Policy

Eyes to the heavens

Australia has been accused of allowing other nations to do the heavy lifting with satellite technologies. But there's change on the horizon. **JAMES DUNN** *reports*

Swarms of space debris: An illustration depicting objects in Low Earth Orbit. With space becoming more congested, new "road rules" for space are being sought

WE could not live without satellites. SatNav and GPS have become household words, we constantly scan the Bureau of Meteorology website for the weather, to say nothing of using our mobile phones and ATMs.

We rarely think of those 3000-odd pieces of hardware up there in space, orbiting and pinging away.

But we are about to start – as a nation – thinking about it much more closely, with the Federal Government set to release a comprehensive national space policy later this year.

This is long overdue, says Brett Biddington, principal of Canberra-based space, cyber-space and security consulting firm Biddington Research. He says Australia is the only OECD (Organisation for Economic Co-operation and Development) member not to have a formal space policy.

"Australia is not a space-faring nation, that builds and launches satellites, but it is a highly sophisticated user of space-based services," says Biddington. "Nations like Australia that don't operate their own satellites, but still have critical dependencies on the data that comes from satellites, need to be very mindful of what their interests are, and to be prepared to argue their point of view in space diplomacy."

Biddington says there are three main kinds of satellite, all of which carry "applications of national significance" to Australia. There are earth observation satellites (EOS), which provide meteorological data and land data; position, navigation and timing (PNT) satellites, such as the Global Navigation System Satellite (GNSS), which gives the Global Positioning System (GPA) data; and communications satellites.

"We depend on the satellites of other countries for our meteorological data, ground and ocean data of all sorts, and will continue to do so for some time," Biddington says. "In the second case, we certainly use all of the satnav, GPS-enabled phones and mapping services like Google Earth, which are becoming increasingly important in personal navigation and planning. GPS is simply provided to the world as a free good by the USA. All of us, whether we're in Nigeria or Australia, take GPS for granted: it has become a virtual global utility."

And in the third case, says Biddington, Australia has always needed satellite communications, and will into the future.

"As a nation that depends on all three kinds of satellite, we need to have our interests very clear in our mind. The thing about the space regulatory regime is that it was established in the Cold War, and is still driven from Washington, because the US is the dominant space power. It's fair to say that the space-faring nations think that Australia hasn't perhaps pulled its weight; there's a view that we've been a bit supplicant in our relationship the US, letting them do the heavy lifting on policy," says Biddington.

The irony is that back in the heyday of rocketry, in the 1960s, Australia was a major space player. When the first Australian satellite, WRESAT, was launched from Woomera in November 1967, Australia became the seventh nation to launch a satellite into orbit, and just the third from its own soil.

Three years later it was all over, when a satellite launched from Woomera on a European Launcher Development Organisation (ELDO) launcher failed to reach orbit.

Australia has not launched a satellite since, but it returned to the satellite business in 1981 with the formation of a national satellite company, Aussat, charged with establishing a domestic communication satellite system. Aussat – which launched three satellites, using the space shuttle twice and the Ariane-3 rocket once – was a commercial failure, losing $700 million of Australian taxpayers' money. But ironically, Aussat gave Optus (now owned by Singapore Telecom) its start: when Optus was granted a telecommunications carrier licence in 1991, it was bundled with the purchase of Aussat as part of the deal.

"It's worth mentioning that Optus is the world's ninth-largest commercial satellite communications provider: it runs a fleet of five satellites at the moment, with a sixth being built," Biddington says. "Optus serves Australian needs as well as regional needs. NewSat plans to launch a commercial satellite, and of course the NBN is launching two satellites in 2015, which will be very capable wideband satellites. Satellite will remain a small but vital part of Australia's communications needs."

But space is not a vacuum, and neither is it an argument-free zone. Economics and geo-politics certainly escape earth's atmosphere: Biddington says some "critical arguments" are looming.

"Surging demand has seen prices for satellite bandwidth double over the past five years. Big battles over spectrum are looming, as the world of ubiquitous communications demands access to more bandwidth. Here in Australia, for example, the Department of Defence will come under pressure to release some of the bandwidth it holds."

The other critical question, he says, is continued access to data from satellites. "Some countries don't trust the USA, and think that they might turn GPS off. That's why the Europeans are investing in the Galileo system, China is investing in Compass, or Beidou, India has plans to launch its own GPS-like system and the Japanese are also tinkering. For Australia, we've got to think of these things."

