



**What We Heard Report:
Consulting Canadians on a
modern regulatory
framework for space**



Canadian Space
Agency

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canadienne

Canada

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1. Executive Summary

[From January 31 to April 4, 2023, the Government of Canada invited Canadians to share their views on Canada's space regulatory framework.](#) A total of 49 written submissions were received from stakeholders including industry, academia, associations and think tanks, and the general public. These submissions will inform the review currently underway of Canada's regulatory framework for space-related activities as set out in [Exploration, Imagination, Innovation: A New Space Strategy for Canada](#).

This report summarizes the main themes that emerged from the consultation process. Given the depth and breadth of information received, this report reflects the essence of the ideas and perspectives raised. Input was aggregated and no attributions to individuals or organizations have been made.¹ The views expressed are those of participants and should not be construed as representative of the Government of Canada's positions or views nor do they imply consensus.

The following four key themes emerged from this process:

1. **The need to modernize:** Nearly all participants agreed that a modern regulatory framework for space is needed in order for Canada to take advantage of current and future opportunities in space. According to participants, a modern regulatory framework provides certainty for industry and increased confidence for investors while enhancing Canada's international competitiveness.
2. **Where to focus:** Participants indicated that a modern regulatory framework should be both comprehensive and flexible to accommodate current and future space activities. Goals of a modern regulatory framework as put forward by participants include supporting industry and encouraging innovation; aligning with international partners; prioritizing sustainability; mitigating risks; striking the right balance on security; and streamlining administrative processes.
3. **Feedback on the regulatory framework as it relates to specific space activities:** Participants weighed in with specific feedback on the regulatory framework in the areas of in-orbit servicing, assembly, and manufacturing (ISAM); launch; remote sensing; satellite constellations; space resource utilization (SRU); spectrum; and a small subset of other issues.
4. **Feedback received on other space policy and program issues:** Participants advocated for a national space policy and national space governance body. Other ideas put forward for consideration included specific suggestions for support of industry; space traffic management; diversity and inclusion; and inspiring the next generation of space professionals.

Each of these themes is expanded on and presented in further detail below.

2. Context

Space is a strategic national asset for Canada. It is a driver of economic growth, a catalyst for innovation, a creator of transformational technologies, and a source of essential information. The space sector is becoming more competitive as technology rapidly proliferates and more players enter the global space

¹The phrase "nearly all participants" below indicates feedback received by a large majority of participants on an issue; "participants said" refers to about half; and "certain" indicates that a small number of participants shared this feedback.

market with innovative technologies and transformative applications (e.g. satellite constellations; space resource utilization; in-space servicing, assembly and manufacturing).

In order to ensure that Canadian industry is equipped with a modern regulatory framework for space that will enable it to compete in this global market, the Canadian Space Agency (CSA) is working with government partners to conduct a review of Canada's regulatory framework for space-related activities. This review, a commitment in the Government of Canada's 2019 space strategy ([Exploration, Imagination, Innovation: A New Space Strategy for Canada](#)), will ensure that Canada's space-related regulations are keeping pace with the changes in the global space sector so that we enable innovative space companies to prosper here in Canada while respecting national security considerations and international obligations.

3. Consultation Process

Consultations opened on January 31, 2023 and closed on April 4, 2023. The process was promoted through direct emails to stakeholders and a social media campaign. Information about the consultation was released on the Government of Canada's Consulting with Canadians website and the CSA website. The supporting material included a backgrounder on Canadian expertise and leadership in space, Canada's national legal framework for space, and international space treaties to which Canada is a party. One-on-one meetings were also conducted with stakeholders at their request to provide clarification on the consultation process and to answer their questions.

4. What We Heard

4.a. The need to modernize

Canada's favourable international reputation in space and positive contributions to space science and technology were noted by nearly all participants. They indicated that a proactive approach to regulating innovative space technologies is needed to maintain and build on this reputation. Participants spoke of the economic opportunities presented by the rapid commercialization of space that is taking place around the world and expressed concerns that without an updated regulatory framework for space, Canada risks being left behind. Without legal and regulatory certainty for space activities, investors hesitate to invest, and companies may look to take their business to countries where regulatory frameworks are more developed.

