



Gateway to Global Leadership

Transforming Canadian Aerospace



Aerospace Industries
Association of Canada

L'Association des industries
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Executive summary

The global challenges and technological opportunities of the coming decades will demand the very best of Canadian aerospace innovation — to face the climate crisis and meet net-zero goals, re-imagine mobility and safeguard our national interests. Yet today our domestic aerospace industry is outpaced by other nations and striving to overcome the economic impacts of COVID-19 and a drastic labour shortage. To reclaim international leadership, Canada's aerospace industry is proposing an all-new entity that will coordinate and amplify our country's unique, end-to-end aerospace innovation capabilities for the next 30 years and beyond: the **Canadian aerospace industry innovation gateway**.

What the aerospace innovation gateway will do

The gateway will perform three core roles currently unfilled by any other organization. As **orchestrator**, it will set the direction of Canada's aerospace innovation ecosystem and foster collaboration, ensuring the involvement of all regions of the country. As a **funder/broker**, it will set R&D priorities, centrally administer project funding and facilitate investment. As **IP administrator**, it will oversee the ecosystem's IP framework and ensure fair IP exploitation.

The gateway will also play the complementary roles of **ecosystem developer** — working with partners and other stakeholders to build up the aerospace innovation ecosystem across the country; and **industry promoter** — collaborating with other players to promote Canadian aerospace at home and around the world.

What it will focus on

The gateway's guiding vision is to **position Canada as the global leader in aerospace innovation** by fostering multi-sectoral collaboration and access to resources — driving sustainable development and the integration of technologies and platforms of the future. One of its first activities will be to lead the development of a national aerospace industrial strategy for Canada that sets R&D priorities.

The gateway has **seven clear strategic objectives**: to coordinate and accelerate aerospace innovation nationally; attract investment and facilitate deals; build SME competitiveness; develop a sustainable supply of skilled talent; achieve emissions reductions to meet net-zero requirements; further Canada's leadership in space; and contribute to national defence and sovereignty. The gateway's R&D funding will **focus on specific technology areas** including decarbonization, advanced air mobility and autonomous operations, advanced materials, space technologies and Industry 4.0, including digitalization and artificial intelligence (AI).

CSAFE, an initiative focused on sustainable aviation, will be a critical enabler of the gateway's strategic plan and could become the launchpad for standing up the innovation gateway framework, which will support other priority initiatives of industry and government.



How the gateway will enable SMEs

The gateway will give aerospace SMEs access to Tier 1 and original equipment manufacturer (OEM) partners in a way never before achieved in Canada. It will incentivize collaborative innovation by involving SMEs at every technology readiness level (TRL), with clear IP protections and access to IP that can be applied to commercializing innovations in other industries. Among the gateway's first initiatives will be a SME scale-up program dedicated to helping these companies grow and be globally competitive.

Where it fits with ISED and SIF

The gateway will be a direct conduit between the country's aerospace industry as a whole and Innovation, Science and Economic Development Canada (ISED). It will be a centralized, agile source of funding for aerospace-specific innovation projects that align with government and industry priorities.

How IP will be managed and protected

The gateway will serve as IP administrator for funded projects, managing how IP is shared and used at each technology readiness level (TRL), ensuring that IP created in Canada benefits Canada. The federal government can be a key partner in IP development at all stages, including through the procurement of IP from outside Canada when acquiring equipment and platforms that the domestic industry can apply and exploit.

What the gateway won't do

The gateway will not duplicate the activities of existing ecosystems or initiatives such as CRIAQ, DAIR, the NRC and innovation zones or the Global Innovation Clusters, or the work of AIAC and other industry associations. Instead, it will serve as an 'ecosystem of ecosystems', bringing greater visibility and connectivity to the full scope of Canadian aerospace innovation activities, including all of the above.

Where defence factors

The aerospace innovation gateway will provide the opportunity for industry to partner with the Government of Canada as it defines needed defence capabilities. This will stimulate collaborative innovation, driving domestic aerospace R&D and exports with dual-use technologies that meet national security and sovereignty needs and also have commercial applications.

How it will be governed

The gateway will be independent and industry-led, with a Board of Directors made up of industry representatives from inside and outside aerospace as well as academia, government and the investment community. The Board will focus on ecosystem collaboration, the gateway's own financial sustainability, and industry diversity and inclusion. Together, Board members will guide the gateway's strategic planning, prioritizing industry growth and economic value for Canada.

