



# ***ONWARDS AND UPWARDS***

A Submission by MDA to the House of Commons  
Standing Committee on Industry, Science and  
Technology for their study entitled  
“Economic Recovery from COVID-19”

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Thank you for the opportunity to submit our thoughts for your study on the Economic Recovery from COVID-19. It is a singularly difficult moment in our country's history, but with challenges come opportunities. I would like to outline the opportunity that exists for Canada's space sector, a future growth engine for Canada's economy.

MDA is Canada's leading space technology company, an international space mission partner and a robotics, satellite systems and geointelligence pioneer with a 52-year story of firsts on and above the Earth. With over 2,000 highly-skilled employees across Canada, MDA is leading the charge towards viable Moon colonies, enhanced Earth observation, communication in a hyper-connected world, and more.

MDA's deep heritage and broad range of capabilities are organized into three strong business areas: Satellite Systems (Ste-Anne-de-Bellevue); Robotics and Space Operations (Brampton, Kanata and St-Hubert); and Geointelligence (Richmond, Nepean, Gatineau, St-Hubert and Dartmouth); with offices in Houston (TX) and the UK.

In partnership with the Government of Canada, MDA participates as a Prime Contractor for flagship space programs, including the RADARSAT Earth observation (EO) satellite program as well as the world-renowned Canadarm family of space robotics. Canada is providing Canadarm3 to the NASA-led lunar-orbiting Gateway, and MDA is proud to be Canada's partner in the development of the third generation of this robotics system.

MDA's success is a direct result of Canada's early recognition, dating back to the dawn of the space era some 60 years ago, that it needed to harness space to achieve its national needs for telecommunications services and remote sensing of our large land mass and long coastlines.

Today, many of Canada's space technologies are world-renowned. Our Canadarm robotics technology has branded Canada on the world stage and serves as a source of inspiration and pride for Canadians. Our RADARSAT Earth observation satellite technology is a leading source of knowledge about our planet.

Canada's comparative advantage in this sector involves our country's robust space ecosystem, where the industrial and academic community collaborates to develop, build and operate complex space systems, all from within our domestic borders. Beyond manufacturing, the importance of space to Canada's national security, economic prosperity and place in the world cannot be understated. Space also has the ability to inspire the next generation to pursue STEM studies.

People sometimes wonder how Canada can afford to be in space when there are so many problems that need our attention here on Earth, especially in light of the global pandemic. But space is ubiquitous – it touches the lives of Canadians 20 to 30 times a day. It provides the silent but critical infrastructure for everything from television, weather predictions, monitoring climate change, the Internet and wireless communications, finance, agriculture, shipping, to ground and air traffic management, and so much more. It will only be through utilizing space technologies that Canada will reach its goal to connect all Canadians to high speed internet by 2030.

As the Government looks to rebuild following a devastating pandemic, the space sector should play a prominent role as a driver of economic growth for our country. We can and should turn this epic challenge into an opportunity for a reset and build back better, charting a path to the future that focuses on areas of strength and claims them for this country. Space is one such area. Every dollar invested in space by the Canadian Government has a strong multiplier effect producing roughly twice the impact. Investments in space have an immediate effect – they are rocket fuel for Canada’s economic recovery. Internationally, the sector experienced record investment in 2020 in spite of the pandemic<sup>1</sup>. And the sector is poised to play a significant role over the longer term, as Canada positions itself for future prosperity and continued high quality of life.

Countries are moving swiftly and decisively to participate in the new space economy because, while space may not be the final frontier, it is the next one. The global space market is worth over USD \$420 billion today; Morgan Stanley forecasts this market will grow to USD\$1 trillion per year by 2040<sup>2</sup>, and the US Chamber of Commerce forecasts it will reach USD\$1.5 trillion per year in the same time period<sup>3</sup>. The Bank of America is even more bullish, with forecasts reaching USD\$1.4 trillion by 2030<sup>4</sup>, a whole decade earlier.

Canada is well-positioned to lead in that future, if we keep our hand in. We have the capability within our domestic borders to build space systems from beginning to end. We have the expertise today that will contribute to Canada’s competitiveness in the long run. We have world-class research institutions and a highly-skilled STEM workforce. We have the tenacity and the ingenuity to help position Canada for success.

MDA and the entire Canadian space community are planning to be part of this trillion-dollar economy in a big way. In order to do this, however, we need to have the Government of Canada as a partner. In space, the government’s role is paramount – as an investor, owner, regulator and anchor customer. Furthermore, unlike our major competitors in the US and Europe, Canada lacks the scale and budget for a space industrial base devoted solely to achieving our government’s strategic domestic needs, therefore our focus is inherently outwards to export markets.

The Canadian space industry has therefore leveraged this strategic relationship with the Government of Canada as an anchor client, building innovative solutions in Canada while employing an extensive Canadian supply chain (space and non-space), exporting these solutions globally, and reinvesting in Canadian innovation and intellectual property (IP). This has proven to be a highly successful model and innovation ecosystem over the last four decades. As a result, the investments made by the Canadian Government have generated returns that exceed the original investments many times over.

