SPEECH | A FAIR GO FOR AUSTRALIA

RICHARD MARLES
SHADOW MINISTER FOR DEFENCE
MEMBER FOR CORIO

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CHECK AGAINST DELIVERY

Can I start by acknowledging the Ngunnawal people, the traditional owners of the land on which we meet and pay my respects to their elders past and present. Can I acknowledge the Minister, Michalea Cash and former senators Kate Lundy and Stephen Conroy to this event, and can I also thank ASPI for exquisite timing in hosting this event in terms of this moment in Australian government decision making, but also where the space industry is at.

Let me start by saying I will confess to feeling a little over awed by the company that is present here today and that me addressing you on the topic of space leaves me feeling a little inadequate. Last night ASPI hosted a small dinner for me where I was the key act and I think there was probably 15 or so people at the dinner and as I started speaking about space I realised that there were two people present who had actually been to space and so whilst the intricacies of Labor policy in relation to space and industry statistics were all pretty good, nothing really compared to wanting to know the answers to vital questions; such as what does it actually feel like when blast-off is happening, how do you get to sleep in space and the really critical question of whether or not anyone has ever smuggled booze into space.

Interestingly the answer that question is that the French tried, the Russians succeeded, as it turns out, and the idea on a lazy Sunday afternoon on the MIR space craft having a sip of fine cognac is really now right up there on the very top of my bucket list so I will do my best to be entertaining this morning, but you've got a lot more people in this audience who will be able to give you much more informative speeches about space.

Space has been knocking on Australia's door for more than 60 years, going right back to 1957 of the International Geophysical Year, the year in which Sputnik was launched but the year also in which the joint Australian UK Weapons Research Establishment started doing tests with sounding rockets in high-altitude launchers. From that moment on our friends, our allies, have viewed Australia as a place ideal to look to the heavens. From NASA to ELDO, from Honeysuckle Creek to Woomera,

they have been beating a door to our nation, and almost beyond our choosing Australia's relationship with space has seemed a part of our national destiny - and for good reason. The geography of our continent, both our longitude and our latitude is ideally suited to space, living as we do in the East Asian time zone but also looking as we do upon the southern sky. But it's more than that. We're a developed country with a highly educated workforce which can help facilitate and resource this work, and of course importantly we are allies in a politically stable democracy.

My first role in executive government was as the Parliamentary Secretary for Innovation and Industry, and amongst the many tasks that I had in that role, perhaps the most important, was in effect being Australia's first science tourist, which as a science graduate was something that I absolutely loved and as I went around and looked at Australia's key pieces of scientific infrastructure, again our relationship with space became completely clear.

From the Square Kilometre Array radio telescope being built in part in Western Australia, I remember going to Geraldton and learning the unbelievable stat that once this is up and running at full pitch as much information will come down in a second from that radio telescope as exists on the Internet today. That is an absolutely, unbelievable, mind-blowing fact.

The Anglo-Australian Observatory in Coonabarabran. This was built or commissioned I think 1974. That's 44 years old, and to this day it ranks as the most productive 4-metre optical telescope in the world – indeed, it is one of the five highest-performing optical telescopes, including Hubble, on the planet today.

And the giant Magellan telescope, going to be based in Chile. Through the ANU we are a 10 per cent stakeholder in it. It comes online in about 2025, and I remember listening to a lecture about what it would discover: that not with a probably, with a possibility, but with a high degree of probability by the end of the 2030s, knowing where to look in the universe, there is an expectation that what we will see are planets with atmospheric biomarkers. There'll be a moment when we actually see that there is life elsewhere in the universe. We won't know what it is, we won’t know how to communicate with it, and it will in fact be thousands of years old given how long that light has taken to reach us, but we will know at that moment that we are not alone. That's going to happen before 2030. In the human experience this is a profound and deep moment and Australia is right there at the forefront of it.

I remember going to Tidbinbilla, just here in Canberra, to the CSIRO NASA deep space network and looking at an Australian CSIRO employee working on a console communicating with Voyager 1. This is the furthest human-made craft from the Earth today. It is well beyond the extent of the solar system. It takes minutes between the button being pushed in Tidbinbilla and the information being received on the Voyager craft. I watched this guy actually give Voyager instructions and I watched him receive information from Voyager. I had no idea what that information was, but the communication with that craft at that moment was a deeply emotional experience for me to witness.

The sum of all of that is that this destiny, that in a sense has been chosen for us, that we have been participating in has meant that as we stand here today in 2018 Australia has enormous expertise in space matters. Astronomy is one of our national scientific strengths, so this is a really natural endeavour for us to pursue.

Yet, from the outset there has been something of a reluctance on the part of government to engage in the full-throated endorsement and pursuit of an Australian space agency. Going right back to 1959 there was an Australian National Committee space research proposal that was rejected. The Weapons Research Establishment also had a proposal in 1968 also rejected. In 1970, the Australian Space Research Agency program: knocked back. The Hawke Government did establish the Australian Space Office, but it was abolished by the Howard Government. The Rudd Government established the Australian Space Research Program. It in turn was abolished by the Abbott Government.