How Canadian aerospace and Canadians will benefit

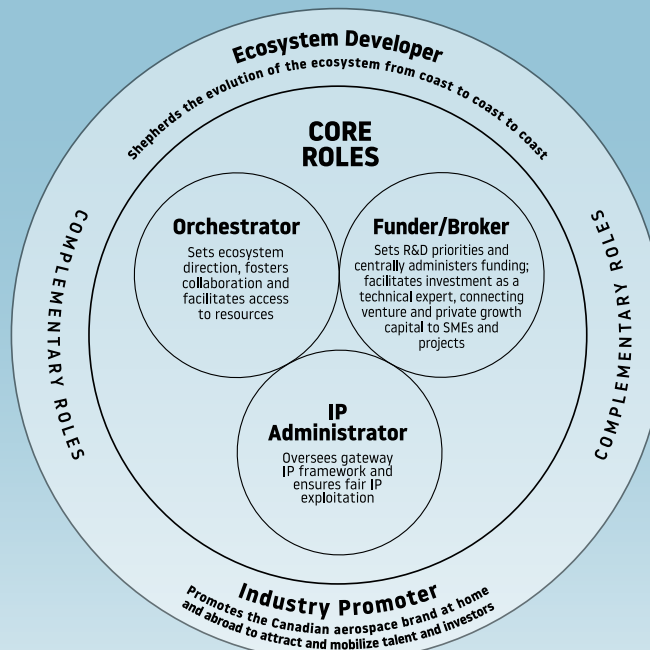
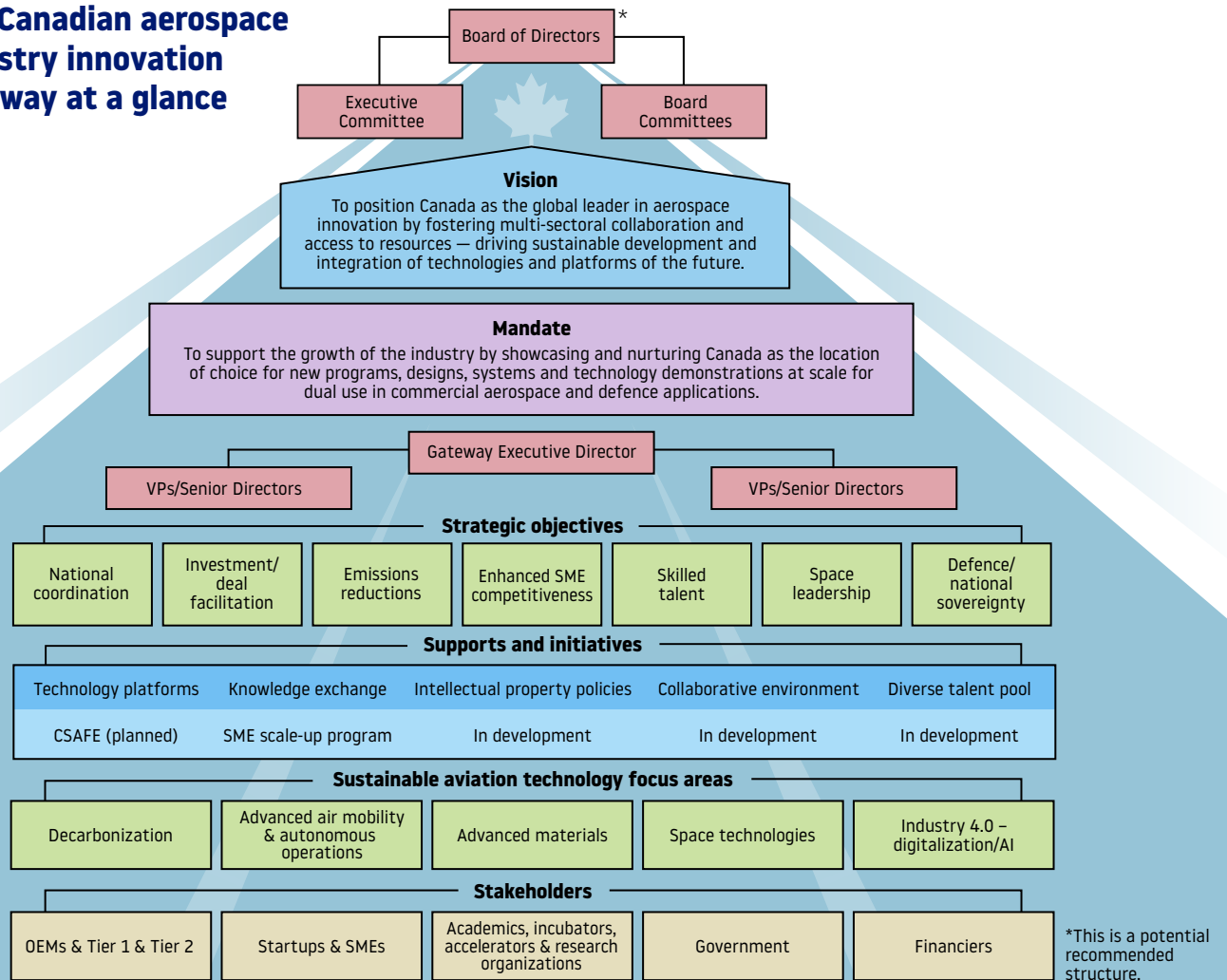
This 'gateway to opportunity' will make the industry more competitive, attractive to international investors, and sustainable over the long term. With the benefit of an aerospace innovation gateway, the industry has the potential to generate higher revenues, create jobs and contribute more to Canada's GDP — while seizing emerging opportunities in decarbonization, sustainable aviation fuel, advanced air mobility and commercial aviation, markets that are expected to be in the billions or trillions of dollars over the coming decades.



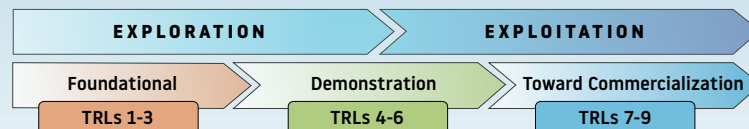
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The Canadian aerospace industry innovation gateway at a glance



How IP development flows



THIS IS A SOBERING TIME FOR THE PLANET. Countries around the world are being tested by the undeniable impacts of climate change, geopolitical unpredictability, social unrest and the consequences of a first-of-its-kind pandemic.

Simultaneously, the opportunities associated with disruptive technologies, a new paradigm of mobility and exhilarating advances in space are calling.

HOW WILL CANADA RESPOND?

The next 30 years will bring more radical and rapid change than current generations have seen in their lifetimes. Only if we come together as a national aerospace industry can we seize the full potential of what's to come, engaging companies from every region of the country and across the supply chain while working collaboratively with academia and innovators in other sectors.

With a coordinated approach that leverages Canada's uniquely diversified innovation ecosystem, world-leading talent and end-to-end capabilities from design to production at scale, we can rise to the grand challenges before us — attracting international investment and making our country the go-to hub for next-gen aerospace.

Enter the innovation gateway.



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The capabilities to put Canada back on top

Letter from the Steering Committee

Canadians are concerned about the future — about climate change, rising inflation and national security.

As an industry built on imagining future possibilities, aerospace has a responsibility to apply its ingenuity and innovative capacity to confront those challenges. Greening aviation in particular is absolutely imperative. The Government of Canada has made clear in its last two Throne Speeches that climate action is needed now.

Canada's aerospace industry has a unique set of capabilities to contribute solutions on many pressing fronts. We have an end-to-end ecosystem with all the necessary players, from researchers and startups to small and medium-sized enterprises, Tier 1 companies and global original equipment manufacturers. We have government-supported R&D infrastructure such as the National Research Council and proven innovation mechanisms such as CRIAQ in Quebec.

What we have not had up to now is a coordinated, pan-Canadian, whole-industry approach to innovation. That requires new structures and frameworks for collaboration and the sharing of intellectual property (IP).

This report outlines our proposal for an orchestrated 'ecosystem of ecosystems' — an aerospace innovation gateway.

The gateway will transform relationships within the industry. It will build the momentum we need to regain and grow Canada's leadership in the global aerospace market, attracting international investment to our country and companies. It will create opportunities for us to engage with Canadian companies in other industries such as the automotive sector and agriculture, digital technology and AI — boosting our collective innovation capacity and generating widespread economic benefits.

The CSAFE initiative will activate the gateway, focusing on advancements in sustainable aviation: hybrid and alternative propulsion, aircraft architectures and systems, clean fuels and infrastructure and operations.

We're ready to do our part to make this real. We need the Government of Canada to work with us as a risk-sharing partner to truly fulfill our catalytic potential.

With funding and political support, and with Innovation, Science and Economic Development Canada as a champion of Canadian aerospace on the world stage, there will be no limit to our potential for success. Together, we can capture the full power inherent in our innovation ecosystem and make life better for all Canadians.

Let's make it happen.

Steering Committee members



Mike Mueller
President and CEO
AIAC



Richard Foster
Chair, AIAC
VP L3Harris Technologies Canada



Amandeep Kaler
Vice Chair, AIAC
CEO Avcorp Industries



John Mannarino
President
Mannarino Systems & Software Inc.



