

# Canada Belongs in Space

COMBINED RESEARCH REPORT  
SEPTEMBER 2018

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# EXECUTIVE SUMMARY



# The future of space is Canada's future

Canadians believe that Canada's involvement in space is an important building block for the country's future prosperity and status as a world leader. There is strong support for increased investment and a concern about being left behind. Canadians see opportunity for Canada in the new space economy.



## Enthusiasm about space is stronger than in the past

Canadians' pride in space activities, their belief that success in space contributes a great deal to knowledge, innovation, and the competitiveness of Canada and that these activities provide inspiration for youth in science and engineering have each increased significantly compared to a decade ago.

Nine in ten agree that maintaining leadership in space robotics, like the Canadarm, is important for Canada.



## But many believe Canada is falling behind others

Four in ten Canadians believe that Canada is falling behind other countries in achievements in space. This is nearly twice the number who believe we are falling behind in the information technology/AI sector or robotics sector.

The idea that our investment is falling behind that of much smaller countries was puzzling to focus group participants. There was also some urgency expressed for Canada to maintain a role in space to prevent others from dominating, particularly those focused on their own interests rather than the greater good.



## **Canada's role in space needs to be better understood**

**Canadians do not know much about what Canada is doing in space.**

This causes many to be unsure about what the concrete benefits of space are, despite great pride in past achievements. Once told about achievements in space like RADARSAT, Canada's Earth observation satellite program, Canadians are excited about our achievements, and believe there should be more attention and awareness of these and their benefits to Canada.



## More information = greater pride

**There is already great pride in the few past achievements participants are aware of, and hearing more about other innovations furthers this feeling.** When provided with additional information most were surprised to hear about the extent of Canada's achievements – the ones that affect everyday lives on the ground were of particular interest. Furthermore, participants believe that Canada's accomplishments in space both past and present should be better communicated here and abroad, so that we can have a collective sense of national pride about them.



## **Space investments are supported by Canadians despite acknowledgement we have many other priorities**

Canadians' enthusiasm about space investment is tempered by competing priorities such as healthcare and education. Nevertheless, in terms of Canada's overall budget, participants believe in principle there is room for investment. For example, an investment of \$1 billion over 17 years to participate in the Gateway project, does not seem like an onerous amount to spend given the opportunities it presents. Canadians recognize that investment in space supports the advancement of technology that benefits many spin-off applications here on Earth.



## More information drives stronger support for space investment

**Learning how investments in space have personal value and benefit to Canadians strengthens support.**

Participants feel that our current strong dependence on natural resources as a key industry was a concern. The need to expand into future-looking areas like the new space economy is seen as a key component of ensuring a healthy economy moving forward.

# Government involvement is a key to success



The perception is that other countries are investing large sums of money and energy in order to ensure the success of their respective space programs. It is disappointing and concerning to hear that Canada is investing less. As such, many would like to see Canada match or improve upon the commitment of other countries in order to keep up. They see it as crucial for the government to be the entity driving this agenda forward.

There are several interrelated considerations that participants felt the government should oversee:

- Preventing a “brain drain” of Canada’s best and brightest to other countries such as the US
- Acting as a bridge between achievements in space and Canadians by facilitating and communicating the tangible benefits of space investments to Canadians
- Celebrating and supporting success -- the Avro Arrow was brought up as an example of government walking away from world-leading innovation
- Supporting education and intellectual leadership such as research programs in universities that are making discoveries on the ground
- Ensuring that any “spin off” technological advances are widely disseminated to industry and the public
- Providing oversight and ensuring that all regions of the country are included and benefiting from a space program

# To be successful, communications must...

## Drive Awareness



Canadians have limited understanding and awareness (beyond astronauts and the Canadarm) of Canada's role in space but are proud when they learn about Canada's accomplishments in space.

*95% of Canadians agree that Canada's astronauts are a point of pride; 92% are proud of Canadarm, yet awareness of other aspects of Canada's space program are very low.*

## Communicate Benefits



Canadians need to be reminded that investments in space can drive new innovations with far-reaching value and positive implications; and that there are tangible benefits of space programs that are already helping Canadians in their everyday lives and can improve lives in the future (e.g. earth robotics and health applications).

*Opinions are split on where space fits amongst our other investment priorities – 54% agree we should invest less in the space sector as we have other greater priorities – but we learned in the focus groups that making Canadians aware of benefits to Canada solidifies support for space, even amid other priorities.*

## Underscore Need



*Awareness that funding has decreased is low with roughly half who believe it has remained the same in the last five years and some mistakenly believing it has increased.*

**Canadians express strong concern when they learn that Canada has fallen behind other countries, viewing this as a threat to our sovereignty, industrial leadership, and economic future.**

## Inspire Action



**Information about the urgency of the current situation, the timeline for decisions, and how Canadians can participate must be part of the messaging.**

*91% agree that maintaining leadership in space robotics, like the Canadarm, is important for Canada. 85% would like to see Canada maintain its traditional role in a new Moon mission.*

*75% reject the idea that Canada is too small a country to participate.*

# ABOUT THIS PROJECT

# Background & Objectives



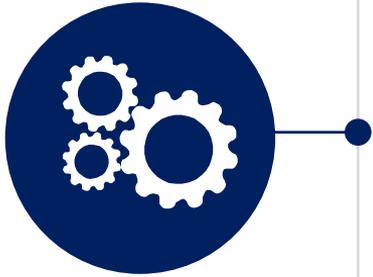
Canada's share in global space investment is dwindling; Budget 2018 did not announce any major new funding; and Canada's participation in future space exploration and robotics activities remains a question mark; a fact underlined by the release of the CSA's departmental plan.

The space sector in Canada has long advocated for a long-term space plan to establish the requisite funding to maintain and enhance existing capabilities in space science, space robotics, satellite communications, Earth observation, sensors and optics, as well as cultivate new areas of leadership.

This research seeks to understand the current public opinion environment on the topic, and among key sub-groups of interest, and to develop messaging that connects space, space exploration and robotics with Canadians.

# Methodology

## National Survey of Canadians

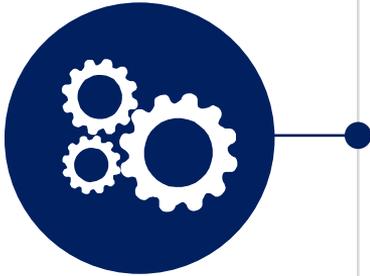


Ipsos conducted a survey of a random and representative sample of n=1,602 Canadians aged 18+.

- The survey was conducted by telephone using a dual frame sample - 50% landline and 50% cell phone sample. Those on cells who have a landline were eligible to be interviewed (e.g. cell phone sample does not imply cell phone only household).
- The survey was conducted between June 7th and 21st, 2018 (fieldwork in Ontario started on the 8<sup>th</sup> because of the Ontario election) and was offered in both English and French.
- A sample of this size yields a margin of error of +/-2.45%, 19 times out of 20. The margin of error will be larger for data that is based on sub-groups of the total sample.
- The data has been weighted by age, gender, and region to ensure it represents the Canadian population based on the most recent Census data.
- Some survey questions have been tracked against previous surveys, including, a survey conducted in 2005 by Phoenix Strategic Perspectives Inc. and a 2007 survey conducted by Praxicus.

# Methodology

## Focus Groups Across Canada



Sessions were conducted with a cross section of Canadians from the general public in four key markets across the country. Participants had the opportunity to speak, share ideas, and elaborate in a small group format 90 minutes in length. The discussion guide was designed to assist with the development of communications messaging based on issues identified in the quantitative phase.