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<sup>1</sup> <https://www.cnbc.com/2021/01/25/investing-in-space-companies-hits-record-8point9-billion-in-2020-report.html>

<sup>2</sup> <https://www.morganstanley.com/ideas/investing-in-space>

<sup>3</sup> <https://www.uschamber.com/series/above-the-fold/the-space-economy-industry-takes>

<sup>4</sup> <https://www.cnbc.com/2020/10/02/why-the-space-industry-may-triple-to-1point4-trillion-by-2030.html>

For the continued success of Canada's space sector and to position Canadian companies for the rapidly expanding global space economy, the Government of Canada must commit to the following actions:

- **Serve as an anchor customer to innovative space companies**  
Canada's IP-intensive space sector will succeed when its government has a stake in its success, as the projects are inherently risky, often involving breakthrough innovations. Growth of commercial space businesses flows out of anchor customer contracts with government users. Governments can assist by way of project financing, pre-purchasing of data or capacity (Earth observation, satellite communications), or through the smart use of the government's procurement powers.
- **Invest in technology development and demonstration**  
Funding for space technology development is essential to advance the technology readiness level (TRL) of innovative ideas. This includes early stage funding to evolve concepts and designs as well as later stage funding to commercialize technologies. The CSA's Space Technology Development Program (STDP), Lunar Exploration Accelerator Program (LEAP) and smartEarth program and DND's Innovation for Defence Excellence and Security (IDEaS) program are excellent examples of technology development programs. The CSA is currently undertaking consultations toward a Technology Demonstration program, which will also be an important initiative.
- **Ongoing investment in space missions**  
In addition to the larger decadal flagship missions that fulfil national needs and position Canada as a significant global player in key industrial capability areas (space robotics, space-based radar Earth observation, satellite communications), a regular cadence of smaller, affordable space missions will allow space companies to scale their cutting-edge innovations into flight-proven technical solutions. "Flight heritage" is the single biggest driver of success in the space industry, as proven technologies have a competitive advantage over technologies that have never flown, as there is less risk involved. Similarly, the university and academic community needs consistency in Canada's commitment to participate in international science and planetary missions. The Canadian Space Agency's recent announcement of a Canadian Lunar Micro Rover Mission is an important first step, but more frequent missions will develop companies, technologies and the STEM workforce required to make Canada a leader in the new commercial space economy.
- **Modern space governance and regulations and a long term investment plan**  
In most industrialized countries, the national space agency reports to the executive level, given the strategic national importance of a country's space program. MDA encourages the government to consider a National Space Council, similar to that of the United States<sup>5</sup>, which ensures Cabinet level cross-

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<sup>5</sup> <https://www.politico.com/news/2021/05/01/kamala-harris-space-council-485183>

departmental coordination of and direction for the national space program, covering civil, commercial, defence and national security, and international space policy matters.

A commitment in the CSA's *Exploration, Imagination, Innovation: A New Space Strategy for Canada*, a modernized set of regulations will unlock opportunities for Canadian companies and raise Canada's game to compete with other jurisdictions with business-friendly regulatory policies. Canada's Remote Sensing Space Systems Act (RSSSA) has gone through two statutory five-year reviews, with no changes to the Act since its introduction in 2007, yet Earth observation technologies, capabilities and techniques have improved significantly since this time. Certain emerging space capabilities lack a regulatory framework, which puts Canadian companies at a competitive disadvantage.

Given the critical and growing importance of space to Canada, and recognizing the long-term horizon of this sector, Canada's utilization of space has historically been guided by published investment roadmaps. These space investment plans have recognized two imperatives – that the use of space can contribute significantly to the attainment of strategic national security, geopolitical, economic and social goals, and that there are economic benefits to be obtained from the nurturing of a strong domestic industry to meet Canada's sovereign needs that is also able to compete in the international marketplace. Similar to *Strong, Secure, Engaged*, the long-term investment plan of the Department of National Defence, a similar long-term space plan needs to be developed that outlines Canada's planned investments in the country's civil space program.

In conclusion, Canada can't afford not to be in space. We need to be there for the practical solutions that space brings to Canada, keeping us on the leading edge of climate science, of robotics and AI, and of communications, connected to the world and each other. We need to be there to wield geopolitical influence. We need to be there to inspire the next generation to go further and reach higher. Because, even during the economic uncertainty created by the pandemic, space is, fittingly, a light on the horizon. With investments in space paying strong dividends now and over the longer term, this sector is ready to play its part to help our country build back better.

### **About MDA:**

Serving the world from its Canadian home and global offices, MDA is an international space mission partner and a robotics, satellite systems and geointelligence pioneer with a 50-year story of firsts on and above the Earth. With over 2,000 employees across Canada, the US and the UK, MDA is leading the charge towards viable Moon colonies, enhanced Earth observation, communication in a hyper-connected world, and more. With a track record of making space ambitions come true, MDA enables highly skilled people to continually push boundaries, tackle big challenges, and imagine solutions that inspire and endure to change the world for the better, on the ground and in the stars.