Krista Robinson
Partner, SR&ED and
Business Tax Incentives
EY Canada

Working Group Co-chairs

Network Strategy and Governance



Houssam Alaouie
Senior Director, R&D Programs
and Relations with Higher
Education Institutions
CAE



Cara Salci
VP Strategy & Government Relations
Thales Group

Business Model and Sustainability Plan



Pierre Pyun
VP Government Affairs
Bombardier



Tim Whittier
Director, Government Relations –
Landing Systems
Collins Aerospace

IP Policies



Michel Dion
Senior Manager – Innovation
Bell Flight
Bell Helicopter Textron Canada



Pablo Tseng
Partner, Intellectual Property
& Technology
McMillan

LIFTOFF: CSAFE — Making the leap to net zero

Aerospace industry players have worked out a detailed proposal for CSAFE — an initiative to accelerate the development and commercialization of mid-TRL green aviation technologies in Canada. Specifically, CSAFE will focus on:

- *hybrid and alternative propulsion*
- *aircraft architectures and systems*
- *clean fuels*
- *infrastructure and operations*

CSAFE is an opportunity to demonstrate real commitment to sustainability and sector transformation, making it a strong and strategically important initiative for the Canadian aerospace industry innovation gateway.



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A pivotal moment for aerospace

Letter from AIAC's President & CEO

Last year, Minister Champagne asked our industry for a bold, transformational vision for innovation in Canadian aerospace. Understanding that aerospace is critical, strategic and economically essential, he invited our industry to define how we can fulfill our potential for the good of Canada over the next 30 years.

This proposal is the answer: a blueprint for orchestrating innovation in unprecedented ways — through challenging times — to develop leap-ahead solutions that will be the envy of the global aerospace value chain.

The aerospace innovation gateway put forward here is the product of extensive consultations with industry stakeholders. The response to our call for input was overwhelming. More than 450 individuals took part in the series of nine virtual meetings we hosted throughout spring 2022, facilitated by former EDC Chief Economist, Peter Hall.

We heard from companies of all sizes, from service provider organizations, consulting firms, educational and research institutions, industry associations, labour, Indigenous groups and Indigenous-led businesses all across the aerospace, space and defence continuum.

Participants were frank about COVID-19's impacts on the industry and the challenges of collaboration and access to funding that have hampered Canadian aerospace innovation in recent years. They were unanimous in their pride and conviction that what this country has to offer is exceptional.

Coming out of the consultations, industry leaders and other experts defined a network strategy and business model, sustainability plan, IP policies and potential governance model for a thriving, long-term Canadian aerospace innovation ecosystem with a secure talent pipeline. That 'innovation gateway' will bring all parts of the industry together and create new opportunities for small and mid-sized enterprises to collaborate with larger companies and accelerate the development of new solutions and technologies.

Industry players agreed that CSAFE — an ambitious, long-term initiative for advancing sustainable aviation — is ideally positioned to lead the way in establishing the gateway, vital to the future of Canadian aerospace and "shovel-ready."

A SWEEPING SERIES OF CONSULTATIONS

450+ participants
*representing aerospace,
space and defence*

All sizes of companies
(startups, SMEs, Tier 1s, OEMs)

All regions of the country

**Academia, industry
associations, Indigenous
groups**

9 virtual meetings

Detailed online survey

Additional expert interviews

This is not AIAC's proposal: it's industry's. And I have been truly impressed by the enthusiasm for collaboration and cooperation in putting it together.

Minister Champagne, his Department and the Government of Canada as a whole clearly recognize that transformation takes commitment. The \$1.75 billion pledged in Budget 2021 to aerospace through SIF is proof of that.

This aerospace innovation gateway will require investment and a new kind of strategic partnership between industry and government, just as other countries have established. It will provide clarity, certainty and predictability for innovation. It will bring global investment to Canada and make the rest of the world sit up and take notice of what we're doing.

This proposal would not exist without the contributions of many individuals who lent their time, talent and expertise to generate research, carry out the consultations, capture the dialogue and shape the resulting ideas. I thank everyone who participated, the members of our Steering Committee and Working Groups who drafted the proposal elements, and the Minister for this opportunity to do something truly transformative and catalytic — not only for our industry but for all of Canada.



Mike Mueller

President & Chief Executive Officer
AIAC

• What this report includes

The innovation gateway will be brought to life through the implementation of five key elements laid out in this proposal:

- **A network strategy**
to set a clear vision
- **A business model**
to define the operations of the gateway
- **A sustainability plan**
for long-term viability
- **IP policies**
to facilitate open collaboration
- **A governance model**
that actively engages the full range of ecosystem stakeholders



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Gateway to the future

Canada's aerospace industry has always been an engine of transformative innovation — from the famed AVRO Arrow to the Canadarms that revolutionized space exploration.

Our proposed aerospace innovation gateway will draw on that legacy and catalyze our full potential for the benefit of all Canadians — unifying, integrating, coordinating and strengthening the country's aerospace ecosystem in new ways.

It will be a gateway to **economic recovery and growth**, strengthening industrial competitiveness and restoring Canada's global aerospace leadership. It will open paths to **long-term sustainability**, technology leadership and new sources of funding and financing.

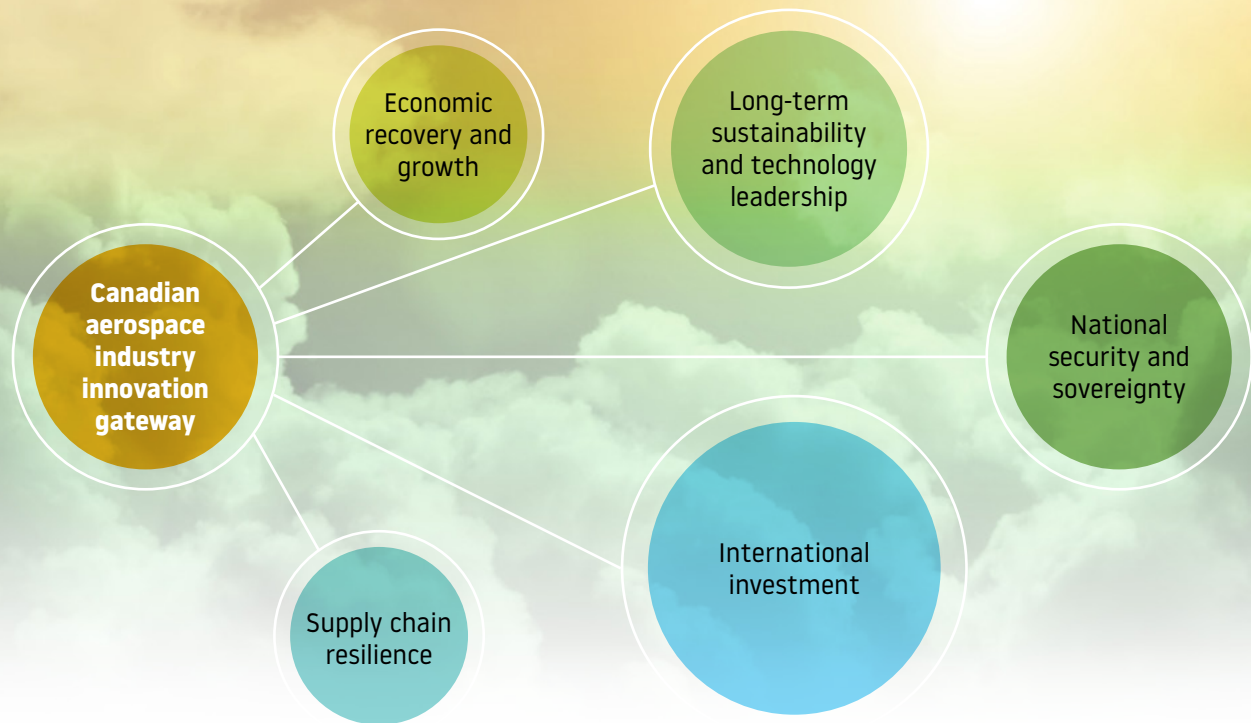
With an innovation gateway, we will generate solutions to ensure our **national security** and continental sovereignty, protecting our critical infrastructure and making our **supply chains** more resilient.

