

# Automatic Intelligence

## Potential U.S. Analyst Cuts Prompt Call for Smarter Tools

By DEBRA WERNER

After the Sept. 11 terrorist attacks, government officials warned that the U.S. was threatened by a poor ability to make sense of a flood of human and technical intelligence collections, fuse information with other bits of data and transmit it to the military and civilian leaders who needed it.

The intelligence community went on a hiring spree for analysts to dive into this noisy sea of data. A decade later, the volume of information to be sifted has grown exponentially, with no end in sight. The Air Force and Army rely on an expanding fleet of manned and unmanned aircraft bristling with camera turrets, antennas and sensor pods to gather imagery and signals intelligence day and night. Intelligence agencies are becoming increasingly adept at intercepting electronic communications, including cellphone calls, texts and emails. Government and commercial satellites offer high-resolution images for any location on Earth, and new satellites are on the way.

With America's deficit now counted as a national security issue, the budget noose is tightening around defense and intelligence agencies, and the hiring spree is nearing an end. Faced with the question of how to cope, intelligence officials and their industry counterparts are pointing to advances that they say will make analysis less labor-intensive.

"The real trick in the analyst's area is automation," said Air Force Gen. Norton Schwartz, whose service collects and analyzes the lion's share of video gathered over global hot spots.

Intelligence officials are attaching new urgency to the automation issue. Top Air Force officials are re-examining collection requirements and the service's intelligence workforce with an eye toward possible cuts.

"Given that the new secretary and the president and Congress are having to make some tough belt-tightening decisions, that flows down to us," said Air Force Brig. Gen. Scott Bethel, deputy commander of the Air Force Intelligence, Surveillance and Reconnaissance Agency.

Part of the answer is training. In a Las Vegas casino, Bethel said, security guards who watch several video feeds at once have been trained to look for specific behaviors in a broader context. "They

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**Andy Johnson**  
Former Senate Intelligence Committee staff member

are able to parse that data so the casino owner can get a lot of leverage out of a smaller manpower pool," he said.

But automated data processing could provide similar results. The Air Force already uses automated tools to help analysts sort through surveillance and reconnaissance data for target detection and tracking, said Air Force Lt. Gen. Craig Koziol, director of the Pentagon's ISR Task Force.

"Given ongoing advancements in techniques such as machine learning and artificial intelligence, the ability of analysts to discover actionable information will continue to grow," Koziol said in an email.

The National Security Agency, National Geospatial Intelligence Agency (NGA), National Reconnaissance Office and CIA rely heavily on automated search tools to comb through their collections and identify valuable information.

"The challenge facing our analysts today is the volume of information," said CIA spokesman Preston Golson.

The hiring spree will not come to a screeching halt, however. NGA spokeswoman Muridith Winder said the agency does not expect any net growth in the number of analysts after fiscal 2012, although analysts will still be hired "in anticipation of attrition and changing mission requirements."

### Looming Budget Cuts

Yet the government officials who need increasingly powerful search tools and additional analysts may find it harder to pay for them in the years ahead. Opinions vary about how tight the budget will get, but most experts expect intelligence spending to at least level off and possibly decline, based on comments earlier this year by top intelligence officials and lawmakers. James Clapper, director of the Office of National Intelligence, told a House panel that he understands the intelligence community is "in for some belt tightening," according to wire reports.

The deficit reduction plan approved in early August caps dis-

cretionary spending to reduce defense and domestic spending by \$917 billion over 10 years. A group of 12 lawmakers on the deficit reduction panel are tasked with identifying by Nov. 23 at least \$1.5 trillion in additional spending cuts over 10 years.

If that panel, called the Joint Select Committee on Deficit Reduction, fails to identify those cuts or to win congressional approval of the plan by Dec. 23, government agencies will face across-the-board spending cuts of \$1.2 trillion equally divided between domestic programs and national security accounts, including intelligence agencies, the Defense and Veterans Affairs departments and the Department of Homeland Security.