I say all that as a prelude to the fact, and having heard our Minister speak now, that we are at a moment in terms of government policy, bipartisan policy, where we are witnessing a really significant change. This is a threshold moment in Australian government action. On 15 March this year Labor announced that were we to be elected we will establish the Australian Space Science and Industry Agency, and on 14 May this year the Government announced the establishment of the Australian Space Agency to be headed by the fabulous Megan Clark. Megan, who has been a director at CSIRO, we could not be choosing a better person to be the lead CEO for the Australian Space Agency.

As we look at this next moment in terms of Australian government action in respective of space, I agree with Brett Biddington in the paper that he wrote previewing this conference today, where he said that this time it does feel as though it's for real, for three reasons.

There is bipartisanship, and it's not just bipartisanship in terms of an aspiration to do this. It's actually backed up by financial commitment from both sides of politics. There is a community awareness today unlike that which we've ever seen before about the significance of the space backbone to our everyday lives: the use of GPS, sat nav, mobile phones - you name it, we rely on a space backbone, and I think that is understood by the community. The third point Brett makes is that there is a defence engagement in the need to develop Australia's place in space.

To those three points I'd add a couple of others. Public policymakers really understand that the increased accessibility to space, what's being described as space 2.0, the ability to put very small satellites into space at comparatively low cost, has seen a burgeoning in this industry: $420 billion industry globally. It's a killer stat for a public policy maker, but there is a second killer stat for an Australian public policy maker and it's this: that of that enormous global industry today right now Australia enjoys 0.8 per cent share. Just a 0.8 per cent share. We should be doing far better than that.

I think the other point as to why now is a moment that is being grasped in terms of our engagement of space is how critical these technologies are, particularly to Australia as a nation both in terms of the size of our continent but also the makeup of our economy. Be it the management of agriculture, the management of logistics, maritime surveillance, or dealing with natural disasters, space-based technologies Earth observation from space, are absolutely critical to how we deal with each of these issues.

Megan in her paper for today said that we might be late comers to having a space agency but in a sense there is a benefit associated with this because we establish our administrative footprint in this way at a time when the industry itself is going

through such a revolution and I agree with that - a revolution, as I said in terms of the accessibility of space. UNSW are right now being funded through a grant by the Air Force to develop three small cubesats, one of which was launched earlier this year, is a great example of that. There's also a revolution in terms of ground-based industry relying on space technologies from automation - automation in terms of transport, automation in terms of manufacturing, and the management of logistics - right through to artificial intelligence.

Indeed if you read all the articles that were published in the lead up today you feel your head is spinning. This is a time of enormous disruption and change when it comes to this industry, so the need for a coordinated response to help Australia enter this field is absolutely vital and there may well be an advantage that we begin our thinking in this sense right now; that we begin our thinking in an administrative sense knowing exactly how accessible space is.

There's also another point about how different space engagement is today compared to 1957. At the start, space engagement was almost entirely government-driven. It was a frontier that only the resources of government could meet. Right now, in terms of that global economy, three-quarters of it, more than that, in fact, is private sector, and so a key part of what an Australian Space Agency must be about is being a lead for Australian industry to engage in that global opportunity, but it does require, as the Minister said a government to open the door. It does require a focus on research, and it's why the Labor policy in relation to space is so heavily focused on making sure that we resource research in this area through the establishment of for-industrial transformation research hubs; through the resourcing of 25 PhDs working collaboratively with industrial partners.

Research - government-funded research - as a mechanism by which we can encourage industry to participate in this sector is a vitally critical function of a new space agency, but it's not just a means by which we assist industry in walking into this opportunity. In a bigger sense we need to create a national Australian space voice that can articulate a position for us in respect of the global commons of space where there are now very significant issues emerging; issues such as space debris, which goes to the question of the utilization of space in the future and dealing with space debris and removing it is a huge global challenge; as are the rules of the road, if you like, in terms of the creation of space debris.

Having a single Australian voice in that discussion is critical, and perhaps more so it's critical that we have a single Australian voice on the question of the militarization of space which is increasingly occurring. Defence then becomes a central line of thought when we are considering Australia's engagement in space. To be sure, it is part of the driver of why we are engaging as a nation right now.

I've been in the role that I'm currently in now for almost two years, and as I've gone around our defence establishment, looked at what our service men and women do, the sorts of equipment that they use, it becomes really clear how central to our military effort is the idea of connectedness.