The gateway will establish Canada as the world's go-to hub for aerospace innovation — attracting **international investment** and ensuring our place as an essential player in the global value chain.

**Let's open the gateway
to opportunity together.**

Gateway to prosperity

The centralized, industry-driven innovation gateway will mobilize stakeholders, create value and build momentum by fostering multi-sector collaboration and positioning Canada as a global leader in aerospace innovation.



The Canadian aerospace industry innovation gateway will federate aerospace ecosystem activity across all of Canada, creating opportunities and ensuring no region or sub-segment is left behind.

BUILDING ON CSAFE

The aerospace innovation gateway will serve as an umbrella for the CSAFE initiative proposed separately by industry. Mobilizing CSAFE under the gateway framework has the full support of all parties involved in that proposal, who recognize that the innovation gateway's ambitious approach to aerospace transformation goes beyond CSAFE's focus on environmental sustainability and mid-stage R&D to position Canada as a global hub for innovation in aerospace, space and defence at all technology readiness levels (TRLs).

Massive potential to transform

Establishing an aerospace innovation gateway in 2023 will boost Canada's GDP, generate thousands of jobs and help achieve the country's net-zero goals — making a critical contribution to the country's long-term economic growth, prosperity and sustainability.

Global aerospace market demand is returning in the wake of COVID-19, accompanied by supply chain repatriation and cooperation among economic allies and concerted efforts to combat climate change. The gateway will position Canada to capitalize on these trends as a powerful attractor of innovation investment from domestic and international companies.

Even the most conservative projections show significant potential benefits in just the first few years of setting up the gateway — from 2023 to 2025 — and part of what makes ecosystems transformational is that their impacts compound over time. These gains will be only the beginning.

The full effect will ultimately depend on the extent of investment in the gateway, the level of industry and government commitment, and the degree of collaboration achieved.

From the 2022 consultation process, it is clear industry supports, wants and needs an ecosystem mechanism and is ready to put it to use right away. Companies in the sector continue to commit millions to R&D. If governments at all levels make aerospace a priority and support the industry in their regions, the benefits of coordinated innovation will be experienced in every corner of the country.

Growing GDP, revenues and jobs¹

With a coordinated aerospace innovation gateway to amplify the post-COVID economic recovery, industry revenues can be expected to reach \$43.7 billion, roughly 12% above their pre-pandemic peak (based on a current-dollar global forecast) — with a direct contribution to Canada's GDP above the pre-pandemic peak of \$16.6 billion.

Employment typically follows this kind of growth at a slight lag. Because aerospace lost 35,000 jobs in the pandemic,² labour demand is high and employment gains could be faster than usual, as long as there are people to fill the vacancies. (In the current economic situation, with the risk of recession, other sectors may 'release' talent and potentially increase the available supply for aerospace.)³

¹ Analysis by Peter Hall, economist.

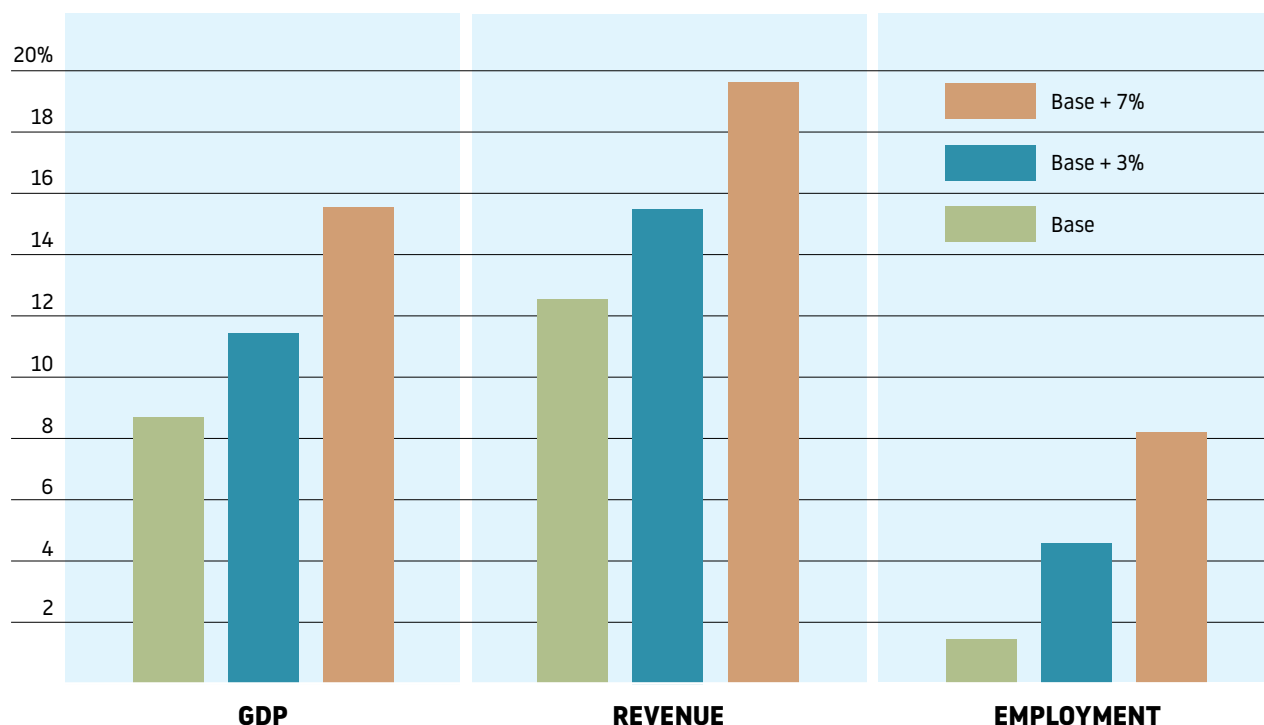
² ISED, [State of Canada's Aerospace Industry Report, Summer 2022](#).

³ Analysis by Peter Hall, economist.