Group	Date and Time	Location	Audience
1	June 27, 5:30pm	Vancouver	8 participants
2	June 27, 7:00pm	Vancouver	8 participants
3	July 3, 5:30pm	Toronto	7 participants
4	July 3, 7:00pm	Toronto	8 participants
5	July 4, 5:30pm	Montreal	8 participants
6	July 4, 7:00pm	Montreal	8 participants
7	July 5, 5:30pm	Halifax	9 participants
8	July 5, 7:00pm	Halifax	8 participants

Detailed Findings

# SURVEY RESULTS

# What Canadians Know

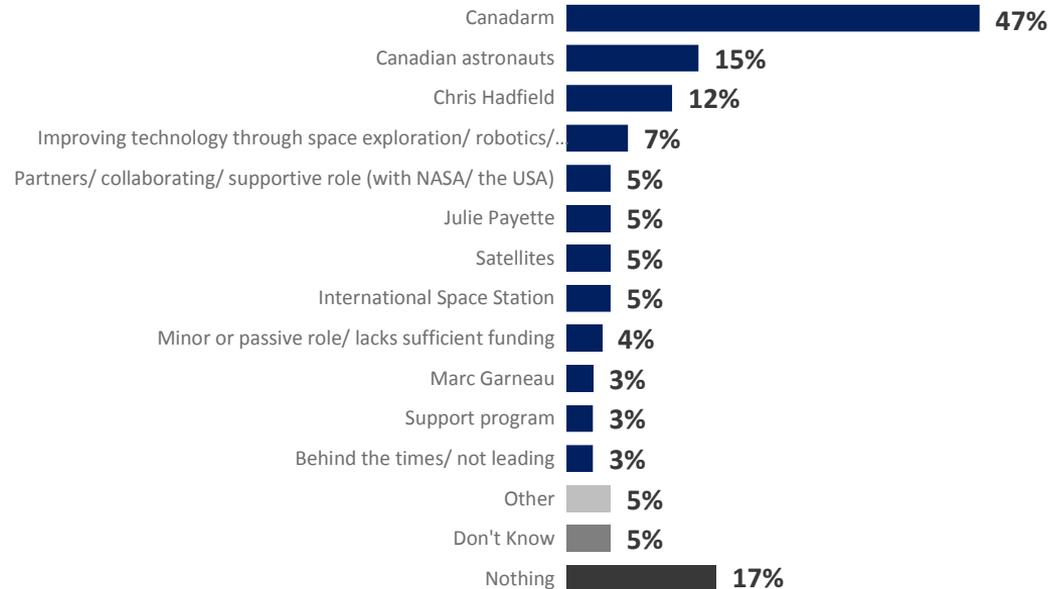


## CANADARM IS CANADIANS' MAIN IMAGE OF CANADA IN SPACE

When asked what comes to mind when thinking about Canada's involvement in space, nearly half (47%) of Canadians cite the Canadarm, followed at a great distance by one in six (15%) who mention Canadian astronauts, and slightly fewer (12%) who identify Chris Hadfield specifically.

Canadians who support developing the space sector and being involved in a 2020s Moon mission are more likely to associate the Canadarm with Canada's involvement in space.

Immigrants, women, millennials (18-34), the less educated (HS or less), and Quebecers are less likely to mention the Canadarm. Baby boomers (55+) are more likely to identify Canadian astronauts, with Quebecers being more likely to name Julie Payette specifically. Gen Xers (35-54) and men are more likely to mention the International Space Station. Women and millennials are less likely to provide any mentions at all.



Q4. What is the main image that comes to mind when you think of Canada's involvement in space? (DO NOT READ PRE-CODE LIST, ACCEPT FIRST RESPONSE) / Q4b. Are there any other images that come to mind when you think of Canada's involvement in space?

Base: All Respondents (n=1602)

# What Canadians Know

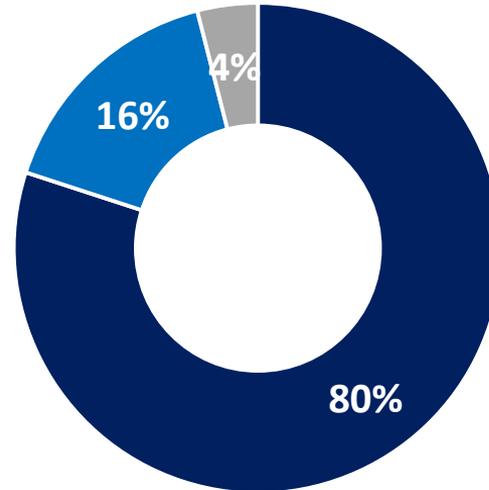


## VAST MAJORITY ARE AWARE OF THE CANADARM

Four in five (80%) Canadians are aware of the Canadarm.

Baby boomers (55+), the highly educated (Post-Grad degree), men, those with a reported household income in excess of \$100k, and Canadians who support involvement in a 2020s Moon mission are all more likely to indicate awareness of the Canadarm.

Immigrants are less likely to have heard of the Canadarm prior to taking the survey.



- Yes
- No
- Maybe

# What Canadians Know

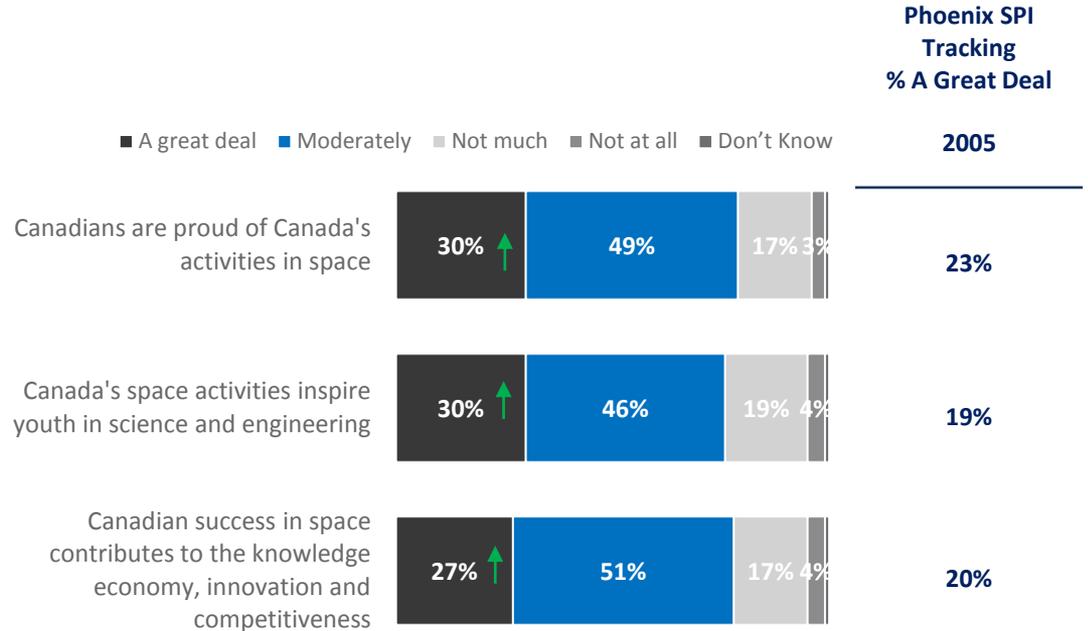


## CANADIANS MORE POSITIVE ACROSS THE BOARD COMPARED TO 2005

Nearly four in five take pride in Canada's space activities (79%, including 30% who say a great deal of pride), think that these activities inspire youth (76%, including 30% who say 'a great deal'), and that success in space contributes to knowledge, innovation, and the competitiveness of Canada (78%, including 27% who say 'a great deal'). This is significantly higher than was found 13 years ago in a 2005 Phoenix SPI survey (23%, 19%, and 20% indicating highest support respectively).

Canadians who support developing the space sector and being involved in a 2020s Moon mission are more likely to view Canadian success as contributing a great deal to the knowledge economy, as inspiring to youth, and to take in pride in our activities in space.