Biddington says the time will probably come "some time in the next decade" when the government will realise that there are some particular national interest requirements that are not being met by satellite providers – and Australia might invest in its own earth observation satellite, for example. In any case, he says, with space becoming "more cluttered and contested," it is important for Australia to participate in developing "new road-rules for space".

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> **BRETT BIDDINGTON**
> Principal of Biddington Research

Profile

New player plans its game-changer

By **JAMES DUNN**

> "Orbital slots are the lifeblood of satellite operators, and to have multiple slots is the goal of long-term entrants"
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> **ADRIAN BALLINTINE**
> NewSat founder and chief executive

IT'S sometimes a tough road, being unique – and that is probably how the folks at NewSat feel.

NewSat is Australia's largest specialist satellite communications company, and the only one listed on the Australian Securities Exchange (ASX). It delivers internet, voice, data and video communications via satellite to a range of corporate and government customers worldwide, including the US Department of Defense, through leased satellite capacity.

The company is poised to complete the $580 million financing of its own satellite, Jabiru-1, which will be Australia's first independently owned commercial satellite, and the first of a planned five-satellite fleet.

But NewSat struggles for support on the local stock market (the shares are also traded on the OTC Pink market in New York). US and European institutions – which know the satellite business – are far more interested in the story.

It might have something to do with the fact that NewSat – which only became profitable two years ago – is trying to borrow four times its market capitalisation to build Jabiru-1 and get it off the ground.

If it does, the satellite will be a game-changer for the company. Operating a satellite is a good business, because once parked in its orbital slot, satellites do not have large operating costs. NewSat founder and chief executive, Adrian Ballintine, says the company can expect an 80 per cent EBITDA (earnings before interest, tax, depreciation and amortisation) margin on its satellite revenue.

"The idea with Jabiru is that we turn our business from a 30 per cent margin business, using other people's real estate, to an 80 per cent margin business, using our own," he says.

NewSat buys high-bandwidth capacity from seven vendors over 10 different satellites, and sells communications services to a range of government and enterprise markets including mining, oil and gas, media and carrier-grade telecommunications companies.

NewSat listed in 1999, at the height of the dot.com fever, as Multimedia Limited, an internet technology developer. But in the early 2000s the company moved into satellite communications, offering satellite broadband services in Australia, Asia and the Middle East, under the name NewSat, which became the company name in 2006.

The service used Dutch fixed satellite company NewSkies' fleet of six geostationary satellites. In 2005, the company bought NewSkies' two modern teleport facilities in Adelaide and Perth. At a stroke, this made NewSat one of the largest teleport operators and satellite service operators in the southern hemisphere.

In particular, NewSat built up a solid base of customers in the mining, oil and gas and pipeline industries – all of which needed the ability to transmit large chunks of data, voice and video to and from remote locations, securely.

The high security and reliability of the NewSat link also caught the attention of the Pentagon, plus the fact that the NewSat satellite network has some of the best 'look' angles into the Middle East. The upshot is that since 2008, NewSat has provided mission-critical communications for the US military in Afghanistan. For example, NewSat carries all of the 'welfare' communications – personnel talking to family and friends online or by video-link – to and from Afghanistan.

In February 2011, NewSat bought seven orbital satellite slots, which will serve as a platform for its proposed Jabiru Satellite Program (an eighth slot was added in March 2012).

"Orbital slots are the lifeblood of satellite operators, and to have multiple slots is the goal of long-term entrants," says Ballintine.

So is having multiple satellites. In December 2011, NewSat signed Lockheed Martin to build Jabiru-1, which it plans to launch in the second half of 2014, through Arianespace. The satellite's Ka-band payload will provide high-bandwidth communication services to government and corporate markets including mining, oil, gas, military, media and carrier-grade telecommunications, across 75 per cent of the earth. So far, NewSat has secured $380 million from export-credit agencies for the satellite – $280 million from the US-government-owned Export-Import Bank as a direct loan, at 2 per cent, and a $100 million bank guarantee from Coface export-credit agency of France.

"We are closing on the final $200 million, with most of the interest coming from the US, Europe and Asia," says Ballintine.

AFP, MUNIR UZ ZAMAN

Call home: NewSat links US soldiers in Afghanistan to family