Depending on how quickly the proposed Canadian aerospace industry innovation gateway delivers results — and how much growth occurs separate from it — the early benefits could be even greater, exceeding the pre-COVID GDP high by \$2 billion or more, with revenues above \$46 billion and more than 7,000 jobs added to the industry.

Diversifying Canada's markets globally could provide a further boost. While the U.S. is likely to remain the dominant export market for Canadian aerospace products and services, aggregating sales to select non-U.S., non-EU countries with high compound annual growth could be a strong opportunity.⁴

Combined impacts of the gateway and aerospace recovery by 2025 Percentage points above pre-pandemic level



'Base' indicates the potential impacts of the gateway combined with overall industry recovery by 2025. The other values show the possible additional gains available if the launch of the gateway were to enhance industry outputs by 3% and 7%, respectively.

⁴ Analysis by Peter Hall, economist.

Propelling Canada toward net zero

Nearly all innovation activity in aerospace in the coming years will focus on sustainable aviation. The global industry recognizes that sustainability is the future, especially with organizations such as the International Civil Aviation Organization projecting that global aviation emissions could triple by 2050 without radical and rapid innovation.⁵

Investments in R&D and breakthroughs in areas such as sustainable fuels, alternative and disruptive propulsion technologies, advanced materials, decarbonization solutions, autonomous vehicles, silent aircraft, reusable/recyclable aircraft, enhanced waste management techniques and more will drive progress toward achieving net-zero goals while also creating high-quality jobs and strengthening the national economy.

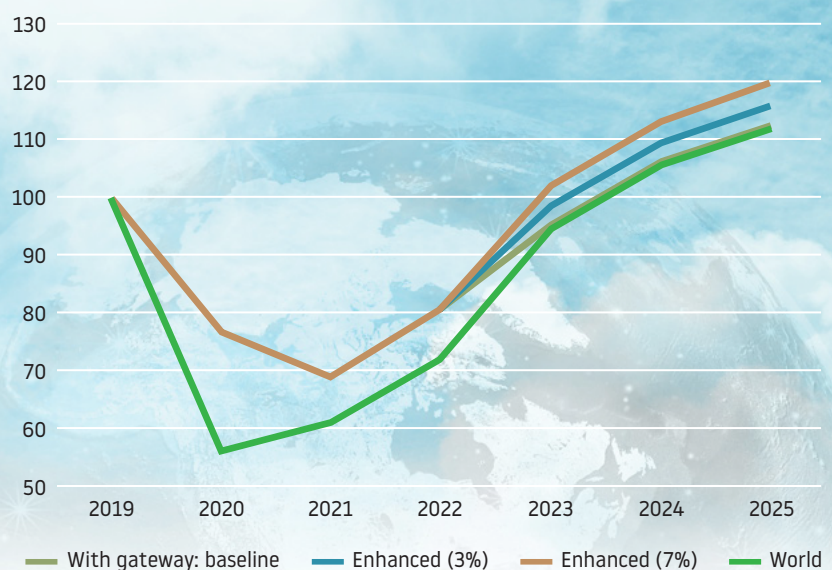
Countries around the world are already investing heavily in sustainable aerospace. The gateway will allow Canada to stand out as a leader in the field, with the CSAFE initiative leading the way.

Even at the lowest estimate, launching the Canadian aerospace industry innovation gateway stands to raise industry revenues above their pre-pandemic peak to more than \$40 billion.

Capitalizing on the global recovery

The global recovery underway is good news for Canadian aerospace. Adding an innovation gateway will multiply those effects. With an immediate 3% boost to industry outputs (the orange 'Enhanced' line), Canadian aerospace revenue growth will outpace the global average, and a 7% immediate boost (the grey 'Enhanced' line) would produce an even more dramatic result.

Industry revenues, Canada and world (2019 = 100)



5 OACI.

Adding a Canadian aerospace industry innovation gateway will multiply the effects of the global economic recovery underway, with the potential to boost industry outputs by 3% to 7% — driving revenue growth beyond the global average.

Spillover gains in other sectors

The Canadian aerospace industry innovation gateway will likely have even greater impact than these forecasts show because aerospace solutions routinely benefit other parts of the economy, in ways not easily identified given NAICS classifications of industries such as technology and transportation services.⁶

History has shown that accelerated development in aerospace gives rise to new technologies with applications beyond the original design intent. In Canada, aerospace companies often apply their innovations to other market challenges and commercialize in other sectors — and many even seek initial applications in less strictly regulated industries to generate commercial activity as they move through the long cycles of aerospace development, demonstration and certification.

The innovation gateway specifically aims to foster multi-sectoral collaboration with players in advanced air mobility, automotive R&D, the bio-economy and other industries, which will produce further spillover effects. Canada's position with respect to human capital, industry context and cost factors is strong for developing and capitalizing on innovations that give first-past-the-post advantage to aerospace and to other industries able to adapt these innovations to their own context.

BIG WINS FOR SMES

*Canada's aerospace industry is made up mostly of small and medium-sized enterprises (SMEs). Of the 616 total aerospace companies in Canada in 2020, 75% had fewer than 100 employees.⁷ Because economic disruptions tend to hit smaller companies hardest, an aerospace innovation gateway that accelerates and amplifies recovery **will disproportionately benefit SMEs**, who have much to gain from economies of scale through technology sharing and knowledge exchange. With the gateway in place, Canada could add 45 SMEs to its aerospace landscape, along with at least two more medium-sized companies and no loss in the number of large enterprises.*

⁶ Analysis by Peter Hall, economist.

⁷ ISED data derived from the *Canadian Defence, Marine and Cybersecurity Industries Survey, 2020*.

Welcome to tomorrow

The future of mobility will touch every aspect of life in Canada — how we travel, work and organize our communities. Committing to innovation today will ensure all Canadians share in the benefits and secure a prosperous place for our country in an exciting and sustainable new world.

Imagine the possibilities...



Two minutes to downtown

Urban air taxis bring convenience for commuters, with clean propulsion systems that reduce emissions and relieve street-level traffic congestion. To get to the hottest show of the summer at BC Place, Carrie and her friends catch an autonomous air taxi at the Park 'n' Fly pad at the city limits and make a landing downtown in a fraction of the time it would have taken to drive.

Going green — to the family reunion

The Hofer family waits at the gate at Calgary International Airport, on their way to Romania for the first big gathering of relatives in years. Like many Canadians, they're concerned about climate change and committed to doing their part to reduce its impacts. That's why they chose an airline that flies lightweight planes powered by sustainable aviation fuel (SAF).