Canadians born abroad are more likely to view Canada's success as inspirational for youth and believe Canadian success in space contributes to the knowledge economy, innovation and competitiveness.



Q5. To what extent do you think... [INSERT ITEM]? (READ LIST; REPEAT SCALE AS NEEDED)  
 Base: All Respondents (n=1602); 2005 Phoenix Strategic Perspectives Inc. survey (n=1628)

# What Canadians Know



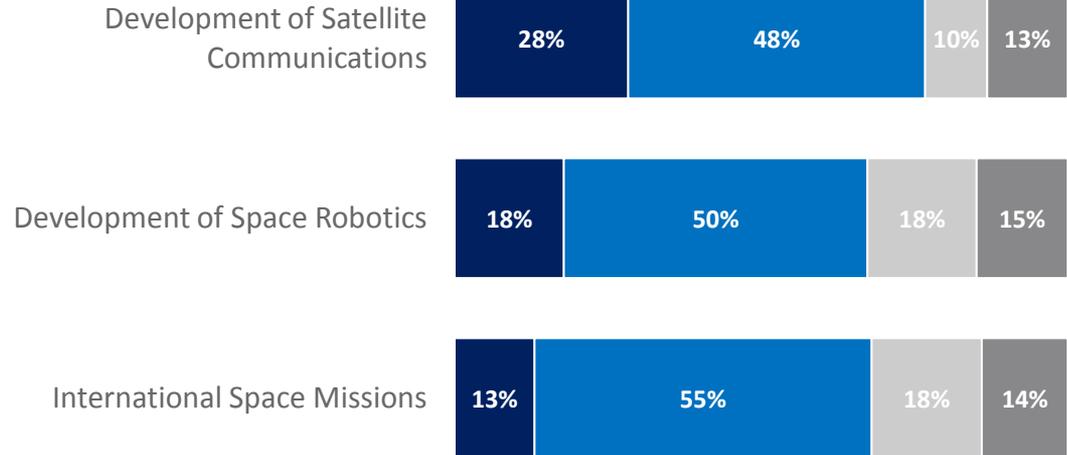
## FEW ARE AWARE THAT CANADA'S SPACE BUDGETS ARE DECREASING

A plurality of Canadians believe that the amount of money being invested in developing satellite communications (48%), space robotics (50%), and international space missions (55%), is *about the same* as it was five years ago. Among those who think spending has changed, more feel that the amount being invested in satellite communications is *increasing*, rather than *decreasing* (28% *increasing* vs. 10% *decreasing*). Conversely, fewer think that the amount being invested in international space missions is *increasing* compared to *decreasing* (13% *increasing* vs. 18% *decreasing*). Equally as many think the amount being spent on space robotics is *increasing* as *decreasing* (18% *increasing* vs. 18% *decreasing*).

Baby boomers (55+) and the less educated (HS or less) are less likely to perceive satellite communication investments as having increased over the past five years.

Millennials (18-34) and Canadians born abroad are more likely to think that investments in international space missions and robotics respectively have increased.

■ Increasing ■ Remained About the Same ■ Decreasing ■ Don't Know



# What Canadians Know

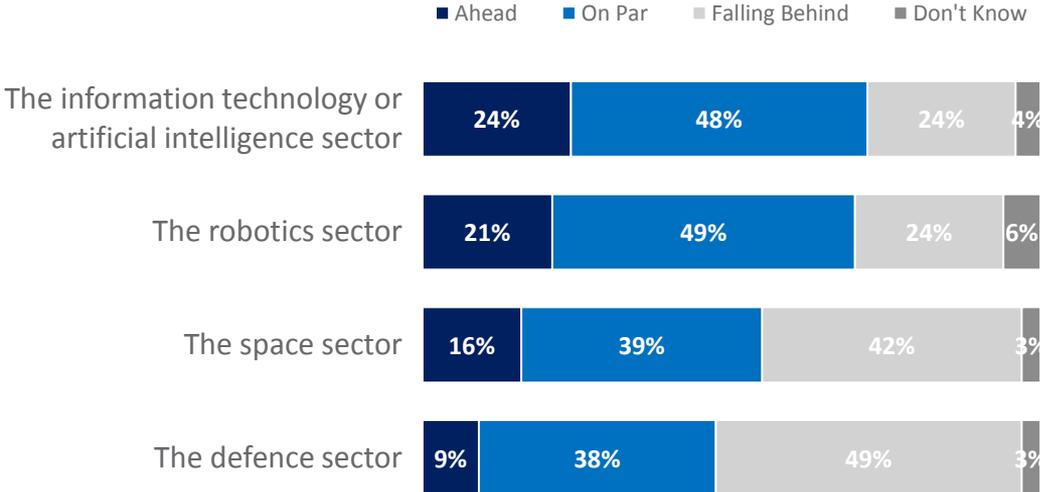


## FEW CANADIANS SEE THEIR COUNTRY AS A LEADER IN SPACE

Four in ten Canadians believe Canada is falling behind other countries in the space sector – this is nearly twice the number of Canadians who believe Canada is behind other countries in information technology/AI and robotics. Comparatively, defence is the only sector where more Canadians believe we are behind other countries than space.

Regionally, Quebecers are more likely to believe Canada is a leader in space, robotics, and information technology than are other Canadians.

Interestingly, those born outside of Canada are more likely to view Canada as being *ahead* of others in its achievements in space than are those born here.



Q1. When it comes to the following sectors, do you believe that Canada is a leader – that is ahead of other countries in its achievements, on par with other countries or falling behind other countries?  
How about in the area of... [INSERT ITEM]? (READ LIST; REPEAT SCALE AS NEEDED)  
Base: All Respondents (n=1602)

# Investments in Space

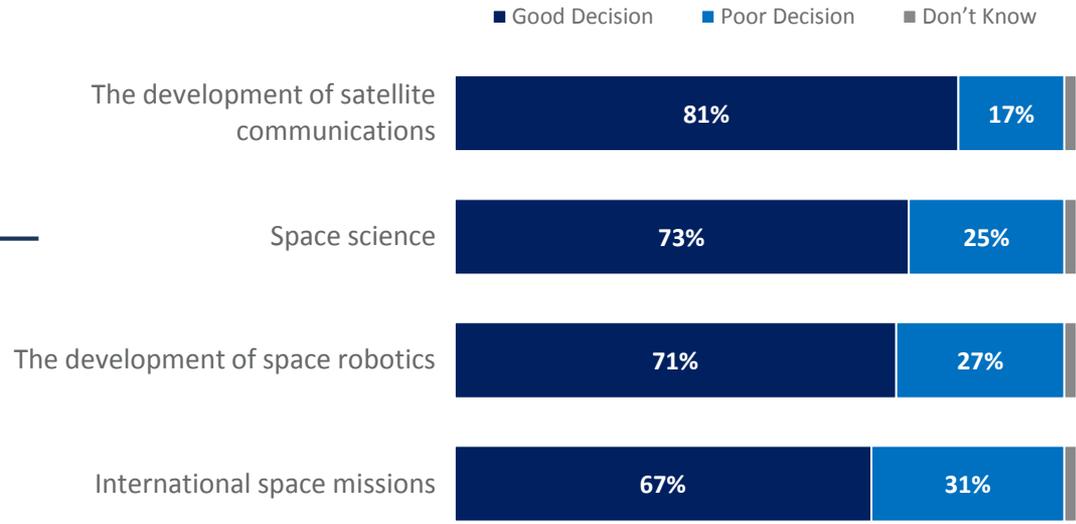


## STRONG MAJORITY THINKS INCREASING SPACE INVESTMENTS IS A GOOD IDEA

A strong majority think that increasing investments in each of the areas would be a *good decision*. Investments in satellite communications have the broadest support (81%). Slightly fewer, though still a large majority, think that increasing investments in space science (73%), robotics (71%), and international space missions (67%) all represent *good decisions*.

