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THE ROLE OF THE AUSTRALIAN NATIONAL SCIENCE AGENCY IN SHARING RISK AND
CO-CREATING NEW SPACE INDUSTRIES**Abstract**

Space exploration has traditionally been guided by strategic government objectives and driven by government expenditure through large space and defence administrations that embody the market. Today space-related industries provide essential commercial services and the future of space exploration depends on public-private industry cooperation.

Missions or "moonshot" initiatives have become classic forms of organising a workforce towards a strategic objective, identified and orchestrated by a space administration and achieved through unilateral distribution of funds to sub-contractors. There has been a notable shift in this model towards public-private cooperation characterised by increasingly commercial business models for launch and resupply of the international space station and future space exploration missions, and an increasingly commercial LEO ecosystem providing space-derived services for profit.

The ongoing development of space industries still entails huge levels of risk. Public agencies have an important role to play not only in fixing market failures but as first-movers, leading high-risk investments, co-creating markets and facilitating the emergence of private sector businesses. This is true of established space industries in the US, Europe and China, but also and perhaps more clearly evident in the emerging space industries.

In Australia the national science agency (CSIRO) collaborates with the Australian Space Agency, private sector and operational agencies to innovate products and services of importance for the country. CSIRO is investing in a range of initiatives to facilitate the emergence of a space ecosystem and co-create a market. These include convening the local space industry through a series of biannual Space 2.0 workshops, identifying strategic priorities of cross-sectoral relevance, investing in first-of-a-kind national facilities and directly funding high-risk future science capabilities.

As a first-mover with patient investment, a long-term time horizon, national benefit mandate and deep collaborations across all sectors of the economy CSIRO is an important partner for co-creating a space ecosystem in Australia through risk-sharing and entrepreneurial spirit, not restricted to fixing market failures or investing in discovery science.