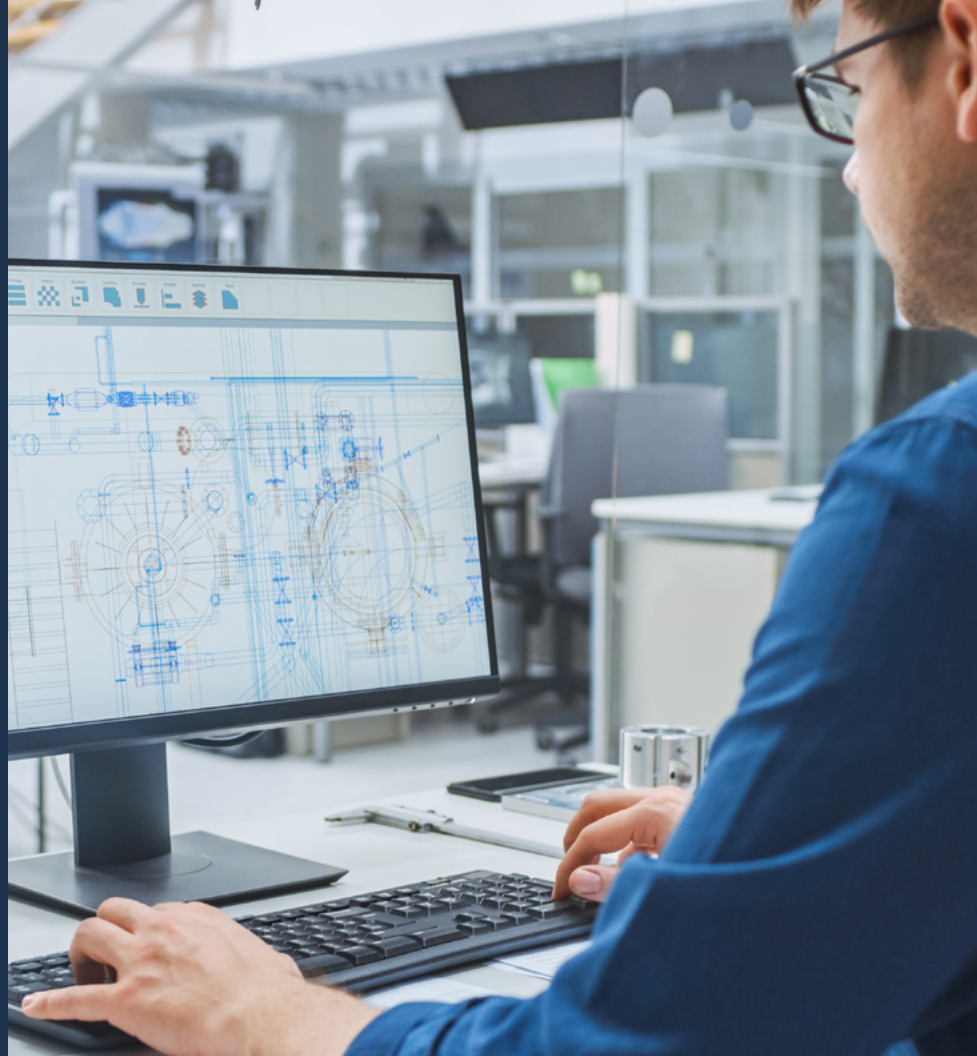
Healthcare support in the remotest locations



Since being diagnosed with Parkinson's disease, Toklo has been on a strict regimen of medications to manage his symptoms. Even though he lives in a remote Northern community hundreds of kilometres from the nearest urban centre, he receives his medication regularly — like clockwork — via an unmanned aerial vehicle that delivers straight to the door of his home.

A career on the frontier of discovery

Jonas is a recent aerospace engineering graduate in Montreal. He's privileged to be part of an international consortium using virtual tools, digital twins and big data analytics to design hybrid-electric commercial aircraft that are partially battery powered. His next ambition: to help crack the promise of hydrogen-powered flight, whose energy and environmental benefits seem almost limitless.



The shop floor of the future

Danis is a Cree woman who works in a small advanced manufacturing company. The Winnipeg business has invested heavily in automation and AI-enabled operations, so instead of popping rivets into moulded steel, Danis oversees one of the most sophisticated 3D printing machines in the country — generating an entire helicopter rotor blade layer by layer to the most precise specifications for faster, more fuel-efficient flight.



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Protecting critical assets at a distance

A Canadian low Earth orbit satellite with quantum sensors detects an object under Arctic ice near an offshore research facility. Canadian Forces drone pilot Dominique stationed with 8 Wing Trenton guides her unmanned aerial vehicle remotely over the Northwest Passage to investigate and safeguard critical Canadian infrastructure.

Advancing space exploration

When Kim started out in their trade as a Red Seal construction worker, they imagined building houses and condos. Today they pre-fabricate Canadian-designed living quarters for a modular research base — destined for the moon.



Putting new capabilities to work

Novel approaches to designing, fabricating and integrating advanced mobility solutions will require industry adoption of new tools that radically enhance aerospace manufacturing capabilities:

Digital operations — *including agile, automated manufacturing systems and supply chains that use AI and the Internet of Things.*

Virtual design and testing — *using digital twins, synthetic environments, machine learning and design to test and certify new technologies and processes.*

3D printing — *creating physical objects layer by layer based on 3D model data.*

Big data — *harnessing insights from massive volumes of data to optimize systems, improve product performance, inform business decisions and more, with potential to involve quantum computing as it matures.*

Changing the game

In the wake of COVID-19, Canada faces a growing array of ambitious, proactive and well-funded competitors all vying to be leaders in the global aerospace value chain. Securing our place for the next 30 years demands committed strategic action today.

Aerospace is back on countries' strategic agendas in a big way, seen as increasingly critical to sovereignty and the national interest amid geopolitical and economic uncertainty, technological disruption, the intensifying climate crisis and a new era of space exploration.

The UK, Germany, the Netherlands, Luxembourg, Ireland and Australia are among the countries already pursuing defined, coordinated industrial strategies for aerospace, defence and space, either exclusively or as part of larger-scale innovation efforts. The U.S. routinely uses defence procurement to stimulate innovation — for example, recently awarding contracts to five different vendors to develop adaptive engine prototypes. Canada has the opportunity to do something similar given the growing importance of continental defence, making novel use of strategic defence procurement and collaborative innovation to drive domestic aerospace R&D and exports. The country's aerospace industry could become the partner of choice to the federal government and its allies for meeting national security and sovereignty needs.












Without an organized, coordinated approach to aerospace innovation, Canada is at real risk of losing ground as a global aerospace nation — ground that will not be easy to regain, especially given how the country has slipped already. Forty years ago, Canada had the world's fifth largest aerospace and defence industry. By 2020, our ranking had fallen to ninth.⁸





“To recover and come back stronger from the pandemic, the one thing Canada's aerospace ecosystem needs above all is more collaboration. And no single factor is more crucial to collaboration than trust.”

