

POSITIONING CANADA FOR THE NEW SPACE ECONOMY

Written Submission for the Pre-Budget Consultations
in Advance of the Upcoming Federal Budget
by Telesat

August 7, 2020

TELESATTM

Recommendations

- ① The Government continues to provide technology neutral funding for broadband infrastructure, prioritizing funding towards the quickest and most affordable technology to reach its universal connectivity objective on an accelerated basis.
- ② The Government supports the strategic, high-growth and export-driven space sector as part of the economic recovery strategy – including upcoming procurement opportunities like the Enhanced Satellite Communications Project – Polar (ESCP-P), a shovel ready Team Canada solution to Arctic Communications for the Canadian Armed Forces – positioning Canada as the world leader in the New Space economy.
- ③ The Government allocates \$100M over three years to investigate and develop the application of Low Earth Orbit satellites as part of ongoing efforts to modernize NORAD, the North Warning System and a broader pivot to LEO, providing mission critical solutions to the Canadian Armed Forces.

MESSAGE FROM THE PRESIDENT & CEO

On behalf of the hundreds of Telesat employees and the millions of Canadians we serve from Coast-to-Coast-to-Coast, I would like to thank the House of Commons Standing Committee on Finance for this opportunity to provide the following recommendations on how Canada can capitalize on opportunities in the highly strategic and rapidly growing New Space economy.

Telesat is one of the world's largest and most successful satellite operators, providing reliable and secure satellite-delivered communications solutions worldwide to broadcast, telecom, corporate and government customers, including the Government of Canada. From our headquarters in Ottawa, we conduct all of our advanced engineering, research and development (R&D), and fly our fleet of 17 satellites. Today, Telesat's satellites serve millions of Canadians, delivering high-quality video content as well as Internet and wireless connectivity to rural and remote parts of Canada that are beyond the reach of cable and fibre.

Telesat is presently undertaking the most ambitious and innovative project of our 50 year history: a multi-billion dollar investment in a state-of-the-art, revolutionary Low Earth Orbit (LEO) satellite constellation to deliver affordable, fibre-like broadband connectivity everywhere on Earth, including to the entirety of Canada. Today, millions of Canadians, including hundreds of thousands of Indigenous Canadians, do not have access to affordable, reliable, high-speed Internet connectivity. Telesat LEO will bridge the Digital Divide in Canada and the rest of the world using Telesat LEO and through working closely with government, we can ensure that all Canadians – no matter where they live – can fully participate in the digital economy.

Telesat LEO represents critical infrastructure of the 21st Century and holds great promise for Canada. Not only will Telesat LEO deliver the government's universal connectivity objective, ensuring all Canadians can participate on an equal footing in the digital economy, it can simultaneously create and maintain in Canada over 1,000 high-paying jobs of the future, positioning the Canadian space industry and ecosystem to grow, compete and succeed in the rapidly expanding and highly competitive New Space economy.

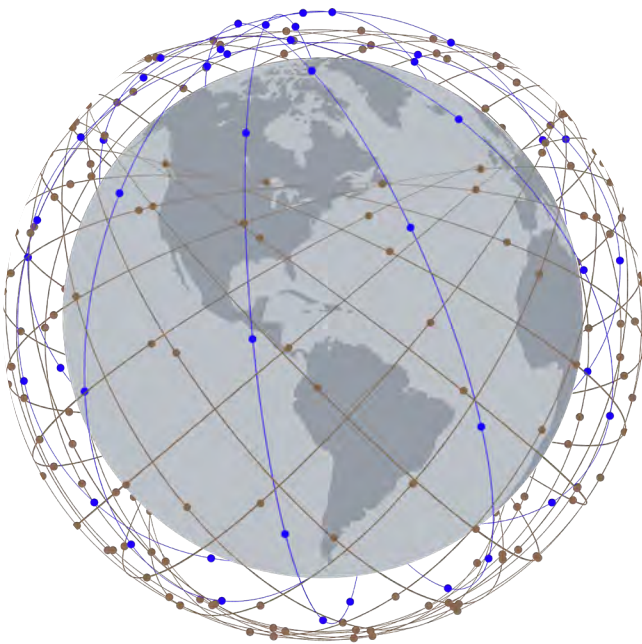
Respectfully submitted,



Daniel Goldberg
President & CEO

Telesat's

Low Earth Orbit Satellite Constellation



Telesat LEO is an advanced, space-based broadband infrastructure that leverages state-of-the-art technologies to revolutionize Internet connectivity throughout Canada and the rest of the world.



