

Auspace

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Committee Secretary
Senate Economics Committee
Department of the Senate
PO Box 6100
Parliament House
CANBERRA ACT 2600
AUSTRALIA

Our Reference: NOVA-CBR-936

15 May 08

Dear Sir,

Re: AUSPACE SUBMISSION - INQUIRY INTO THE CURRENT STATE OF AUSTRALIA'S SPACE SCIENCE & INDUSTRY SECTOR**Introduction**

Thank you for the opportunity to make a submission to the Inquiry into the Current State of Australia Space Science & Industry Sector. Auspace has a proud history of support to the space industry within Australia. We welcome the opportunity to contribute to government plans for this sector over the next 10 to 15 years.

Background

Auspace has contributed to the development of space industry in Australia since its inception in 1979. Auspace is one of the few Australian firms that can proudly claim to have the product of our endeavours in orbit at present. Until December 2007, Auspace as a subsidiary of EADS Astrium had a capability to conduct satellite engineering, i.e. hardware production, in addition to communications and software engineering consultation. As a result of the Defence Department's decision to pursue WBGF, EADS decided to wind up its space-based business in Australia. One of the prime drivers for this decision was the lack of a centralised government authority to deal with space, and the ensuing confusion that this created.

Nova Defence, a wholly owned Australian company, purchased the consulting arm of Auspace and is in the process of rebuilding this company. It is in the capacity as a space consulting firm that Auspace makes this submission to the Senate investigative committee.

Outline

The Senate invited submissions into three main areas:

- a. Australia's capabilities in space science, industry and education.
- b. Arguments for or against expanded Australian activity in space science and industry.
- c. Realistic policy options for space.

This submission will:

- a. Describe Auspace's capabilities in the space industry.
- b. Provide comment on the need for a central government coordinating agency releasing clear policy to decrease the risks associated with reliance on foreign owned and operated space infrastructure and improve the viability of the Australian space industry in the competitive international marketplace.
- c. Outline options for policy creation and implementation.

Auspace Capabilities in Space Science Industry and Education

Auspace current capabilities are focused on high-level consultation and provision of software based planning tools in the satellite communications field.

Space Tools

Auspace has two product offerings; Satellite Toolkit (**STK**) and Satellite Interference Tool (**SIFT**).

STK is a state-of-the-art modelling and simulation software that allows for the planning and control of satellites, aircraft and terrestrial objects. Key applications for STK include:

- a. Battle space management.
- b. Geospatial intelligence initiatives.
- c. Management for the optimised use space based systems.
- d. National defence programs.

STK's analytical engine calculates data and uses advance visualisation methods to present various time-dependent information for satellites and other objects such as launch vehicles, missiles, and aircraft. **STK's** core capabilities include object/ephemeris generation, line-of-sight calculations, and sensor coverage analysis taking into account atmospheric and radio frequencies properties. **STK** includes more than 25 specialized add-on modules.

Far more than simply a product supplier, Auspace has and is further developing the capability to customise **STK** to meet the specific needs of the Australian market. This customisation is vital to ensure that Australian industry has a tool that meets its needs and represents value for money. By providing customisation and expert consultancy services Auspace delivers the Australian market with more than just a product. This is an essential part of maintaining the **STK** business in

Australia. On the other hand, to ensure that the US manufacturer devotes the resources necessary to maintain a long-term commitment to the Australian market Auspace needs to demonstrate Australia's commitment to developing and sustaining a viable space industry.

SIFT is an indigenous Auspace tool that allows for communications planning by minimising interference between satellite and terrestrial communications. There is high level of interest in **SIFT** in Australia and has significant potential internationally.

Training

Auspace conducts training in space operations, concepts and applications including communications and surveillance from space. Courses are tailored for technical or non-technical audiences.

For example Auspace currently conducts a range of satellite communications courses ranging from a one day high level overview course for senior Defence officers through to a five day detailed course aimed at Defence members planning satellite deployments. These courses were developed within Australia and are well regarded by the defence industry.

Consulting

In addition to the product and training offerings, Auspace has a team of highly qualified, satellite communications engineers. This expertise is vital to ensure that we are able to support the Commonwealth in solving complex communications problems.

Space Launch Operations Support

Auspace's parent company Nova Defence is the prime Australian company supporting the Department of Defence with safety, control and approval for rocket launch operations at the Woomera Test Facility. Nova is the only Australian owned company capable of providing this type of specialist space launch support within Australia. These capabilities have been proven through on going support to the Department of Defence co-operative Hypersonic research program utilising the Woomera Test Facility to launch the experimental payloads. This capability must be supported if it is to endure.

Nova also maintains a standing offer agreement with the Commonwealth's Space Licensing and Safety Office (SLASO) for the provision of specialist services in support of the Australian space licensing process required to meet the requirements of the space act.

Expanded Australian Activity in Space Science and Industry

Dependence on Foreign Owned and Operated Satellites puts at risk Australia's National Interests

Successive studies into the space industry, rightly or wrongly, have determined that it is not cost effective for Australia to acquire and maintain its own space assets i.e. a constellation of satellites. While the entry cost into space in some areas may be reducing and could change this situation in the future, at present, this means Australia is heavily "dependant" on foreign owned and operated satellites. As an aside it is interesting to note that Nigeria with a GDP of US\$127 billion (15% of

Australia's GDP) saw the importance of a focused space program and have launched their own indigenous satellite, so it seems eminently plausible for Australia to do the same in niche areas.

