was "by any measure...an extraordinary success," making "unprecedented contributions to the global record of land change."



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