Canadians who support developing their country's space sector, being involved in a 2020s Moon mission, men, and those who are aware of the Canadarm are more likely to favour increased levels of investment in all areas.

Baby boomers (55+) are less inclined, compared to the younger generations, to think that increased funding for international space missions, space science, and space robotics investments represents a *good decision*. Despite this, however, boomers are still more likely than not to think that increased investments is a good thing. Canadians born abroad are less likely to favour increased spending for satellite communications and space robotics.



\*Recorded so that all numbers are shown on scale where increased investment = good decision.

# Investments in Space



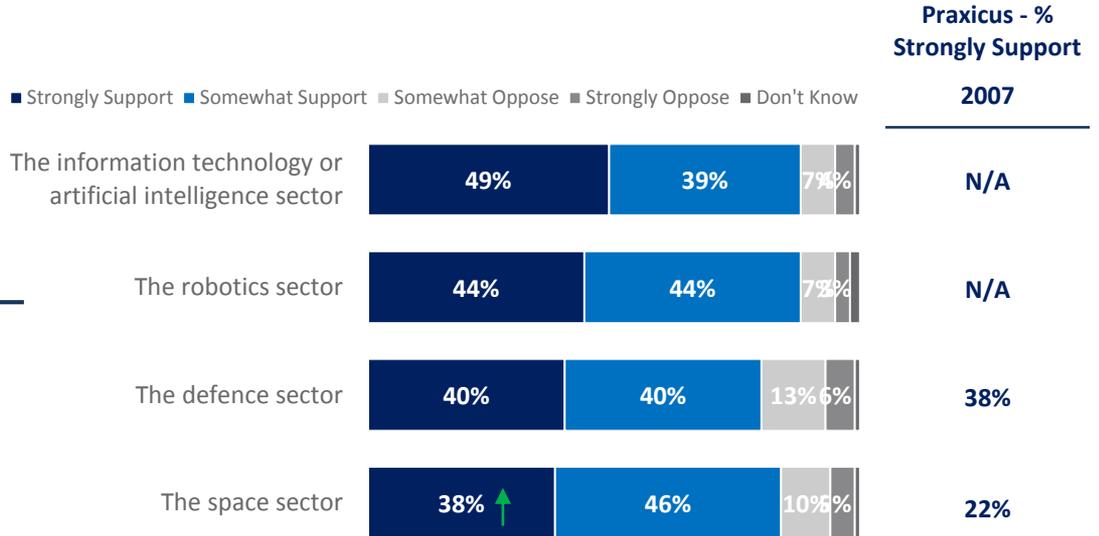
## OVERWHELMING SUPPORT FOR DEVELOPING EACH OF THE SECTORS

There is *strong support* for developing each of the sectors. Half (49%) *strongly support* developing the information technology sector. Around four in ten *strongly support* federal investments in robotics (44%), defence (40%), and space (38%).

Significantly more Canadians *strongly support* increased levels of investment in the space sector compared to the 2007 Praxicus survey (at 38% vs. 22%).

Canadians born abroad are more likely to *strongly support* the development of all sectors.

Liberal voters are significantly more likely to support the space sector, compared to conservative voters (87% vs. 81%). Those who support involvement in a 2020s Moon mission are more likely to *strongly support* increased government support for all sectors, save for the defence sector. Baby boomers (55+) and women are less likely to *strongly support* investments in the space sector. The highly educated (Post-Grad Degree) are more likely to *strongly support* increasing investments in robotics & artificial intelligence, but are less likely to feel this way about defence.



Q3. Do you strongly support, somewhat support, somewhat oppose or strongly oppose the federal government supporting the development of each of the following technology sectors? How about... [INSERT ITEM]? (READ LIST; REPEAT SCALE AS NEEDED) Base: All Respondents (n=1602); Base: 2007 Praxicus Survey (n=1250)

# Attitudes Related to Investing in Space

**THE VAST MAJORITY OF CANADIANS AGREE BEING INVOLVED IN SPACE IS IMPORTANT FOR CANADA FOR VARIOUS REASONS, BUT ARE SPLIT ON HOW MUCH SPENDING IS APPROPRIATE GIVEN OTHER PRIORITIES**



■ Strongly Agree 
 ■ Somewhat Agree 
 ■ Somewhat Disagree 
 ■ Strongly Disagree 
 ■ Don't Know



Q9. Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statements. How about... [INSERT ITEM]? (READ LIST; REPEAT SCALE AS NEEDED) / Q10. Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statements. How about... [INSERT ITEM]? (READ LIST; REPEAT SCALE AS NEEDED) Base: All Respondents (n=1602)

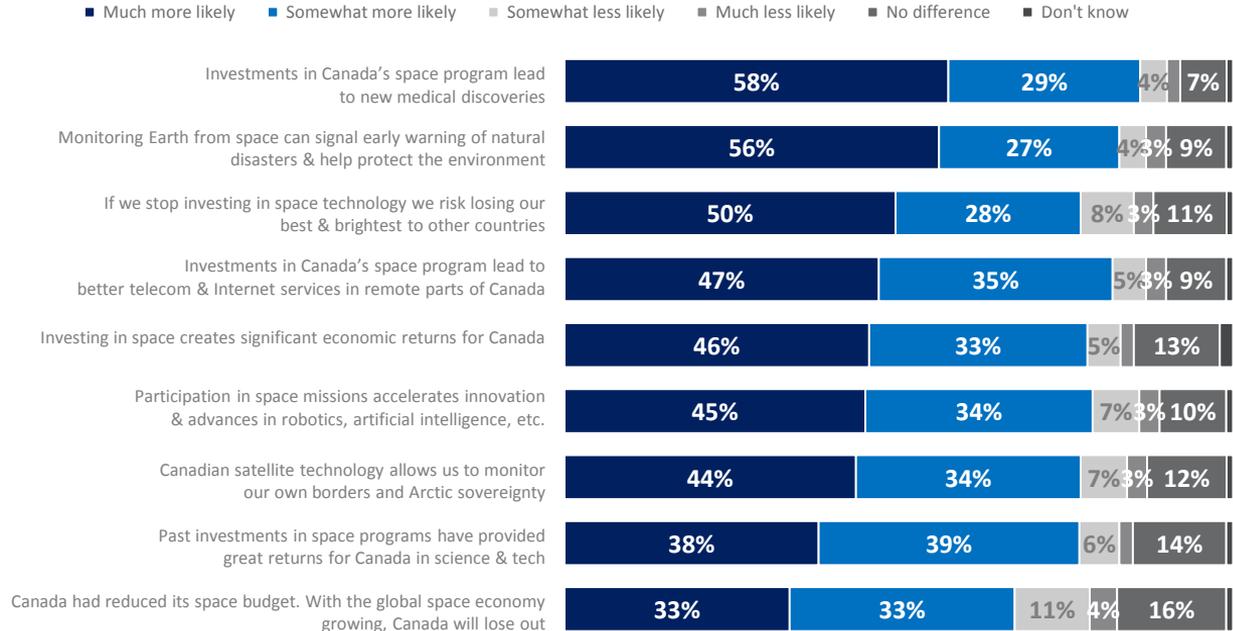
# Messages that Support Future Investment in Space



## MEDICAL DISCOVERIES & ENVIRONMENTAL BENEFITS ARE THE MOST EFFECTIVE MESSAGES

All statements tested resonate reasonably well with Canadians. The percent who feel ***much*** more likely to support increased investment in space technology has been used to identify the most effective messages.