In the absence of a centralised controlling body Australian Government departments establish and maintain their own links with various satellite service providers. While this may provide some level of robustness in that the loss of one satellite service provider is unlikely to impact the whole of government it is likely to have the potential of completely losing a capability in a specific area.

Generally government departments are encouraged to minimise duplication (cost saving measures) which can be counter to the philosophy of robustness and redundancy. Reliance on a single service provider which is often the case for specialist space based services can leave the government vulnerable to cost and quality issues. Also, unless forced to, government departments would not generally add to the complexity of acquiring space based services by considering multi-departmental requirements and sharing arrangements that would consider robustness and redundancy for the benefit of the national interest.

While Australia maintains a heavy reliance on foreign space based services its is vital that a centralised policy and coordinating body is established to manage whole of government access to space based services ensuring:

- a. National interest issues such as security, disaster management are economic imperatives are considered.
- b. Cost and quality benefits fostered by healthy competition.
- c. Redundancy and robustness for critical functions are considered.
- d. Science, education and industry are focused on nation interests.

Viability of Australian Space Industry

The Australian space industry consists of a limited number of small local space related manufacturers (of which Auspace was one), Australian owned space related professional consulting firms (such as Auspace), and Australian offices representing multinational space industry companies.

In the absence of a government coordinating body with strong policy and strategic focus encouraging the Australian space sector manufacturers will continue to struggle against international competition, both within Australia and on the international market.

International suppliers of space based services will continue to prosper as a result of a lack of Australian policy for the space sector. The growth of Australian based participation by the international firms is unlikely to prosper in the current ad hoc environment due to uncertainty in predicting returns on investment. This would not be the case if policy and targeted strategic direction and support was provided in this coordinating education, science, industry and government space based requirements.

In summary, we argue that an Australian space policy body is vital to:

- a. Support Australian space related manufacturing.
- b. Optimise the application of Australian space expertise to the industry.

- c. Ensure a growth and participation in Australian based offices of international space related corporations.

International Cooperation

At present Australian departments access a wide variety of space related information for the 'Public Good'. In many cases, this information is provided through government to government agreements, however, a great deal of public good is simply information that has been purchased by another Department. Australians contribution to establishing and supporting satellite Australian based ground stations in support of foreign governments space based systems has been a key to Australian access to key information in a number of areas.

Increased use of satellite to satellite transmission of data is reducing the reliance on worldwide ground stations and these are a couple of examples where this has already occurred. If Australia does not develop a niche that can contribute to the international space community then our access to these 'public good' cooperative arrangements is likely to suffer. This would have serious consequences for our community, for example, consider having to pay for every piece of space sourced, weather-related information. Creation of a single space coordinating agency is vital to ensure that the government will have the options necessary to maintain international cooperation agreements.

Skilled Work Force Shortage

Australia is currently experiencing a significant shortage in its skilled work force with Defence and Mining suffering from a significant lack of specialist engineers and technicians for example. The lack of a thriving space sector has resulted in many of our brightest with a passion for the space sector to move off shore and become involved with other nations exciting space opportunities. The benefits of a focused space policy fostering space sector opportunities in Australia would:

- a. Encourage our home grown specialists to stay at home.
- b. Inspire our young Australians to move into the sciences and engineering.
- c. Provided increased opportunities for cooperative programs including exchange positions with organisations such as NASA, ESA and JAXA. This would further increase career opportunities for our specialists and increase the depth of experience and skills we are growing.

Policy Options

A high level federally based government co-ordinating body is essential if we are serious about developing and maintaining robust and cost effective access to space based resources in support of the national interest. The body should be responsible for:

- a. The implementation of space policy.
- b. Coordinate robust and effective use space based resources between government departments considering national security, disaster management, economic benefits, etc.
- c. Act as a focal point in Australia guiding and fostering the Australian space industry.

- d. Act as a focal point in Australia guiding and fostering the Australian space sector science and research initiatives.

Space is a very broad discipline thus it is essential that the policy and strategies employed by this body are well thought out and targeted to those niche areas that will best serve our national interest.

Conclusion

Auspace has a proud tradition of supporting the space industry within Australia. The lack of clear government policy in this area contributed to the demise of Auspace's space hardware manufacturing capability. However, the company maintains significant state-of-the-art capabilities for the support of space activities within Australia. Those capabilities include: Australian optimisation and development of foreign products necessary to meet indigenous needs; indigenous creation of space related communications support capabilities; space training capabilities and space launch capabilities.

Auspace strongly supports the creation of an Australian Government body for the implementation of space policy. Such a body is required now to ensure the ongoing viability of the space industry within Australia, in all its forms. The space body is also required to develop and foster the generation of a matrix of space capabilities ensuring Australia's robust and effective use of space based assets.

Auspace appreciates the opportunity to provide a submission to this investigation. Auspace officers will be keen to discuss any matters that the committee may wish to explore.



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