Joint Statement of Strategic Intent

and Cooperation

between

Australian Space Agency

and

Maxar Technologies

MAXAR TECHNOLOGIES.

STATEMENT OF STRATEGIC INTENT AND COOPERATION WITH

THE AUSTRALIAN SPACE AGENCY

The Commonwealth of Australia, as represented by the Australian Space Agency, part of the Department of Industry, Innovation and Science, hereinafter referred to as "**the Agency**" and represented by Anthony Murfett, Deputy Head, Australian Space Agency;

and

Maxar Technologies Inc., hereinafter referred to as "**Maxar**" and represented by Daniel L. Jablonsky, President and Chief Executive Officer, Maxar Technologies;

Recalling that the Australian Civil Space Strategy 2019-2028 is a framework for the development and growth of the Australian space industry over ten years, underpinned by four strategic pillars: International; National; Responsible; and Inspire. Under these pillars the strategy endeavours to help realise opportunities and address challenges by opening doors internationally; increasing national space capability; promoting responsible regulation, risk and space culture; and building the future workforce. The Strategy sets a path for the Agency to triple the size of Australia's space sector to $12 billion and create another 20,000 jobs by 2030;

Recalling that the Agency's purpose is to transform and grow a globally respected Australian space industry that lifts the broader economy, inspires and improves the lives of Australians – underpinned by strong international and national engagement;

Recalling that the Agency has seven National Civil Space Priority Areas including communications technologies and services; position, navigation and timing infrastructure; space situational awareness and debris monitoring; leapfrog research and development; Earth observation services; robotics and automation on Earth and in space; and access to space;

Recalling that the Agency's responsibilities include whole-of-government coordination of Australia's civil space sector matters, providing primary civil space policy and strategic advice to the Australian Government, supporting the growth of our national space industry and the use of space across the broader economy, leading international civil space engagement, administering space-activities legislation and completing our international obligations, and inspiring both the Australian community and the next generation of space entrepreneurs;

Recalling that Maxar is a United States (US) company comprised of the former companies of DigitalGlobe, Space Systems Loral, Radiant Solutions, and MDA which continues to operate as an independent, Canada-based company within the Maxar organisation. Maxar is a trusted partner and innovator in Earth Intelligence and Space Infrastructure. The company delivers disruptive value to government and commercial customers to help them monitor, understand and navigate our changing planet; deliver global broadband communications; and explore and advance the use of space;

Recalling that Maxar is an innovative leader in Earth intelligence and space infrastructure which can be used to deliver solutions for the most critical government and commercial missions;

Recalling that Maxar is supportive of sharing its experience and expertise to foster the space sector in Australia;

Acknowledging that the Agency and Maxar share the objective of furthering the development of the new space economy, recognising that there are unlimited benefits to life on Earth through leveraging technology in space;

Acknowledging that the Agency as an Australian government agency is committed to open, transparent and significant industry engagement;

Acknowledging that Maxar has a proven history of designing and operating world-class, high-resolution electro-optical satellites and synthetic aperture radar satellites; manufacturing low Earth orbit, geostationary, and deep space spacecraft; designing and manufacturing leading robotics including the Canadarm2; and creating industry-leading artificial intelligence and machine learning models to extract insights at scale from satellite imagery;

Acknowledging that the Agency and Maxar share the objective of growing the capabilities of the Australian space industry and promoting investments in space capabilities and capacities that will support smart growth and highly qualified jobs, as well as improving the day-to-day lives of all Australians through innovative programs and services;

Through this Statement, Maxar acknowledges the following current projects, areas of strategic interest and growth, potential new areas of collaboration and support for education and training, which are of interest to the Australian nation.

Supporting Australia in Space

- Maxar is a core partner and significant financial contributor to the Smart Satellite Technologies and Analytics Cooperative Research Centre (SmartSat CRC) project led by a consortium of industry and research organisations to develop game-changing technologies that drive future space capabilities in Australia and globally. Maxar framed its SmartSat CRC participation around the following research topics:
    - Intelligent satellite constellations (dynamic scheduling for improved constellation management);
    - Optical communications (connectivity through advanced digital and optical communications);
    - On-board processing algorithms (low-power graphics processing units for Earth observation applications);
    - Resilience under uncertain and unexpected events (space situational awareness and threat assessment);
    - Deep Learning techniques for automated image and satellite video analysis (addressing capability gaps in monitoring of mining sites using Interferometric Synthetic Aperture Radar (InSAR) or other Earth observation technology); and
    - Advanced communications architecture(s).