- Leads to new medical discoveries (58%)
- Signals early warning of natural disasters and help protect oceans, forests, wetlands, and farmlands from climate change (56%).
- Brain drain – stopping investment risks losing our best and brightest minds (50%)
- Leads to better telecom and internet services including in remote parts of Canada (47%)
- Brings significant economic returns (46%)



Statements have been abbreviated

Q11. I am going to read out a few facts to you, and after each one, please tell me if it makes you much more likely, somewhat more likely, somewhat less likely or much less likely to support increased investments in Canada's space technology? If it makes no difference to your opinion please say so. (READ LIST; REPEAT SCALE AS NEEDED) Base: All Respondents (n=1602)

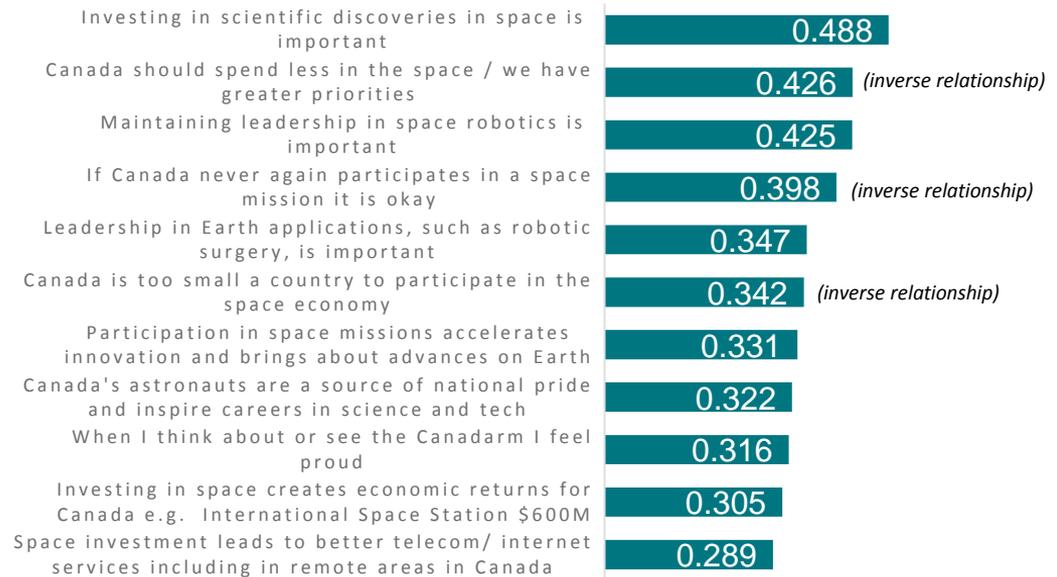
# Key Drivers of Support for Future Investment in Space

**THE EXTENT TO WHICH CANADIANS BELIEVE THAT (1) SCIENTIFIC DISCOVERIES IN SPACE WILL BENEFIT CANADA, (2) THAT MAINTAINING LEADERSHIP IN SPACE ROBOTICS BENEFITS CANADA AND (3) THAT SPENDING IN SPACE IS A PRIORITY GIVEN COMPETING PRIORITIES ARE THE STRONGEST DRIVERS OF SUPPORT.**

To determine the key drivers of support for future investment in the space sector, the agree/disagree statements in Q9 and Q10 were correlated against Q3 support/opposition to developing the space sector. The results of the correlation analysis suggest to maintain and grow support for future investment Canadians need to....

- Believe that investing in scientific discoveries in space is important for Canada to be involved in (88% currently agree)
- Know why space is a priority and worthy of investment even given other priorities (46% currently disagree that Canada should spend less on space given other priorities)
- Believe that maintaining leadership in space robotics, like the Canadarm, is important for Canada (91% currently agree).
- See value in continuing to participate in space missions (72% current disagree that Canada should NEVER again participate)

Correlation Coefficient (the larger the number the stronger the correlations)



Statements have been abbreviated - negatively worded statements have an inverse relationship with support for Federal Government developing the space sector -- The more people disagree with the statement, the more they support investment.

# Support for 2020 Moon Mission

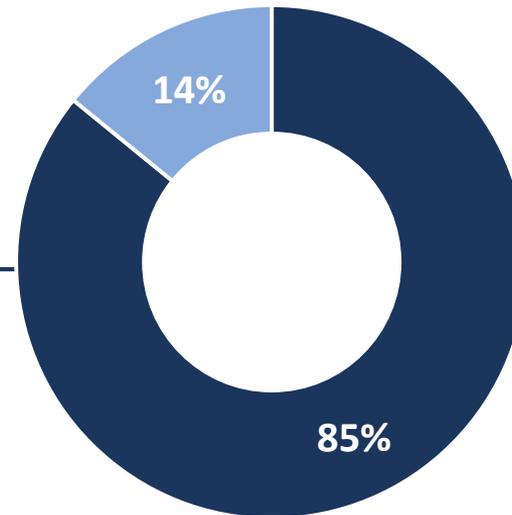


## VAST MAJORITY WANT CANADA TO MAINTAIN ROLE IN 2020s MOON MISSION

The vast majority (85%) of Canadians would like to see Canada maintain role in a new Moon mission.

Canadians who support the development of the space sector and those who are aware of the Canadarm are more likely to support involvement in a new Moon mission.

Households with children and a reported income of at least \$75k are more likely to support Canada's involvement in the next Moon mission. Less educated (HS or less) Canadians are more inclined than are more highly educated Canadians to think that Canada should not participate in a new Moon mission.



- Canada should maintain a role in new Moon mission
- Canada should not participate in a new Moon mission

Q12. The United States, Europe, Japan and Russia are currently planning the next big space exploration project, a return to the Moon in the 2020s. The US will build a space station that orbits the Moon, as a base for lunar exploration and as a Gateway to explore deeper space. Canada is expected to participate and provide advanced AI and robotics, our traditional role. ...Which point of view is closer to your own? Base: All Respondents (n=1602)

Detailed Findings

# FOCUS GROUPS

# Current awareness of Canada's space program is low



## MOST KNOW CANADARM AND ASTRONAUTS, BUT FEW HAVE MORE INFO

Canadarm and astronauts are prevalent top-of-mind associations and for many these are points of pride and tangible examples of Canada's contribution to space. However, beyond these associations, many are unaware of Canada's past or present accomplishments. Even those with some awareness are vague on specific details such as programs or beneficial technologies that have emerged as a result.

When asked about Canada's current level of investment in space, most guess that it has remained stable, or grown in recent years. Compared to other priorities for the country such as education and healthcare, there are some who feel that space should nevertheless be a priority (albeit still not a top one) while others are much softer and more ambivalent on support.

Participants believe that a lack of Canada-specific media on space has contributed to low levels of awareness. Current media attention and general discourse about Canada's participating in or leading any space programs, and technology in general, is perceived to be low – most news comes out of the US. There is also little awareness as to whether or not Canada has its own space agency and private sector investment is also perceived as low. This is in contrast to awareness of NASA, which is widely known as the US's space agency, and awareness of the US' considerable private investment in space and tech.



On Canada's involvement in space:  
**We're very proud:** *we don't know what [Canadarm] does but we're very proud of it. It's like a flag in the sky.* - **Montreal**



On private vs. public funding for space projects:  
**I also think space exploration is being more and more privatized.** *Recently, a lot of the companies, such as SpaceX and stuff, are getting a lot of traction but they're privately funded for the most part.* - **Vancouver**



On a Canadian Space Agency:  
**Where's our NASA?** - **Halifax**

# Space is considered a key industry of the future



## HOWEVER, MANY DO NOT BELIEVE THAT CANADA IS CURRENTLY A LEADER

The more participants learned about space, the more they saw its possibilities for the future. There is widespread acknowledgment that the US and Russia/former USSR were historically, and are still, the dominant players in space investment and exploration, although other countries/regions such as China, Asia and Europe are now perceived to be leading or investing heavily as well. Participants view Canada's role as being supportive or secondary to other players and this feels appropriate to most, who do not believe that Canada would have the necessary funding available for a leading space program.

