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FUTURE PROOFING AUSTRALIA: INNOVATIVE SCIENCE AND TECHNOLOGY DEVELOPMENT
AREAS TO MEET AUSTRALIA'S SPACE NEEDS

Abstract

Space Technology is an integral part of many Australian industries including GPS based planting/harvesting; tracking of cargo and public transport; tele-medicine and tele-education; Defence capabilities; weather prediction/monitoring; emergency response; satellite communications/TV; banking; and using GPS to drive to work. In the modern era advances in science and technology are increasing at an exponential rate; however, the aims of the International Community are far exceeding these efforts. Currently designed missions to other bodies in the Solar system and the tracking and clean-up of space debris are relying on technology that does not yet exist. The increased reliance on satellite technology has engendered the need for smaller, lighter and cheaper satellites which contain superior sensors, communication technology and longer life, all of which requires innovative technology advances to meet these seemingly contradictory needs. Additionally with cheaper and smaller satellites people also desire cheaper launch options with shorter re-launch times and more orbit flexibility. There is a need for both multi-industry development programs such as satellite manufacture or launch facilities as well as research and development of enabling technologies such as advanced materials, manufacturing and repair techniques.

To meet these needs and remain viable on an international stage Australian Organisations, Industry and Academia need to partner to develop innovative solutions using new technologies, manufacturing processes and design philosophies. This is already being done to a degree with many areas of world class research and technology development being undertaken within Australia by the Defence Science and Technology (DST) Group (formerly DSTO), the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Industry and Academia. As many of these research areas are still new, there is the potential for Australia to secure niche capabilities and products in space-related technologies, and to become a world leader in these fields. This excellence in research and development and the supporting infrastructure places Australia in a good position to supply technologies and expertise to both national and international space projects. Additionally, by developing our own capabilities Australia may benefit from increased access to space capabilities and data; the development of local economy and infrastructure; economic stimulus and increased job opportunities; and increased reputation in research and technology development.

This paper will discuss some of the key Science and Technology areas to which Australia can actively contribute to Space Activities. This will focus on addressing the needs of Australian Industry and Defence utilising our world class expertise in research and development.