



Dr Michael Wagg from Cable & Wireless Optus Ltd talks Australia's satellite business:

“There are a lot of opportunities into the future for the Japanese and Australian space industries to have a beneficial relationship.”

Dr Michael Wagg
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[Interviewer/ H. Wakana, CRL](#)

- Thank you very much for taking your valuable time for our interview. First of all, for readers understanding of the Space Japan Review in Japan, could you introduce us the Cable & Wireless Optus Ltd and your responsibility within the company?

Wagg Cable & Wireless Optus Ltd is a major carrier in Australia. We currently provide a full range of telecommunication services, a GSM mobile network throughout the country, a national fibre network between and in the major cities and a cable network passing more than two million homes that provides domestic telephony, Pay TV and high speed data services.

Cable & Wireless Optus Ltd is also the major provider of satellite services throughout Australia. It provides services throughout Australia from three satellites it owns (A3, B1 and B3). It has a new satellite (C1), due for launch in the first half of 2002, under contract from Mitsubishi Electric Company of Japan. Cable & Wireless Optus Ltd wholesales transponder capacity to major organisations such as television and pay TV operators and government departments as well as providing a range of direct services, VSAT, business TV, broadcast data and mobile satellite to users throughout the country.

I have been with Cable & Wireless Optus Ltd since it bought Aussat Pty Ltd in the early 1990s. I have had a range of roles within Cable & Wireless Optus Ltd, including managing the development and delivery of our mobile satellite service, MobileSat, managing the tender for the C1 satellite, the subsequent negotiations with Mitsubishi Electric Company and managing the integrated satellite services business. I am currently responsible for addressing new satellite service opportunities within Cable and Wireless Optus Ltd's Consumer and Multimedia Division.

- Satellite communication business has achieved a dramatic success in the late 20th century. What is your perspective on where the satellite business is headed in the next century?

Wagg Satellite communications as part of the space industry has the ability to excite the imagination of everyone from school children to hard nosed business people. The launch of a powerful rocket has an air of expectation in the delivery of the satellite into the vast unknown of space.

The satellite business needs to continue to excite the imagination but not allow itself to be divorced from the realities and fundamentals of what satellites can offer. Satellite communications will continue to be an important part of an overall telecommunications solution. It will complement the vast capacities that the fibre optic systems can provide between large population centres but will flourish in the provision of services to remote and under served areas and in the broadcasting of services throughout the globe.

The high profile global systems such as Iridium, Globalstar, Teledesic and Skybridge generated hype and captured the imagination of the world press as well as many investors during the decade of the 1990s. However, it was the work horse of satellite communications, namely geostationary satellites, that thrived through the decade. Businesses that are based on the fundamental advantages of satellites with a sound market need will thrive in this century.

- What do you think the new revolution in communications will be driven by? What kind of technologies will be the key for the future satellite communications?

Wagg We need to look of the success of NTT DoCoMo's i-mode service for a prime example of what is one of the key drivers for new and successful satellite communication services. DoCoMo has focused on providing a good quality, cost effective telecommunication, information and entertainment services that are wanted and frequently used by its customers. It is considered that the future success of satellite communications will be from its ability to deliver information, entertainment and interactive services to its customers that are wanted, cost effective and of a good quality.

Technologies that support these cost effective quality services will be the key to the future success of satellite communications. I see two key areas where technology can support this goal:

i) The cost of customer equipment continues to limit the growth of satellite communications. Iridium and Globalstar suffered when their handsets were seen to be expensive compared to cellular mobile handsets. The cost to buy and install VSATs still limit their market potential. Satellite services will be able to expand into the under served areas of the globe by lowering the cost of the customer equipment. It is considered essential for satellite equipment developers and manufacturers to take advantage of the vast economies of scale that consumer electronics has achieved and design their systems and adopt standards that use the low cost items from terrestrial communications and other industries.

ii) The cost of putting a satellite into orbit is dominated by three elements, the cost of building the satellite, the cost of getting the satellite into orbit and the cost of insuring the satellite and the launch. Manufacturers are moving to building bigger and bigger satellites to achieve scale economies and technology developments are



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helping with the components to lower the cost of building these satellites. It is considered that the cost of getting the satellites into orbit is the area where the greatest opportunity for new and exciting technologies and concepts exists. Most rockets are variations on the original concept and we have seen innovations such as rockets launched from planes but we still await the technology or concept to drive the launch cost dramatically lower. Finally in the area of building and launching satellites a continual focus on quality is essential. The high cost of insurance to support the launch and on orbit operation is an expensive burden that competing terrestrial technologies do not need to suffer.

