

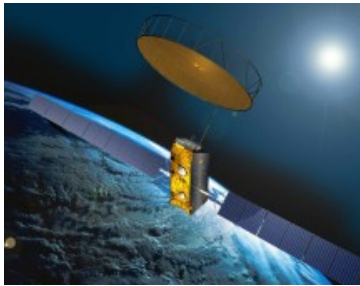


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Any Conditions, All Resiliency

An Interview With Rebecca Cowen-Hirsch, Inmarsat President of Government Services



Written by: [Eric Tegler](#) on May 6, 2011
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The Inmarsat-4 satellite. The majority of U.S. military communications go through civilian satellites. Photo courtesy of QinetiQ

As the events of May 1 unfolded in a compound north of Islamabad, Pakistan, President Obama and his national security advisors watched them in real time in the White House Situation Room. Their ability to do so – and indeed the ability to carry out the daring raid that killed Osama Bin Laden – was facilitated by America’s network of satellites. Today, as on that day, in excess of 80 percent of DoD communications flow across commercial satellite networks.

The commonly held idea that our federal government is a sprawling leviathan is at once right on target and a little misleading. It may be more accurate to say that the U.S. government is big but it doesn’t have much “bench strength.”

Take satellites. The American defense establishment is absolutely dependent on them for ISR, imagery, guidance and communications. Today, the U.S. government owns/operates a constellation of about 15 communications satellites, including Global Broadcast Service (GBS), Defense Satellite Communications System (DSCS) and the latest Wideband Global SATCOM system (WGS) satellites. Sounds impressive until you realize that most (over 80 percent) of DoD communications are carried by commercial satellite networks. Among the most relied upon is Inmarsat.

“We’re about making sure you can get through in any weather, any conditions, all resiliency operation,” Rebecca Cowen-Hirsch affirms.

Cowen-Hirsch is the president of Inmarsat’s Government Services arm. A former senior DoD executive and notable flight test engineer, she points out that the origins of Inmarsat derive from the age old plight of those in distress at sea.

The International Maritime Satellite Organization (Inmarsat) was founded in 1979 as a non-profit international organization launched by the U.N.’s International Maritime Organization (IMO) to establish a satellite communications network for the maritime community.

Some 79 countries signed on to the International Convention for the Safety of Life at Sea, Treaty (1974) which gave rise to Inmarsat. Just over two decades later, the inter-governmental organization became a private UK-based company. In 2005, it went public, trading on the London Stock Exchange. Despite its corporate status, it remains essential to maritime safety and honors the responsibilities set forth in its creation.

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"Our core business still remains the maritime sector," Cowen-Hirsch, says. "Today, we're flying 11 satellites on orbit comprising three different generations of Inmarsat satellites – Inmarsat 2s, 3s, and our most current generation which is our Inmarsat 4."

Inmarsat 4 goes by the name Broadband Global Area Network or BGAN. It is the company's signature offering, a voice-over-internet protocol-based L-band (950-1450 MHz) constellation of three geosynchronous satellites providing a maximum 429 kbps per second throughput. Inmarsat will soon add another satellite to BGAN – Alphasat, a European Space Agency-developed satellite – with the latest in L-band technology.

"We like to refer to it as an Inmarsat-4 or BGAN on steroids," Cowen-Hirsch says. Alphasat will be flown over the Europe/Africa/Mid-East region bringing smaller spot beams, more power and greater throughput to bear for both commercial and governmental traffic.

Inmarsat's L-Band infrastructure is heavily relied upon by commercial clients in situations including disaster response. In such situations, "The media goes in with Inmarsat BGAN and does streaming videos," Cowen-Hirsch points out. The company promotes its maritime focus through activities like sponsorship of the Volvo Ocean Race sailing competition.

Nevertheless, government clients are central to Inmarsat's success. Some 40 percent of the company's 2010 revenue (\$1.17 billion) derived from the provision of communications capacity for defense, public safety, emergency preparedness, disaster response and other governmental operations. Approximately half of Inmarsat's government services are consumed by the U.S. government.

"Certainly what we're seeing is that – independent of service branch – intelligence, surveillance, reconnaissance [capacity] is the most in demand. That's true for our system as it is for many others," Cowen-Hirsch says.

The Navy in particular has shown increased demand for broadband services particularly in austere environments like the maritime reaches Inmarsat serves. In addition to command/control/ISR, the services already use Inmarsat's BGAN for applications including telemedicine, distance learning, morale/welfare/recreation on ships, and in-flight route planning.

The remainder of Inmarsat's government clients are spread throughout Europe, the Pacific, Asia and the Middle East. Despite the sensitivity of major chunks of such communication, Inmarsat remains detached in principle.

"All we are is 'pipes in the skies,'" Rebecca Cowen-Hirsch stresses. "We don't track any of the data flowing across our satellites. We're a peaceful organization."

Inmarsat's government users (and commercial clients) have proprietary encryption systems. The company's networks are compatible with any encryption format and its infrastructure is able to support VPN (Virtual Private Network) connections for various customers through its own terminals or through public service PSTN (Public Switched Telephone) networks.