However, Canada is considered overly reliant on its natural resources and other traditional industries as the key drivers of our economy and employment. This is mentioned as a concern in that there needs to be greater diversification and modernization in the foundational industries of the future, such as technology, and that we currently lack a comprehensive plan or system to ensure this will happen.

There were a few who mention that as a result, Canada is experiencing an exodus of intelligent and highly qualified individuals with expertise in advanced fields who cannot find the work they seek in Canada. The sense is that we do not optimally leverage our outstanding education system by hiring graduates to work in jobs here at home.



On Canada's past/current role in space:  
*[We are] not a major player. We collaborate [...]*  
***We don't have a launch base, or a budget similar to what they have in the US or in Russia.***  
- **Montreal**



On the future of Canada's jobs and economy:  
*...how to sustain our natural resources. Like we only have natural resources **and we have no idea how we're going to create an economy on a resource that we're running out of.*** – **Vancouver**

# Participants were clear: Government is the best entity to oversee a space program. A comprehensive plan and strategy would be the optimal solution.

## OVERSIGHT & PARTNERSHIP

Ensuring that the sector is acting responsibly and for the greater good through regulation. Potentially partnering with the private sector or bringing private/public together through responsibly stewarded funding.

## EDUCATION & TALENT RETENTION

Fostering intellectual leadership such as research programs in universities that are making discoveries on the ground. Preventing a “brain drain” of Canada’s best and brightest to other countries such as the US.



## INDUSTRY EXCELLENCE

Celebrating and supporting success – the Avro Arrow was brought up as an example of government walking away from world-leading innovation.

## ECONOMIC BENEFITS

Ensuring that any “spin off” technological advances are widely disseminated to industry and the public. Ensuring that job creation is a priority outcome.



## REGIONAL INCLUSION

Ensuring that all regions of Canada are included in, and benefiting from, space programs was a desired outcome – this could be part of a larger strategy around technology and future industries in Canada.

## COMMUNICATIONS & MESSAGING

Acting as a bridge between space and Canada by facilitating and communicating tangible benefits to Canadians.

# Role of Government

## OVERSIGHT & PARTNERSHIP

*"[S]upporting the private sector through research grants to universities and research facilities that are in the private sector. And let them do the work with the government maybe taking like one-step removed from that, and just providing the resources and whatnot to make that happen."* - Toronto

## EDUCATION & TALENT RETENTION

*"You have to pump the money into the education first, to make sure you educate the people who are going to carry this through in the future, right?"*  
- Vancouver



## INDUSTRY EXCELLENCE

*"You know, the Avro Arrow. They create incredible things but then just kind of lose interest or whatever, and don't put the money behind it....It's just sort of typical, short sighted."* - Toronto

## ECONOMIC BENEFITS

*"...we can see that there's a possibility to make money [in space, with space mining], so why not seize this opportunity... the possibility to make money: providing funds to make more money."* - Montreal



## REGIONAL INCLUSION

*"Well, the government just set up, what is it? 9 or 10 different centres of excellence across the country... So, I would hope the space exploration is at the level of one of those centres of excellence."* - Halifax

## COMMUNICATIONS & MESSAGING

*"[C]elebrate it! Just the public knowing about it might encourage, well it will affect public perceptions of what our role is, what it could be, should we spend money on it...They need to advertise their prestige projects too, and it would [help] Canada's reputation as well."* - Toronto

# The decline in spending is met with disappointment



## MOST WOULD LIKE TO CANADA TO CONTINUE INVESTING IN SPACE

When presented with information outlining Canada's decline in space investment, many express their dismay, particularly about the fact that we have dropped from #8 to #18 among spacefaring countries in spending as a proportion of GDP.

Although a few would like more information on the context around this information (dollar amounts, where the funds are being diverted, and number of countries participating, for example), in principle they do not wish to see Canada's investment in space fall behind. Part of the reason for this is because of the time commitment of space research and exploration – participants perceive that discoveries and innovations happen over the course many years and so it becomes harder to “catch up” down the road, and it is easy to fall behind other countries.

There is widespread agreement that Canada should/needs to be involved in space, that it represents our shared future, and the future of generations to come.

According to most – investments in space exploration would lead to better/smarter/ higher paying jobs, and the development of new technologies that could be adapted for applications here on earth – not to mention the prospect of a stronger and more knowledge-based economy down the road.



On current spending by Canada in space:  
*[I feel] **colossal disappointment at how much Canada has fallen behind in this over the years, and I was unaware of that. And my feeling is that we should not let this happen. I take quite a bit of encouragement from thinking that the current government is planning to launch into full development of a long-term strategy.** - Toronto*



On current spending by Canada in space:  
*What's kind of concerning to me is Canada could lose its place, **nothing happens overnight** in this type of business, and if you don't get on board there's a long period of learning and developing things. **If you don't get on board, you could be left in the cold, right?** Other countries will pick up the slack very quickly. [And then they will get] The prestige and the technical knowledge that's gained from spending the money which then percolates down to society in ways that most people don't recognize. - Halifax*

# Participants would like proactive communication



## MORE INFORMATION FOSTERS GOODWILL AND A DESIRE TO ACT NOW

Since many participants have no idea of Canada's participation in space, past or present, and awareness of facts about our accomplishments are generally very low in all markets, mentions are that this information needs to be more widely known. They state it is difficult to form an opinion in the absence of information about the "bigger picture".

Various reasons for increased communication were mentioned including: to engender a sense of national pride; to build support for any future space programming; and to educate the public generally about space and technology.

Positive messages about the economic impacts of investments in the space program over time (\$600 million dollars and 375 businesses benefiting from investing in the International Space Station alone) are well received and help Canadians understand the potential impacts of any future investments – transparency about a cost/benefit analysis would allay any skepticism about how much money is being spent in order to generate results.



On awareness and communication to the public about Canada's involvement in space:

*Why aren't we **talking more** about it? - Halifax*



On awareness and communication to the public about Canada's involvement in space:

*I haven't given it much thought, and that's why I don't participate much. There are times when I would think "why do we spend so much money on space?" That's what I used to think and **now I listen to you and OK there may be a reason for it**. Before, I was not interested enough to know about it, but now, yes. - Montreal*



**We asked participants to read a blog post about Canada in space. Several key themes emerged across all markets.**

# SOVEREIGNTY



## NOT LETTING OTHER COUNTRIES DOMINATE IN SPACE TO OUR EXCLUSION

Participants do not wish to see Canada left behind other countries, particularly powerful ones capable of dominating and driving the agenda of future space exploration, as well as reaping benefits for themselves and not the greater good.

This notion is considered of greater urgency and importance in today's protectionist political climate. Looking out for our own interests and not being dependent on others – especially the US – is crucial to securing our future both in space and writ large.

They believe that investing in space is a story for Canadians that does not have many pitfalls or insurmountable concerns. To the contrary, at a time when there is much negativity in the media and when discourse about the future is uncertain, playing a role in space is a message of positivity, hope and better outcomes for respective generations.

Participants perceive that in the past, Canada has not been a country to boast about its achievements or even make its own citizens aware of these. They believe it is time to be more vocal and express the same pride and patriotism that other countries would in the same situation.



On Canada's future role in space:

*Every country has their own different interests and **it's important for Canada to be present.** Maybe they don't have the same intentions as Russia or another [country]. - **Montreal***



On Canada's future role in space:

*I think the way things are going at the moment in this world, Canada needs to be open to what it can do in cooperation with Europe and the Far East, and **be ready to present itself to these areas of the world as a leader** in this type of technology and research, **even if it doesn't fly south of the border.** - **Toronto***



On patriotism/promotion of Canada's role in space

*...while reading the text, **he said something that triggered my patriotism** and I encourage our government to go ahead.*

- **Montreal**

# LEADERSHIP



## CANADA SHOULD PLAY A SIGNIFICANT AND STRATEGIC ROLE

It is important to many that Canada continues to be seen as a leader in the world stage in a manner that aligns with our values as Canadians – that is, peaceful and environmentally conscious. The idea that our investment is falling behind Luxembourg's, that they would be a major player in space while Canada sits on the sidelines makes no sense to participants. This fact is considered puzzling and even a point of consternation to some.