- [What can we learn from our current status and history of telecommunications to shape our future?](#)

Wagg Telecommunications over the last decade has been dominated by first mobile and then IP based services. Users continue to both take advantage of the technology and drive the technological and business developments.

The proposed large satellite constellations, be they Iridium, Globalstar, Teledesic, Skybridge or others, have all sort to take advantage of the markets for mobile and/or IP services. However, the delivery of these services by existing satellite technology is not necessarily the appropriate method for the market and service at this time. A lesson from the earliest days of telecommunications in the provision of the undersea Atlantic cable needs to be considered. Whilst there was a growing market for telegraphy around the world, it took from the first attempt in 1857 through to 1866 until the technology had developed sufficiently to provide a successful solution.

- [What do you think is the network of the future? What can reduce the cost of the last one mile?](#)

Wagg Very often when we consider the network of the future, we look at what is appropriate in the highly developed nations of the world such as Japan and Australia. However the network of the future for many parts of the world will be that which provides cost effective basic telecommunication, information and entertainment services.

Even in countries such as Australia, in the rural and remote areas telecommunications infrastructure is still very basic compared to the urban areas. Satellites are playing an increasing role in bridging the gap and providing service equity. This continues to be a challenge in a wealthy country such as Australia so we can only imagine the difficulty in the poorer countries of the world. Satellites can bridge the telecommunications gap to these areas of the world but it needs to be in a manner that thoughtfully meets the needs of the end user rather than by imposing the technology and assumptions of an urban based first world market. It can be argued that one of the reasons for the failure of the Iridium service model is that they sought to impose a service designed around a first world economy that relied on a world wide market.

Despite the vast differences in market requirements for the future, somewhat paradoxically, there is a common

approach to meeting the last mile solution. The cost of providing the last mile or more precisely the customer connection relies on minimising the cost of the customer premises equipment and the cost of installing the equipment. Radio solutions hold out the promise of not having the expense of running a cable to the building. Mobile handsets are a clear example of where installation has been removed from the cost of providing the services. The challenge becomes how to combine sufficient cost effective bandwidth, a cost effective access network and suitable low cost terminals easy access terminals. If we consider the Iridium example again, they managed to get low cost spectrum and easy access terminals but their network and terminal costs were prohibitive for a successful service.

- [Australia has different circumstances in communication services from Japan. What are the unique features of the Australia's satellite communications?](#)

Wagg Australia is a vast country with a small population. It has a total population of less than Tokyo's in an area the size of the continental USA. Australia generates a large portion of its income from its natural resources, which are often located in the remote areas of the country.

Satellites have been and continue to be used to provide entertainment and telecommunication services into and out of the remote areas of Australia. The current terrestrial communications technology cannot compete with satellite in the provision of broadband entertainment and information services.

Hence the use of satellites for communications throughout Australia is similar to the satellite services in many other countries of the world. The unique feature of satellite communications in Australia is the same as the unique feature of satellite communications in Japan. It is the mixture of the innovation and vision of the technologists and business people in providing services that meet and excite the Australian people.

- [Finally, could you tell us some comments on the development of communication satellite related technologies in Japan and the expected relationship between Australia and Japan space industries?](#)

Wagg Cable & Wireless Optus Ltd is a direct beneficiary of the development of satellite communications in Japan. Our MobileSat service was assisted by the use of the Japan's ETS V satellite in the development phase of the program and through the joint program that we had with the Communications Research Laboratory. The contract for our C1 satellite with Mitsubishi Electric Company was based on the recognition that they had developed a satellite supply expertise that made them a competitive satellite provider for Cable & Wireless Optus Ltd.

There are a lot of opportunities into the future for the Japanese and Australian space industries to have a beneficial relationship. Some examples arise from the ability for geostationary satellites to see both countries from the same orbit location with sufficient spatial separation for common frequency use. This enables opportunities to share experimental satellites, such as the Australian use of the ETS V satellite. There is also a possibility that commercial Japanese and Australian satellite parties may seek to share a satellite or satellites for commercial efficiencies.

[Thank you very much.](#)