Affordable



Low Latency



High Throughput



Plug & Play



Resilient & Secure



Flexible Focused Capacity



Global Coverage



Click to PLAY video

Recommendations

- ① The Government continues to provide technology neutral funding for broadband infrastructure, prioritizing funding towards the quickest and most affordable technology to reach its universal connectivity objective on an accelerated basis.



Affordable High-Speed Internet for Everyone, Everywhere

Today, approximately 2.2 million households across Canada, including over one hundred thousand Indigenous households, do not have access to affordable, reliable, high-speed Internet. There are another roughly 3.7 billion people outside of Canada that also lack this essential resource. Recognizing the manifold social and economic benefits that come from access to affordable high quality Internet connectivity, the Government of Canada has rightly made bridging the digital divide a top priority.

Despite the clear benefits, [bridging the digital divide is a significant economic and technological challenge](#). Canada is the second largest country on the planet and has a challenging topography with numerous rural and remote communities. To date, the cost-effective expansion of high-speed Internet services to these communities has not been possible. Fortunately, meaningful advances in satellite communications technology and in adjacent areas promise to cost effectively bridge the digital divide.

The Government has rightly focused its resources on ameliorating the key impediment to high quality, affordable connectivity to rural communities, namely inadequate backhaul – also known as backbone – infrastructure. *For a community, backhaul connectivity to the Internet is akin to a physical highway from a major urban city to a smaller community.* Programs like [Connect to Innovate](#) and the [Canada | Telesat LEO partnership](#) that was announced last year, focus on bringing affordable backhaul connectivity into communities, which in turn will result in the rapid delivery of affordable high-speed Internet and LTE/5G connectivity to Canadians.

COVID-19 has shown a spotlight on Canada's digital divide and the significant gap it creates between those who are, and are not, connected to affordable high-speed Internet. All stakeholders agree that the timeline for universal connectivity must be meaningfully expedited in an effort to address this divide. To do this, it is important the Government deliver on its broadband target of 50/10 Mbps with an unlimited data cap. Given the real constraints with traditional technologies and the proliferation of new, disruptive, and innovative technologies that can be implemented quickly and scale easily - like Telesat LEO - it is imperative that the Government continues its long held approach of being technology neutral by focusing on the service being delivered to Canadians and not on the technology specifically. This approach will result in more Canadians being connected quicker and more affordably.



Recommendations

- ② The Government supports the strategic, high-growth and export-driven space sector as part of the economic recovery strategy – including upcoming procurement opportunities like the Enhanced Satellite Communications Project – Polar (ESCP-P), a shovel ready Team Canada solution to Arctic Communications for the Canadian Armed Forces – positioning Canada as a world leader in the New Space economy.



Positioning Canada at the forefront of the Highly Strategic New Space Economy

Canada has a long and proud history of being a nation of innovators with Canadian companies leading the world in new, disruptive and innovative technologies. Canadian companies are continuing this trend of innovation; however, heightened by COVID-19, now more than ever, there is a need for the Government to champion industries that are strategic, growing and where Canada has globally competitive industrial competencies. The high-growth and export driven New Space sector is such an industry.

As an example, Telesat LEO represents a multi-billion dollar investment in capital and R&D and is the largest space program ever conceived in Canada. Given Canada's world-leading capabilities in space, a significant portion of this ambitious constellation can be developed, built and operated in Canada. Canada's diverse, highly educated workforce is capable of delivering Telesat LEO, which has the potential to create and maintain over 1,000 well-paying middle class jobs in STEM, create numerous co-op opportunities for Canada's workforce of tomorrow, and continue investments in R&D and Canadian IP.

Although the majority of the funding for Telesat LEO will come from the private sector, ambitious space projects of this nature also require strong government support. We commend the Government of Canada for its support of [the R&D phase of Telesat LEO through the Strategic Innovation Fund and for its partnership with Telesat to bridge the Digital Divide](#) bringing affordable high-speed Internet to rural, remote, Indigenous and Northern Canadians.