Participants feel the country needs to act now to correct the situation. The Gateway mission is considered the perfect opportunity to do so. They also like that this is an alliance of several countries which is in line with their perceptions of the magnitude of Canada's role. Overall participants are on side with the idea of Canada participating in the Gateway project. For the most part they feel that not doing so would simply constitute a missed opportunity.

That said, most believe that Canada can't and shouldn't try to compete on the same scale with the major players in this arena – that is the US and Russia – who are widely acknowledged as the countries who have the most resources and capital to spend on space, and who have access to or own the most advanced technology.



On spending in space by Canada:

*My feeling is... that if we don't [invest] then I mean amongst all the Western nations **we're going to end up being the backwater.***

Toronto



On spending in space by Canada:

*I felt positive about the fact we're a world leader, that we have this skilled workforce, but **the negative is that reduction in spending.** We're last out of G7 countries -- that was also a big negative for me.*

Vancouver

# INVESTMENT



## COMMUNICATING THAT “MONEY IN” WILL HAVE AN ROI IS CRUCIAL

Participants recognize that Canada needs to invest in order to reap any potential benefits from the new space economy. Furthermore, the example scale of investment that was presented to them (\$1 billion over 17 years) does not seem like an onerous amount to spend given the opportunities the program presents. Although it was acknowledged that there are other countries who may be able to afford more or invest in other programs, many believe that Canada can afford to spend an amount that is proportionate to our size.

Positive messages about the economic impacts of investments in the space program over time (\$600 million dollars and 375 businesses benefiting) are well received and do not seem like a huge amount of money to some, relative to benefits and outcomes, although those more skeptical wonder aloud about how much money has been spent in order to generate these types of results in a cost-benefit analysis.

According to participants, any messaging that speaks of the longer term economic benefits for Canada (many mentioned the new space economy section of the blog in this regard) would serve to further convince the public of the merits of such investments.



On Canada’s spending in the Space Station:

*...the ‘involvement in the Space Station created \$600 million...’, I **was surprised actually it wasn’t more.** So, I mean it just seems such a big thing, it just seemed it should have been bigger somehow.*

**-Toronto**



On the Gateway project:

*But a billion over 17 years, it’s a bargain. -*

**Montreal**



On public awareness of Canada’s investment and role in space:

*...immediately they’ll need some tax money, but **the public will pay if they think there’s a vested interest.** [But to be supportive] they will need the knowledge, the information, liked we did.*

**Toronto**



## THE JOBS AND OPPORTUNITIES OF THE FUTURE NEED NURTURING

Canada's current dependence on natural resources as a key industry was a point of concern for many. The perception is that these are finite, more traditional industries.

The need to expand and diversify into other fields such as technology – robotics, AI, and the like are mentioned as potential areas of expansion. When presented with information, space mining, exploration and any spinoff technologies for our economic growth is mentioned as potential components of ensuring a healthy economy moving forward. A couple of participants made reference to Canada's recent pipeline purchase as a backward-looking investment in contrast to an investment in space which is forward-looking.

Furthermore, our expertise in the mining sector means that we are likely ideally placed to contribute to the new space economy.

The theme of environmental consciousness bubbled up throughout various discussions, with support expressed for space innovation that would help drive positive outcomes such as helping to mitigate climate change, and developing environmentally clean technologies.



On potential benefits of Canadian space exploration and funding:

*I think that **when you were talking about spin off into other fields, that made me more excited** because when you just think about robotics, that's different than when you talk about medicine or green energy. If that starts to encompass all that where we're going as a society, that's when I get more excited. -*

**Vancouver**

# TANGIBILITY



## HEARING DETAILS PROVIDES INTERESTING CONTEXT AND PERSONAL RELEVANCE

Participants would like to know how the innovations that take place in space, or technology that spins off from research/exploration, will affect them personally here at home – there is already a disconnect in the current space program where many are unaware of the 20-30 touchpoints in their daily lives that are from space.

At the moment, the benefits of a space program are poorly understood. Space both literally and figuratively feels like a faraway idea that has little effect or resonance for people at home on earth.

Any further investments should emphasize how space innovation is helping Canadians – the fact that advances fuel innovations that are currently, and could in future, be used by everyone is appealing and positive to hear.

Any mentions of ROI, jobs created, and other concrete numbers that provide context and help participants grasp magnitude and relevance were appreciated.

The concrete examples in the blog post were all new, pleasant surprises and positively received.



On concrete ways that Canadians are affected by space:

*20-30 times a day: it really affects everyone. **We live with this and we cannot do without it.** - Montreal*



On concrete information that should be communicated to Canadians:

*I would **add more meat [detail] behind our leading edge.** I'm glad we have 24,000 people, 5.3 billion revenue. Those are numbers that stood out to me. - Halifax*



On information that should be provided to the public on benefits of Canadian space exploration and funding:

*...if someone was to sell me the idea: [they should focus on] the everyday life, **how it affects my everyday life and the economic benefits.** - Montreal*

# CONCLUSIONS AND RECOMMENDATIONS

# Conclusions and Recommendations



## CANADA NEEDS TO LOOK FORWARD TO A BRIGHT AND PROSPEROUS FUTURE

**Be clear about what is at stake.** With Canada at a crossroads in terms of its role in space, support is strong for Canada to position itself as a world leader in the field of space technology. Canadians also perceive that being a player in space provides an opportunity to further our self-determination as a sovereign nation and see this as an important component of participation.

**Be down to earth.** Canadians are seeking detailed information on all aspects of the program including the type of work being done in this arena. They are most interested in the benefits and impacts that have changed the way Canadians live and function, and would like to hear about how future investment in space will further these. The potential for jobs or benefits to Canada's current and future economy are enormous drivers in terms of interest and support.

**Be Canadian.** The desire to see Canadian values be part of the future of space was something that emerged from the research. Canadians believe that Canada's involvement in space would help ensure that space advancements and innovations benefit not just all Canadians, regardless of region or economic status, but also all of humankind.

**Be innovative.** Canadians would like to hear that the Government is supporting modern and upcoming industries that will shape our future for generations to come.

**Be proud.** Past accomplishments in space are a great source of pride to Canadians. Putting our achievements forth both at home and around the world is a compelling narrative to push out, especially in uncertain times.

# APPENDIX

# DEMOGRAPHICS

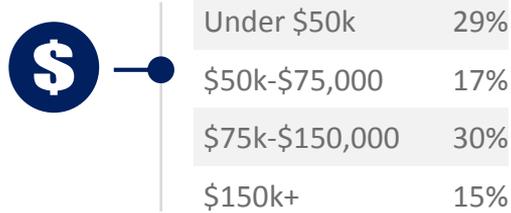


## RESPONDENT PROFILE

### GENDER



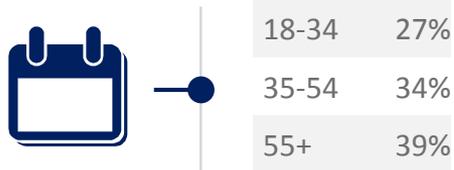
### HOUSEHOLD INCOME (PRE-TAX)



### EDUCATION



### AGE



### PROVINCE/REGION



### KIDS IN HOUSEHOLD



### BORN IN CANADA



# DEMOGRAPHICS



## RESPONDENT PROFILE

### # of PEOPLE in Household



One	20%
Two	35%
Three	18%
Four	16%
Five+	10%

### # of CHILDREN < 18 Years of Age



One	15%
Two	14%
Three	5%
Four	2%
Five+	-

### EMPLOYMENT STATUS



Employed full-time	45%
Employed part-time	8%
Self-employed	10%
Unemployed but looking for a job	3%
Unemployed, and not looking for a job/long-term sick or disabled	3%
Full-time parent, homemaker	2%
Retired	23%
Student/pupil	4%
Military	-
Prefer not to answer	1%
On maternity benefit	1%