4.b. Where to focus

Participants put forward that a modern regulatory framework for space should be comprehensive enough to cover present and future space activities while remaining flexible enough to adapt to a rapidly changing technological and commercial landscape.

Participants encouraged a whole-of-government approach to administering and coordinating space activities. They called for better coordination between federal departments and agencies and increased clarity in terms of processes, roles, and responsibilities in order to make navigating the regulatory landscape easier, particularly for new and small businesses.

Certain participants pointed to the interim measures being put in place by the Government of Canada for commercial space launch. They suggested that a similar interim approach should be used if the

Government chooses to regulate currently unregulated space activities such as in-space servicing, assembly and manufacturing (ISAM) in order to ease the transition to new regulatory regimes.

The CSA heard from participants that a modern regulatory framework for space should:

1. **Support industry and encourage innovation:** Nearly all participants noted that the growth, innovation, and competitiveness of the Canadian space industry should be at the core of any efforts to modernize the regulatory framework. They encouraged Government to ensure that the regulatory framework supports the development of new technology and services, suggesting that regulatory tools such as “sandboxes²” be used as testing grounds for regulating new technology in a manner that supports the continued development of Canada’s space sector.
2. **Align with international partners:** Participants suggested that Government consider best practices from other jurisdictions including harmonizing licensing regimes with international partners to reduce redundancy in regulatory processes, keep barriers to trade low, and limit the practice of “regulation shopping” where companies locate to the jurisdiction with the least stringent regulatory requirements. Participants also suggested that Canada take a leadership role in building on commitments in international space law and work with the international community in the areas of space safety, sustainability, and the peaceful uses of outer space
3. **Prioritize sustainability:** Participants urged Government to consider sustainability at all stages of the space mission life cycle, from design to end-of-life, including requirements to mitigate space debris and avoid uncontrolled re-entry. Government was encouraged to promote sustainable practices and ensure that health and safety as well as the protection of the Earth and celestial environments, including the Moon, are taken into consideration. The use of space systems for climate monitoring and mitigation of the impacts of climate change on Earth was also put forward as a component of space sustainability.
4. **Mitigate risks:** Certain participants raised the importance of regulators having a thorough understanding of risks related to space activities, including ever-evolving risks such as cybersecurity. They noted that regulatory requirements should be proportional to the actual risk posed by a specific activity; lower risk activities such as student CubeSat and rocketry projects, for example, could have less stringent requirements. They also noted the importance of accountability in the form of enforcement mechanisms in order to ensure that space operators are responsible for their behaviour and the impacts of their activities.
5. **Strike the right balance on security:** Participants noted that other nations have updated their regulatory frameworks with requirements to place more emphasis on commercial growth and innovation. They asked that this be considered in any changes to Canada’s regulatory framework for space, particularly as it relates to licensing of dual-use civil and military systems. Certain participants suggested providing oversight for Canadian industry collaboration with foreign

² A regulatory sandbox is defined as “a space, crafted and controlled by a regulator, designed to allow the testing of novel products or processes to be conducted under supervision prior to their full entry into the marketplace.” <https://www.canada.ca/en/government/system/laws/developing-improving-federal-regulations/modernizing-regulations/what-is-a-regulatory-sandbox.html>

entities to ensure there is no participation (accidental or otherwise) in activities in space that may pose security risks to Canada.

6. **Streamline administrative processes:** According to participants, regulatory requirements should be easy to understand, clear in their application, and simple to comply with, with clear milestones and predictable timelines along the path to approval of licenses and permits. It was suggested that regulators be accessible to answer questions from applicants and that they should approach applications with the intent of helping applicants to get their applications approved. Specific suggestions included standardized application procedures and templates, user-friendly guides, a centralized government database for regulators across departments to access information provided by applicants, and an online space portal through which stakeholders can make applications and receive information on application status.

4.c. Feedback on the regulatory framework as it relates to specific space activities

In addition to the overarching messages above, participants in the consultation also provided feedback related to specific space activities.

In-orbit servicing, assembly, and manufacturing (ISAM): Government was urged to put a licensing regime in place for ISAM activities to enable the growth of this sector in Canada.