Now, you look at the Joint Strike Fighter, which is a remarkable platform. There's been quite an ill-informed public debate at times about the effectiveness of the Joint Strike Fighter, but when you look at what it is, it is much less a traditional fighter plane as we might imagine from the Battle of Britain, engaged in dogfights or something of that kind, as it is in fact a command and control centre positioned on

the platform of a fighter plane. As it engages in action it will be in control a whole lot of weapon systems which may not be connected with the plane itself but which may be on different platforms in and around the battle space. To do that it has to engage in a space-based technology, communicating via satellites. Battle management systems being used by our soldiers right now in the Army: same deal. Combat management systems on our key platforms, including our naval platforms, again fundamental to the connectedness of those platforms is the utilization of space technology.

Perhaps for me the most poignant example of this was visiting the Combined Air Operations Centre in Qatar, which manages the coalition's air effort across the Middle East. At that point when I was visiting it, which was May of last year, I was watching unfold before me within this room the battle to take Mosul in northern Iraq. As you sat in that room and looked at the information that was being put in front of those who are making decisions - the clarity of that information, the granularity of it, you could see a battle unfolding in streets, particular buildings, particular individuals - what becomes utterly apparent as you take a step back is that the ability to engage in that kind of war fighting is utterly enabled by space-based technologies.

As Darin Lovett says in his piece for today's conference, what has been at the heart of a technology-based US Defense Force has been a space backbone. Again, you look at our own plans, the Integrated Investment Plan has Australia spending billions of dollars over the next decade or so in relation to space technologies: $500 million for a military satellite capability; $1-2 billion for space situational awareness systems; $3-4 billion being spent on satellite imagery capability. It's at the center of how we are building our modern Australian Defence Force.

Space is a new domain, just as air was back in the 1920s, and that's been recognized by the US, which at the end of last year established the US Joint Force Space Component, a component which has a command of 30,000 servicemen and women working in that. As we look at this as a new military domain it begs the question of what sovereign capability for a country like Australia looks like within that domain. What is it that we should be able to do ourselves? What role would we want to seek to play in this domain?

These are all really critical questions, and to be sure they’re military questions, but there are actually questions which need to be thought through by government as well. An Australian space agency should have a very clear sense of what its view is about what our sovereign capabilities should be in a military context as well. Indeed, forums such of this, I think, and hence the exquisite timing in this forum, are really important in discussing what an Australian sovereign capability looks like in relation to space.

For all the importance of space as an industry opportunity, space in terms of providing military capability, I think there is ultimately a more profound implication associated with a greater Australian presence in space. Science and technology, for me, and infusing our economy with it, is not just important. It is in fact, I think, today the single most important piece of microeconomic reform that we have to engage in as a nation. We need to be climbing the technological ladder and we need to be doing far more than we are right now. If we don't we're going to find that our near neighbours clime it at a rate where we are overtaken, such that the country that our children will live in in the second half of the century will look very different to the one that we've enjoyed up until now.

Infusing our economy, infusing our culture, actually, with science and technology is a deep challenge. It asks us to change Australia's cultural relationship to science, to embrace it more, to have our kids making the decision to study STEM at school, because the truth is that for the past few decades we've actually seen the rate at which children have been choosing to study science decline.

I was born in 1967. I don't remember the Moon landing, but the Apollo program stood as a backdrop to my entire education. When I was in Year 10, the age at which you make a decision to drop science or to pursue it, for me it was a natural choice. Landing on the Moon was the single most profound achievement of humanity. Science and technology, which was at the heart of that achievement, was the coolest thing that you could possibly do.

It wasn't just a scientific endeavour. This was a popular endeavour which was at the heart of our culture. This was an endeavour which was on the front page of our newspapers. It infused the way we thought about life.

Now, I made that decision in 1982. It turns out that that was, in fact, the very peak of the graph of those students making a decision to study science. That it happened in the wake of Apollo I actually think is no coincidence. We were inspired by that event.

Big science plays a huge role in inspiring the next generation to take it up. It plays a huge role in actually meeting the challenge of infusing our economy and our culture with science and technology.

Now, I look around what Australia is doing at the moment and actually see big science everywhere. I see big science particularly in the arena of space. What I mentioned earlier with the giant Magellan Telescope, with the Square Kilometre Array telescope, the discoveries that we will make in the next 10 years, this is huge and the idea it's not on the front page of the newspaper I find baffling.

Yet the truth is that when you go around schools and ask them whether they've heard of the SKA or the giant Magellan telescope, basically people stare at you and blink. That needs to change, and I think an Australian Space Agency has a critical role to play here because nothing inspires like space. It is the furthest frontier, the ultimate frontier of human endeavour, and I think amidst all that an Australian Space Agency looks at and does, central to it must be working out ways in which a greater Australian engagement in space, can act as an inspiration for Australia to begin to change our cultural relationship to science.

This is absolutely critical. It's not just critical in terms of the way we pursue science. I actually think it’s completely critical in terms of the future of our economy, and so to that end I think the position that we've now arrived at by both political parties supporting an Australian space agency couldn't have come a moment too soon, and it is a wonderful opportunity for our country today.

Thank you.

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Authorised by Noah Carroll ALP Canberra