— Peter Hall, economist

8 Roland Berger. *Renewing Canada's Commitment to Making the Country a Global Leader in Aerospace*. August 2020.

Canada's international competitors have gone all-in on their aerospace industries⁹

		A&D industry size (USD bn)	A&D recovery plan	Dedicated amounts announced ¹ (USD bn)	Key components of the plan						
					Wage support	State loans package	Investment fund	R&D funding	Change in payment terms	Public orders	Tax relief
	USA	1,055	✓	61	✓	✓			✓		✓
	China	289	✓	>20						✓	✓
	France	118	✓	17	✓	✓	✓	✓	✓	✓	●
	UK	95	D	—	●	■	✓	✓		■	●
	Russia	94	✓	>5.2	✓	✓				✓	✓
	Germany	88	D	—	✓	✓		✓		✓	
	India	76	✓	>8.5 ²		✓		✓		✓	✓
	Japan	66	✗	—							
	Canada	46	✗	—	●			✓			●
	Spain	30	✗	—	●						
	Singapore	17	✓	0.7	✓	✓	●				✓

 Measure announced as part of an A&D Plan
  Recommended measure
  Non-A&D specific measure
  Discussions underway

1 Amounts specific to A&D delineated from overall stimulus packages

2 Industrial defence-specific measures of USD 4 Bn



Do national aerospace strategies pay off?

The **UK Industrial Policy Aerospace Sector Deal** has been focusing that country's aerospace innovation efforts since 2018. A 2021 impact study found the Deal is speeding up the development of new products and manufacturing technologies, strengthening the UK's supply chain position and increasing R&D.

With sustained government support, the Deal is projected to contribute roughly £114 billion to the UK economy over the next two decades and create 95,000 jobs by 2035.

The study is clear that, "Without today's investments, the country and its aerospace businesses would quickly become uncompetitive."¹⁰



Coordination has a clear impact.

Israel is renowned for being a small country that punches above its weight when it comes to innovation. Since 2016, the **Israel Innovation Authority** has advised government on innovation policy, promoted local industry, led on-demand initiatives and set up collaborative frameworks across six divisions focused on technology infrastructure, startups, growth, advanced manufacturing and societal challenges — working with an annual budget of US\$600 million and issuing grants averaging US\$400,000.

The Authority exists seamlessly alongside other ecosystem initiatives such as Ecomotion, a community of more than 600 startups and 13,000 members from industry, business, academia, government and the investment sector that serves as a platform to connect innovation players and foster knowledge exchange.

⁹ AIAC. *Aviation Sustainability: Canadian Roadmap to True Zero*. February 2021.

¹⁰ Aerospace Technology Institute. *The Economics of Aerospace: The Economic Impact of UK Aerospace Industrial Strategy*. 2021.

A critical moment for Canadian aerospace

In 2021, aerospace contributed \$24.4 billion to Canada's GDP, including \$12 billion in direct impacts from manufacturing (\$8.9 billion) and maintenance, repair and overhaul (MRO, \$3.1 billion)¹¹ as well as substantial indirect and induced impacts. That was down 38% from a direct impact of \$16.6 billion in 2019, with COVID-19 responsible for much — but not all — of that drop. In the same period, industry revenues fell from a peak of \$39 billion in 2019 to \$26.8 billion in 2021, including a 34% decline in manufacturing revenues and a 21% decline in MRO.¹²

Overall, the industry lost 35,000 jobs during the pandemic years.¹³ Nationwide, MRO lost many more jobs than manufacturing, 22% compared to 13%.¹⁴ Skilled labour was already in short supply before the pandemic, and many workers who lost their jobs have likely been absorbed by other industries in Canada or by aerospace in other countries. Getting talent back or finding new sources will test the industry's HR capabilities and could increase the cost of the average employee, which would have an impact on Canadian aerospace competitiveness going forward.

Amid these shifts, Canada slipped from second place to third in PWC's 2021 country ranking for overall aerospace attractiveness.¹⁵

“Aerospace, like many industries, needs to re-grow its workforce. But with workers in finite supply, it also needs to take advantage of productivity- and efficiency-enabling technologies like automation and AI to do even more with the workers it has.”

— Peter Hall, economist

What the industry has lost since 2019



11 ISED, *State of Canada's Aerospace Industry Report, Summer 2022*. (GDP figures are adjusted for inflation and chain-weighted in 2012 dollars. GDP aggregations by ISED differ from Statistics Canada figures in that avionics and the space sector are folded into overall aerospace numbers.)

12 Analysis by Peter Hall, economist.

13 ISED, *State of Canada's Aerospace Industry Report, Summer 2022*.

14 Figures in this section are taken from Statistics Canada, [Table 14-10-0202-01 Employment by industry, annual](#) and adjusted to approximate the ISED NAICS classifications for the aerospace industry in the same manner as for GDP.

15 PWC. *Aerospace Manufacturing Attractiveness Rankings*. 2021.

Before the pandemic, aerospace in Canada already faced challenges. The country's economic complexity — its knowledge-based capacity for productivity and innovation — had been declining since the turn of the millennium, falling from 22nd to 36th place in the Harvard Economic Growth Lab's worldwide rankings between 2000 and 2019.¹⁶

Canada's aerospace industry had identified the needs for massive digitalization to boost productivity, for process innovation to reduce production costs and comply with evolving environmental sustainability requirements, for significantly higher investment in R&D, equipment and workforce development, and for intensified industry-wide collaboration. Those were reflected in Vision 2025, a call to action with ambitious goals for aerospace and government alike.

While it remains to be seen how global supply chain realignments and foreign direct investment decisions affect the return to pre-pandemic levels of industrial activity, the good news is Canada has abundant advantages to capitalize on — and significant opportunities to seize.

Canada's unique capabilities

Canada is one of the few nations with sought-after capabilities to design and build aircraft from end to end, enabled by a vibrant diversified, aerospace ecosystem that includes multinational companies and OEMs, start-ups and SMEs, manufacturers, service providers, researchers and academic organizations, industry communities, venture capitalists (VCs) and other investors, and governments at all levels. This strategic advantage should be preserved and grown in Canada: other countries have tried to develop similar scope and capabilities without success.

Canada is home to the National Research Council — regarded worldwide as a competitive advantage, and currently under-utilized as an innovation asset — as well as the Canadian Space Agency, highly effective consortia such as CRIAQ, and ambitious, industry-supported initiatives such as CSAFE.

When called to step up, Canada's aerospace industry players rise to the occasion. During the COVID-19 pandemic, civil aviation resources supported the Canadian Forces in distributing essential personal protective equipment (PPE) across the country. Aerospace manufacturers pivoted their operations to produce ventilators while other companies converted their facilities into vaccination sites. The industry and its products play a key role in fighting forest fires and responding to floods and other disasters that require urgent action. In a country of Canada's size, aerospace is the link that ties communities together.

CANADA'S KEYS TO COMPETITIVENESS AND PRODUCTIVITY

Before the pandemic, industry had already identified what Canadian aerospace would need to survive and thrive in the years ahead through its comprehensive Vision 2025 consultations:

- Use innovation to capture new opportunities
- Ensure SMEs thrive and grow
- Increase support for our skilled aerospace workforce
- Invest to maintain Canada's leadership in certification
- Leverage defence procurement to drive growth
- Maximize Canada's leadership in space¹⁷

¹⁶ The Growth Lab at Harvard University. [The Atlas of Economic Complexity](#).

¹⁷ AIAC. [Vision 2025: Charting a New Course – Canada as a Global Aerospace Champion](#). 2019.