In the highly competitive global space industry, however, other countries are launching multi-billion dollar investments through strategic procurements in an effort to bolster their domestic space industries to create and attract new projects and high-quality jobs. These countries (including the U.S., China, Russia, India, France, Germany, and the UK*) strongly support their domestic companies to invest in innovative, space-based assets. One of the most consequential ways governments directly support their domestic space industries is through large procurement opportunities to foster and grow domestic capabilities.

The ESCP-P program, under consideration by the Government since 2010, represents a "shovel ready" opportunity for Canada to leverage its domestic space industry to deliver dedicated tactical military communications across the Arctic. Canada's world-class space industry can deliver this vital program – and all of its benefits – on an accelerated timeframe. Despite being an Arctic nation, and the increasing importance of domestic security and sovereignty in the region, Canada has a limited presence in the Arctic due

* Last month the UK led a [successful bid to acquire OneWeb](#) – another LEO operator - for approx. CAD\$1.4 (US\$1B). The UK will be splitting this investment equally with Bharti Global Ltd.

in large part to a lack of dedicated, secure and reliable communications capability in the North. At a time when Canada's allies (and others) are accelerating their interests in the Arctic, the need to address Canada's Arctic communications gap is now more pressing than ever.

The Canadian space sector should feature prominently in Canada's economic recovery to COVID-19 given the significant economic benefit the New Space sector promises. Through strategic investments and procurements (like ESCP-P), the Government can ensure Canada has a leading role in the highly strategic, high growth New Space economy, stimulate job growth, and position Canada for long term economic prosperity.



Recommendations

- ③ The Government allocates \$100M over three years to investigate and develop the application of Low Earth Orbit satellites as part of ongoing efforts to modernize NORAD, the North Warning System and a broader pivot to LEO providing mission critical solutions to the Canadian Armed Forces.



Delivering the Most Cutting Edge

Capabilities for Our Women and Men in Uniform

In addition to delivering fast and affordable Internet connectivity to rural and remote Canadians, Telesat LEO will transform other market segments that require high capacity, affordable and secure connectivity solutions to reach their full potential, including the Canadian Armed Forces.

In every domain, the national security community has become reliant on an ever-increasing volume of data, delivered with speed and security of transmission. For more than a generation, members of the “Five Eyes” have leveraged commercial satellite communication systems to augment legacy dedicated military satellites in order to meet the demand for greater communications. The volume of data and the need for “fibre-like” connectivity for mobile platforms, coupled with the increasing vulnerability of large traditional geosynchronous satellites, is causing allied governments to invest in more resilient, distributed communications networks, including LEO satellite constellations.

With the increasing reliance of defence systems on information networks – whether for command and control, logistics, first responders, reconnaissance or navigation – the demand for secure and ubiquitous throughput has soared. The reliance on these networks, and the geographic unpredictability of mission engagements, means that defence planners must be able to provision vast communications throughput, anywhere on earth, at a moment’s notice.

Notably, the U.S. Defence Advanced Research Projects Agency (DARPA) has embarked on a multi-year program, [called Blackjack](#), to demonstrate the utility of commercial LEO networks for the military. [Telesat is proud to have been awarded two contracts by DARPA associated with Blackjack](#): an architecture study and a contract to study, and potentially operate, Telesat LEO spacecraft as nodes in the Blackjack network.

The Telesat LEO system addresses the core need of many national security space missions: greater bandwidth, lower latency, resiliency and security, and true global coverage. As such, DND has an opportunity to leverage LEO infrastructure to develop solutions for mission critical applications in a way not previously possible. Applications include the modernization of NORAD, surveillance of the North, an upgrade of the North Warning System and a more general pivot to LEO to provide a new solutions platform to DND to meet future global threats. Further, the Blackjack-derived architecture enables DND spacecraft to inter-operate with other Five Eyes spacecraft, if desired, sharing data in real time.



TELESAT™



Contact Us

Headquarters
Ottawa, ON, Canada
+1.613.748.8790

Email us at info@telesat.com



Visit us at telesat.com/connect-everyone