Launch: Government was encouraged to take national security, human health and safety, the environment, the interests of local communities, and economic growth into consideration when regulating space launch activities. Certain participants urged prioritizing environmental assessment and safety when considering how to regulate space launch.

Remote sensing: Certain participants spoke to the current regime for regulating remote sensing in Canada. They suggested that the current realities of the complex security landscape and less strict regulation requirements in other nations such as the United States since the development of the *Remote Sensing Space Systems Act* (RSSSA), be taken into consideration in updating the regulatory framework for space.

Satellite constellations: Government was urged to consider the effects of satellite constellations on the environment and the “night sky”. Certain participants encouraged consultation with Indigenous peoples on these issues. It was suggested that Government should include measures to protect the “dark and quiet sky” in any changes to the regulatory framework. Examples of suggested measures included mitigating measures for light pollution and brightness and spectrum interference.

Space resource utilization (SRU): Certain participants suggested passing national legislation specific to SRU activities as has been done in other jurisdictions such as the United States and Luxembourg. Property rights were mentioned as an important consideration when developing national law on SRU, while upholding Canada’s international commitments. The point was made that the work of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) Working Group on Legal Aspects of Space Resource Activities should inform the future regulatory framework for SRU activities in Canada.

Spectrum: Several issues related to the regulation of spectrum in Canada were mentioned by participants. Specific recommendations were made related to access, utilization, and protection of

spectrum. Certain participants mentioned the use of spectrum for testing and demonstration, possible leasing of spectrum, and the prevention of spectrum interference.

Other activities: Individual participants also touched on a number of other activities, including specific measures related to spectrum licensing and medical licensing for aerospace medical professionals who may encounter difficulty providing private spaceflight participants with medical care given the provincial jurisdiction of medical licensing.

4.d. Feedback received on other space policy and program issues

In addition to comments on the regulatory framework for space in Canada, participants weighed in with feedback with a more general application. These themes are summarized in this section.

National space policy: Participants suggested that Canada develop a national space policy that provides a clear vision for Canada's future in space. Certain participants suggested that such a policy could consider issues such as sustainability and environmental protection, responsible behaviour in space, and international cooperation. They suggested that it should reflect Canadian goals and interests in areas such as scientific research, national security, and international relations.

Participants suggested that in making policy decisions, Government should take into consideration areas where Canada could be a global leader, both in particular technologies such as space robotics and small nuclear reactors, as well as areas of advantage such as geographical location, a highly educated work force, and scientific expertise.

Space governance: Certain participants advocated for the creation of a government body that would be responsible for leadership and decision making on space policy and strategy, coordinating space activities, and supporting the development of the Canadian space industry with a view to bringing the benefits of space into the lives of Canadians. Participants cited the National Space Council in the United States as a model for a similar body in Canada. It was suggested that such a body could be supported by a stakeholder advisory group comprising industry, academic, scientific, and technical experts.

Other issues for consideration: Participants made the following suggestions that, while not directly related to a regulatory framework for space, are considerations that may come into play when considering overall space policy issues.

- **Support for industry** to encourage new space sector entrants through funding, dedicated programs, and public-private partnerships. Participants cited concerns that highly skilled workers often leave Canada for other jurisdictions where there is more support for space industry and encouraged measures to aid in the retention of high-quality personnel in Canada.
- Government was encouraged to support measures related to **space traffic management** and collision avoidance, and to put in place best practices regarding communications, data sharing, and coordination between operators regarding close approaches, particularly in low earth orbit (LEO).
- Measures to prioritize **diversity and inclusion** by engaging with members of equity-seeking groups in Canada's space program and space sector. Certain participants specifically suggested engaging Indigenous communities, professionals, and knowledge keepers to contribute to government decision making.

- Keeping the concept of **inspiring the next generation** in focus by raising awareness with young Canadians about space and space careers in both Science, Technology, Engineering and Mathematics (STEM) and social science disciplines. Participants suggested increasing work, volunteer, and education opportunities for students and young professionals as a way to encourage youth to participate in the space economy and to retain highly qualified personnel in Canada.

5. Conclusion

The CSA would like to extend its thanks to the many Canadians who took the time to share their views on this important topic.

The feedback received during the course of the consultation will be used to inform Canada's review of a modern regulatory framework for space.