### YEAR ARRIVED IN CANADA

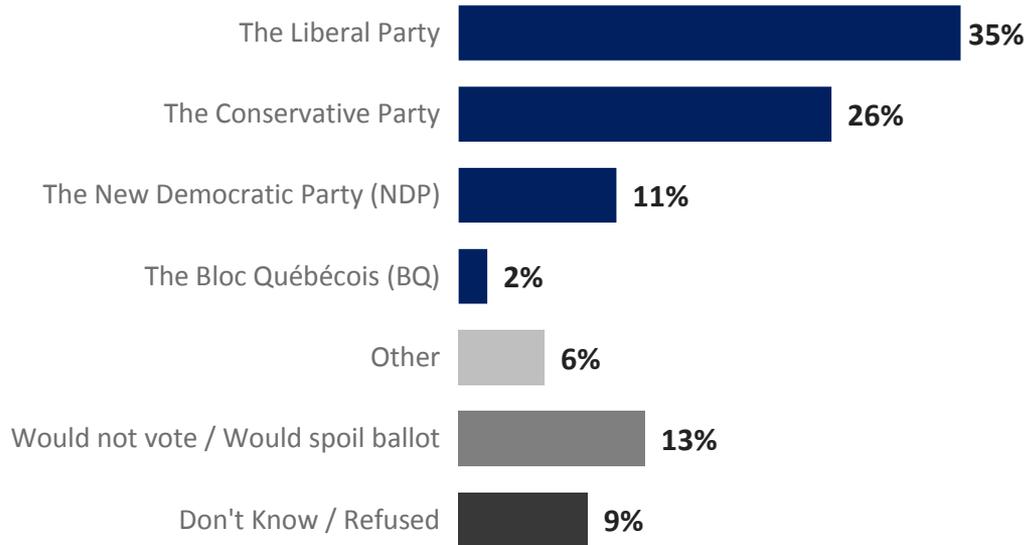


New immigrant	26%
Mid-term immigrant	19%
Mature immigrant	53%

# CONTEXT



## FEDERAL VOTE / POLITICAL AFFILIATIONS



# BLOG POST SHOWN TO FOCUS GROUPS

## Securing Canada's Place in Space

### **Canada a Leader in Space Robotics, Satellite Communications and Earth Observation**

Not many people realize that Canada was the third country in space in 1962, after the (then) U.S.S.R. and USA superpowers, but it's a fact. And the expertise that was developed as a result led to other great accomplishments: Canada was the first to operate a commercial domestic communications satellite from geostationary orbit; the first to deploy a direct-to-home broadcasting service; the first to have an operational and commercially-focused radar remote sensing system; and the first to introduce two-way broadband Internet across the country.

This is not the sum of our accomplishments in space, by any means, just some notable firsts made possible by the bold vision, deliberate choices and strategic investments of past Canadian governments. Because, when it comes to space, governments have to lead.

Today, thanks to their choices, Canada is an acknowledged world leader in space robotics, satellite communications and Earth observation, with a diverse space sector that includes some of Canada's most innovative companies, universities, and research institutions and employs our brightest minds. In 2015, that space sector achieved \$5.3 billion in revenue, supported 24,000 Canadian jobs (53% highly skilled), and contributed \$2.7 billion to the GDP.

### **Canada at an inflection point**

Space touches the lives of Canadians 20-30 times a day, from weather predictions, to using an ATM, to checking a map on a smartphone, to downloading movies, to ground and air traffic management. It is going to be even more pervasive in the future, in the fast-approaching tomorrow of autonomous cars, smart cities, advanced autonomous AI and robotics. How are things looking for the Canada of tomorrow? It depends.

# BLOG POST SHOWN TO FOCUS GROUPS

Unlike other countries, that have been increasing their investments in space, Canada has faced declining investment for many years, and has had no long-term space plan for decades.

According to the latest figures, whereas other G7 countries invest on average 0.05% of GDP for civil space activities, our rate of investment is 62% lower than that. Whereas in 1992, we were 4th in spending as a share of GDP among G7 countries, by 2016 we were last. Looking across all spacefaring countries, we've fallen from 8th to 18th.

The years of neglect may soon end. The Canadian Government has made investing in innovation a priority; has appointed a Canadian Space Advisory Board; and is developing a long-term space strategy, which cannot come too soon because there are pressing decisions that need to be made. Possibly the most pressing is whether Canada will participate, or not, in the international space community's next big exploration project.

The United States, Europe, Japan and Russia are currently planning a return to the Moon in the 2020s. NASA will build a small space station that orbits the Moon, as a base for lunar exploration and as a Gateway to explore deeper space. The international community expects Canada to participate in this mission and to provide advanced AI and robotics, our traditional and strategic role. The needed commitment is not enormous: \$1B over 17 years secures our place as a full partner in the mission. But, so far, no commitment has been made.

This won't be your father's Canadarm! Given the Gateway's distance from Earth – the International Space Station is 400kms away, the Gateway is 400,000 -- Canadarm3 would incorporate significantly more autonomous decision-making capabilities using artificial intelligence (AI) and state-of-the-art robotics and software. Canada's best and brightest minds will need to be mobilized to design and build technology solutions that will push the limits of science, technology, engineering and math, contributing to the advancement of Canada's knowledge-based economy over the next two decades in areas so key to our competitiveness.

# BLOG POST SHOWN TO FOCUS GROUPS

## **Positioning Canada for the new space economy**

The Gateway will also accelerate the emerging commercial space market in Low Earth Orbit -- and the international space community knows it.

Including a commitment to participate in the Gateway as part of the upcoming space strategy would signal to the world that Canada plans to claim its place in the new space economy. It is essential that we should be there. The current space-related global market opportunity is commonly estimated to be \$330B, which analysts forecast will grow to be a multi-trillion-dollar market in coming decades.

The future of some of even the most traditional of industries will be in space. Look at mining, in which Canada is a leader here on Earth. Just one asteroid, the size of a football field, is estimated to have between \$25 billion and \$50 billion worth of rare and precious metals. NASA estimates that the total value of the 18,000 asteroids that are currently in the vicinity of Earth could be up to \$700 quintillion. Space mining is forecast to be a multi-trillion-dollar industry, with missions starting as early as 2020.

## **Time for bold vision and wise choices**

Tomorrow is almost here. And with the final frontier opening up, countries and companies are jostling to capture their place in the new space economy. Ambitious governments are setting their course and staking their claims. Luxembourg has set its sights on being the leading country in space mining; the U.K. aims to capture 10 percent of the global space market by 2030.

Past Canadian governments planned for a future that they could not entirely anticipate. Thanks to their courage and vision, the return on investment for this country and its citizens has been enormous, in terms of advances in science and technology, of innovation, of jobs and economic growth, of inspiration and pride, and of stature on the world stage.

# BLOG POST SHOWN TO FOCUS GROUPS

We believe that the current Government of Canada, with its focus on leveraging innovation to create opportunities and a better future for all Canadians, has the wisdom and vision to invest today for the continued prosperity of the Canada of tomorrow.

It is time for a long-term space plan for Canada that establishes the requisite funding to maintain and enhance our existing capabilities in space science, robotics, communications, and radar, and cultivates new areas of leadership. It is time to make a commitment to participate in the Gateway project.

Today's wise choices will enable the next wave of Canadian explorers and entrepreneurs to seek and claim the opportunities of the final frontier and secure Canada's place in space.

If you would like to let your elected officials know that you support a long-term space plan for Canada and want Canada to commit to participating in the Gateway project, [click here](#).

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