- Maxar provides time-sensitive remote sensing imagery data to various Australian Government organisations to support civil and national security requirements.

- Maxar partnered with PSMA Australia Ltd to deliver nationwide building footprints and other associated data derived from satellite electro-optical imagery to support Australian Government requirements.

Areas of Strategic Interest, Growth and Future Collaboration

- **Next-generation robotics for autonomous activities in space:** Given Maxar's expertise and experience in applied space robotics and Australia's extensive autonomous robotics experience within its terrestrial resource industry, collaboration on remote asset management and robotic servicing of on-orbit satellites could enable advances as our nations support future lunar missions, especially through Maxar's partnership with the National Aeronautics and Space Administration's (NASA) Artemis program to build the Lunar Gateway, and the Canadian Space Agency's (CSA) partnership with NASA to provide Gateway robotics. Maxar's potential collaboration with Australian organisations, like the Australian Centre for Field Robotics, supporting the memorandum of understanding already established between the Australian Space Agency and the CSA.

- **Next-generation ground stations:** Leveraging Maxar's extensive ground system experience, Maxar will look to collaborate on the development of next-generation ground stations with a focus on optimised servicing of large constellations of small, non-geostationary satellites, and the provision of advanced modelling of complex systems and data analytics.

- **Next-generation Earth observation satellites:** Maxar can apply its expertise to assist Australia in developing future remote sensing satellites. Maxar's next-generation optical satellite constellation has industry-leading spatial resolution and collection capacity, and a diverse set of colour or spectral bands that support effective material identification in applications such as forestry, environmental monitoring, agriculture, bathymetry and urban planning. The development of next-generation optical satellites, with a focus on observing changes on Earth, could support many aspects of the Australian space industry, from manufacturing to ground systems to civil and defence applications.

- **Next-generation Maritime Domain Awareness services:** Maxar is dedicated to the provision of robust, operationally reliable solutions that employ space, airborne and surface assets for the effective monitoring of the maritime domain. These solutions are relevant to Australia. Australia is expected to face new and evolving challenges related to immigration, economic and environmental security in the maritime domain. Making effective use of space-based assets together with traditional airborne and surface assets will be of paramount importance in the coming years.

- **Next-generation communications satellites:** Maxar is supporting Optus and NBN Co and has delivered four communications satellites for Australia. This experience can be leveraged as Australia explores its next-generation communications needs. Next-generation communications technology may form an integrated capability for Australia's commercial, defence and space needs. The advancement of technology would enable extended regional interconnectivity and improved throughput to meet increasing demand. Enhancing these satellite solutions to meet Australia's requirement for high-capacity/high-mobility defence communications would provide augmented actionable intelligence at the edge.

- **Advanced analytics of Earth observation data:** Maxar will look to collaborate on the development of artificial intelligence/machine learning for the purposes of extracting insights at scale from Earth observation data to make decisions with confidence. Maxar can apply its 20 years of experience with direct support to the US Government in machine learning and object/change detection, data automation and predictive analytics applied to civil and national security requirements. These analytical processes can be used to improve large-scale agricultural planning; and track and assess the effects of climate change and short-term changes in environmental conditions over Australia, its coastal areas (including the Great Barrier Reef), and the neighbouring South Pacific region.

- **Space-focused skilling and STEM strategies:** Maxar is dedicated to contributing to science-technology-engineering and mathematics education programs around the world and in Australia. As part of the SmartSat CRC and other research and development (R&D) initiatives, Maxar can enhance the development of Australia's space sector and help develop Australia's highly skilled space workforce. Maxar is eager to explore further STEM and R&D opportunities with the Agency and Australian universities, such as staff exchange programs and internships, to meet the Agency and Maxar's joint workforce development goals.

Maxar will continue to ambitiously pursue space opportunities within Australia's space industry, the Australian Government. This Statement constitutes the expression of both Parties' intention to continue discussions and mature these potential areas for collaboration. This statement does not create legal obligations between the Parties and does not establish the obligation to enter into a certain agreement.

This Statement is signed in two (2) copies at the International Astronautical Congress, Washington DC. on 22 October 2019.

On behalf of	**On behalf of**
The Australian Space Agency	**Maxar Technologies**
Anthony Murfett	**Daniel L. Jablonsky**
Deputy Head of the Australian Space Agency	**President and Chief Executive Officer of Maxar Technologies**