"We're agnostic to additional data or link encryption capabilities. It does not affect our system," Inmarsat's Government Services president affirms. "We protect our command links. Our links to the satellites are National Security Agency Type 1 encrypted so that no one else can control or operate our satellites."

Thus the company maintains sufficient information assurance to maintain positive control over its satellites. Inmarsat maintains a "trusted relationship" with the Department of Defense Cowen-Hirsch says, noting that it is made aware of likely threats, inadvertent and intentional. The firm is also one of three founding members (with Intelsat and SES) of the Space Data Association which stores satellite data at its facilities on the Isle of Man to support avoidance maneuver planning and RFI mitigation.

"Of course, in the satellite industry any issues and interference are predominantly unintentional," Cowen-Hirsch notes, "though other operators have experienced intentional jamming so we do coordinate with operators as well as governments."

Those other operators compete peripherally with Inmarsat which dominates the maritime and narrow band (L-Band) arenas. Iridium is the only other global narrow band operator but is not viewed as direct competition. Other regional operators are providing complimentary services however.

"Where we're finding crossover in markets is in the VSAT (Very Small Aperture Terminal) arena in the maritime sector where you have that blending of fixed-satellite service to mobile satellite service capability," Ms. Cowen-Hirsch explains. "Inmarsat is right alongside VSATs operating on ship decks. As applications require additional throughput and increased data rates, that does stress an L Band system."

The demand for additional throughput is the key driver in the launch of Inmarsat's Global Express Ka-Band network. The new three-satellite broadband constellation will run alongside Inmarsat's existing networks and provide a leap in capacity. Built by Boeing, Inmarsat-5 or Global Express (GE) satellites will be capable of flowing 50 megabytes per second to a 60 centimeter stabilized antenna – a 40X increase in globally available throughput.

Higher throughput to smaller, more portable terminals will eagerly be sought by Inmarsat's customers including DoD. With the first GE satellite launch schedule for 2013 and full network operation in 2014, Inmarsat should enjoy considerable advantage competing for the next contract round of the U.S. Navy's Commercial Broadband Satellite Program (CBSP). Intelsat was awarded the first (\$543 million) contract which extends through 2014. Inmarsat may bolster its bid by adding X-, Ku- and C-Band capacity to Global Express.

Each GE satellite is built on a 702 HP satellite bus and hosts a base payload with 89 fixed and six steerable antennas.

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spot beams providing in excess of 17.3 GHz capacity. On top of that, Inmarsat has added an overlay which can effectively double total capacity.

“What’s different about the overlay is that it has six steer-able spot beams per satellite, fully tune-able between commercial and military Ka which provide additional capacity,” Cowen-Hirsch explains. “We learned in Haiti that when you go from five users to 500 users simultaneously, you need to float additional capacity. Global Express allows us to provide additional capacity when and where required for either commercial or military Ka.”

That capacity will be made available faster and cheaper than the current Ku-Band competition Cowen-Hirsch asserts. She adds that the vital “ground segment” of the network (terminals, ground stations) will be ready simultaneously to the satellites. Too often, ground segments are not fully functional when satellites go live. Global Express benefits from a decade of miltatcom studies which not only defined capability but interoperability. The constellation will be fully compatible with terminal suites already in the U.S. defense inventory.

From a defense standpoint, Inmarsat sees Global Express and its other networks as complimentary to existing and future DoD satellite architecture. That architecture Ms. Cowen-Hirsch notes will need augmentation.

“It’s a well documented fact that military requirements continue to grow exponentially and that they far outstrip the available capacity of miltatcom even when the full WGS system is deployed.”

In addition to interoperability, Global Express can provide capabilities not designed into government satellites including aerial ISR links for UAVs and long-haul ISR track following. Global Express also has the channel optimization to more effectively support mobile users, a capability in short supply since the cancellation the TSAT (Transformational Satellite) program.

Perhaps the most attractive feature of the new network is the strength of Inmarsat. Global Express is fully funded, primarily by the company itself. As such, it will not require any up-front commitment from customers, military or commercial. In an austere budget environment, the value of outsourced satellite services, whether from Inmarsat or its competitors can be compelling. The outsourcing trend, Rebecca Cowen Hirsch says, is likely to increase as global governments seek additional capacity for everything from media to secure communications.

“You can acquire the same type of interoperable capability from a commercial service at significantly reduced cost with greater flexibility than buying another military owned/designed satellite which history has shown will be over cost, behind schedule and not meet capabilities. We take on the ownership risk, ground operations, sustainment and manpower, and insure that interoperability is met and terminal prices are very affordable.”

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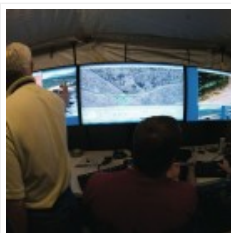
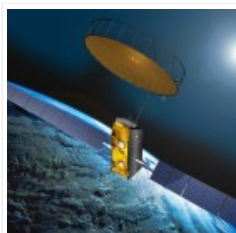
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