"Flush intelligence budgets of the past decade are over," said Andy Johnson, former staff director for the Senate Intelligence Committee.

To keep development costs down, Schwartz, the Air Force chief, said the video-cuing tools should be adapted from the commercial sector, including the broadcasting industry — they should not be "new inventions," he said.

As for hardware, Johnson said defense and intelligence organizations should no longer anticipate "unbridled growth" in the number of manned and unmanned vehicles used to collect information on potential adversaries or targets, a congressional aide said. Many of the large airships on the drawing boards may simply be too expensive to build and deploy, the aide added.

Even without that new crop of data-collection platforms, current and anticipated data streams are astonishingly large. The Air Force will need 2,000 analysts to process data drawn from a single drone equipped with a Wide Area Airborne Surveillance sensor, now-retired Marine Corps Gen. James Cartwright said in November at a U.S. Geospatial Intelligence Foundation conference.

As the Air Force equips Reaper UAVs with Gorgon Stare, the next-generation sensor designed to capture moving images of an area 8 kilometers wide by merging the view from 12 different angles, the data deluge will be even greater.

To meet the demand for data analysis, the Air Force has hired about 1,250 active-duty personnel for data analysis jobs in the last year, Bethel said. Another 1,250



U.S. AIR FORCE

**Fewer Analysts:** The U.S. emphasis on budget cuts is leading intelligence officials to stress the importance of automation in gathering information. Here, Senior Airman Brandon Cochran, right, and Staff Sgt. Nick Rasser, imagery analysts for the 362nd Expeditionary Reconnaissance Squadron, demonstrate processing data and imagery from a MC-12W aircraft.

are scheduled to join their ranks in the next year.

Most of them will be enlisted personnel, and they will work in the Air Force's intelligence stations, known as Distributed Ground Systems, the sites where imagery and other collections arrive from the U-2s, Global Hawks, Predators and Reapers. All told, the Air Force expects to more than double the number of uniformed intelligence analysts from 1,900 in January 2010 to about 4,400 by 2013.

"We have probably hit the wall as to how many people we will get, but we have not hit the wall as to the amount of electrons flowing into, for example, the Distributed Ground System sites," Bethel said.

### Growing Market

With the hiring spree for new analysts coming to an end, industry officials see the market for automated analysis tools as a potential bright spot in an otherwise gloomy budget landscape.

"We haven't made nearly the investments in information processing to accelerate the flow of information through the system," said Mark Bigham, vice president of business development for Raytheon Intelligence and Information Systems. "Unfortunately it's not the sexy, shiny piece. The air vehicle is."

The tools would not think for analysts, but they could give one person the power to do the work that today requires many analysts. Of particular concern for the military is the analysis of video feeds and motion-imagery feeds. Right now, analysts spend hours watching uneventful feeds for insurgents with weapons to emerge from a target, or combing through archived video to assemble intelligence reports.

Kitware, of Clifton Park, N.J., is one of the companies vying to solve that problem. It has been working under contract with the Defense Advanced Research Projects Agency since 2009 to develop software to help military customers search for images of people performing specific activities, such as digging or running, in live streams of full-motion video or archived footage.

Harris is using technology developed for commercial broadcasters to assist military analysts in processing full-motion video streams, enhancing that data by adding sound or text to highlight important elements.

Cognika Intelligence and Defense Systems has been working for the last year to modify software used in the pharmaceutical and oil industries to search data streams and identify common elements.

"Say there is an event like men digging," said Christian Connors, president of Cognika, based in Brookline, Mass. "We can immediately give the analysts any human intelligence reports for that area, for that person or for that activity, any signals intelligence, cellphone capture, emails that have been traced. We can tie all that into one common operating picture for the analyst or the soldier or the commander."

The results of that search are produced in a Google-like format. "Instead of giving analysts a thousand reports to sift through, we would show the three most relevant reports on that person, that activity or that area," Connors said. "So it's really a point-and-click, Google-like search for intelligence data." □

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