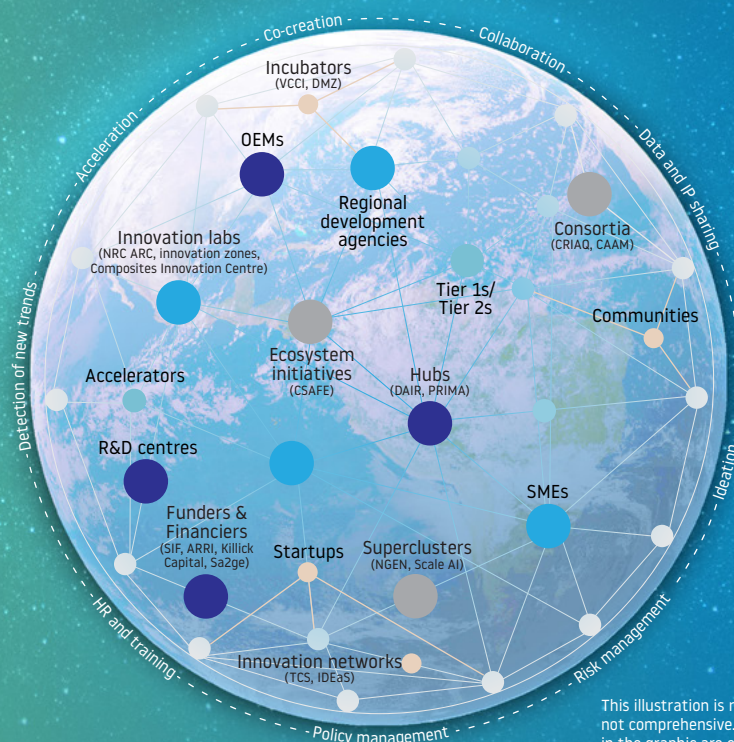
Canada also has the reputation of an experienced aerospace industry player that develops high-quality solutions, a talented workforce, renowned post-secondary institutions and an established end-to-end aerospace infrastructure and supply chain. Canada remains the only aerospace nation with a top-five ranking in all key industry sub-segments: civil flight simulators, turboprop engines, business jets, general aviation, helicopters and regional aircraft.¹⁸

Federating those capabilities will position Canada to seize a wide range of emerging opportunities — from decarbonization efforts expected to produce US\$20 trillion in investment by 2050¹⁹ and the potentially US\$600 billion sustainable aviation fuel market by 2040²⁰ to advanced air mobility (US\$1.5 trillion by 2050, with the global eVTOL market alone predicted to exceed US\$1 trillion by 2040²¹) and lightweight thermoplastics (already at US\$17 billion in 2020²²). Demand in the commercial aviation market continues to grow, with nearly 35,000 new passenger and freight aircraft expected to be needed in the next 20 years.²³

To compete effectively against other aerospace nations and be an indispensable player in the global aerospace value chain, what Canada needs most is focused coordination of the ecosystem — fully capitalizing on its collective strengths and engaging in whole-industry and multi-sectoral innovation.

Canada's aerospace ecosystem today

An end-to-end aerospace supply chain, R&D infrastructure and highly skilled workforce give our country distinct advantages as a global aerospace competitor and contribute to our top-five ranking in all sub-segments of aerospace manufacturing. The aerospace innovation gateway does not compete with any of these other existing entities: creating an ecosystem of ecosystems, it unites and coordinates the full breadth, scope, depth and innovation potential of Canadian aerospace activity in a way that has never been done before.



This illustration is representative, not comprehensive. Entities named in the graphic are examples only.

18 ISED. *State of Canada's Aerospace Industry Report*. Fall 2021.

19 Société Générale. "How net zero aviation is preparing for take-off". 2022.

20 World Economic Forum. "Fuelling sustainable aviation for the long haul". 2022.

21 eVTOL Insights.com. "Morgan Stanley's top 5 eVTOL stocks to buy". 2022.

22 Newswires. "Aerospace Plastic Market: Rising demand for thermoplastics for lightweight applications".

23 Airbus. *Global Market Forecast: 2022-2041*. 2022.

“Most countries that have an industry are doing everything they can to protect it; those that don’t are doing everything they can to create one.”

— Quote from ecosystem consultations

Network strategy

Canada’s aerospace industry set an ambitious vision for the innovation gateway initiative: to position the country as a global leader in aerospace innovation by fostering multi-sectoral collaboration and access to resources — driving sustainable development and the integration of technologies and platforms of the future.

That vision guided the definition of a clear, coherent, long-term strategy for collaborative innovation to 2050 that will unlock opportunities and address longstanding challenges at every stage of research and development. It calls for the creation of a centralized, Canadian aerospace industry innovation gateway to coordinate and amplify innovation throughout the sector, preserving and growing the country’s design and system integration capabilities and making Canada the location of choice for new programs and systems. All of these will contribute to the long-term economic and environmental sustainability of the sector.

Drafted by an industry-led working group and based on a survey of industry-leading case studies including Aero Montréal, the Institute of Research Technology Saint Exupéry and CERN, the strategy promotes a risk-taking culture, multi-sector collaboration and adoption of made-in-Canada solutions — especially those from small and medium-sized enterprises (SMEs) — and spans the full range of technology readiness levels (TRLs).

Key challenges

Aerospace in Canada faces several key challenges that must be addressed to enable greater innovation and ensure the sector's ongoing global competitiveness.*

Limited investment in innovation



A lack of investors willing to accept current levels of project risk, combined with a lack of government support in underwriting risks, has led to innovation under-investment for the sector.

Difficulty moving products through the TRLs



Organizations continue to face barriers in navigating their products through the technology readiness levels (TRLs). This challenge is exacerbated by a lack of initiatives aimed at supporting TRL transitions.

Lack of a sustainable talent pipeline



Canada has a limited number of engineering programs that specialize in aerospace compared to competitive aerospace jurisdictions (such as the U.S.).

Insufficient industry collaboration



There is a lack of collaboration among Canadian aerospace organizations, partly because of the difficulties faced by SMEs and start-ups in navigating the complex legal framework around IP.

Limited diversity of ideas



There is a lack of industry-led diversity and inclusion programs across the sector. Enhancing the inclusion of historically underrepresented groups in the industry could improve innovation by capturing a more diverse range of ideas.

HIGH IMPACT

MODERATE IMPACT

Sustainable aircraft technologies



With increasing focus on environmentally friendly transport methods, these technologies will be particularly important given industry's increasing focus on making planes and manufacturing processes more sustainable.

Emerging technology adoption



Successfully adopting emerging space, advanced manufacturing, AI and other technologies can help make Canadian aerospace solutions more compelling and competitive internationally.

Geopolitical uncertainty



Increasing global tension is prompting a need for the technological advancement of air defence in Canada among key allies.

Multi-sectoral collaboration



Key technologies include sustainable fuels, AI, quantum computing, data science, and composites.

Strategically attracting skilled labour



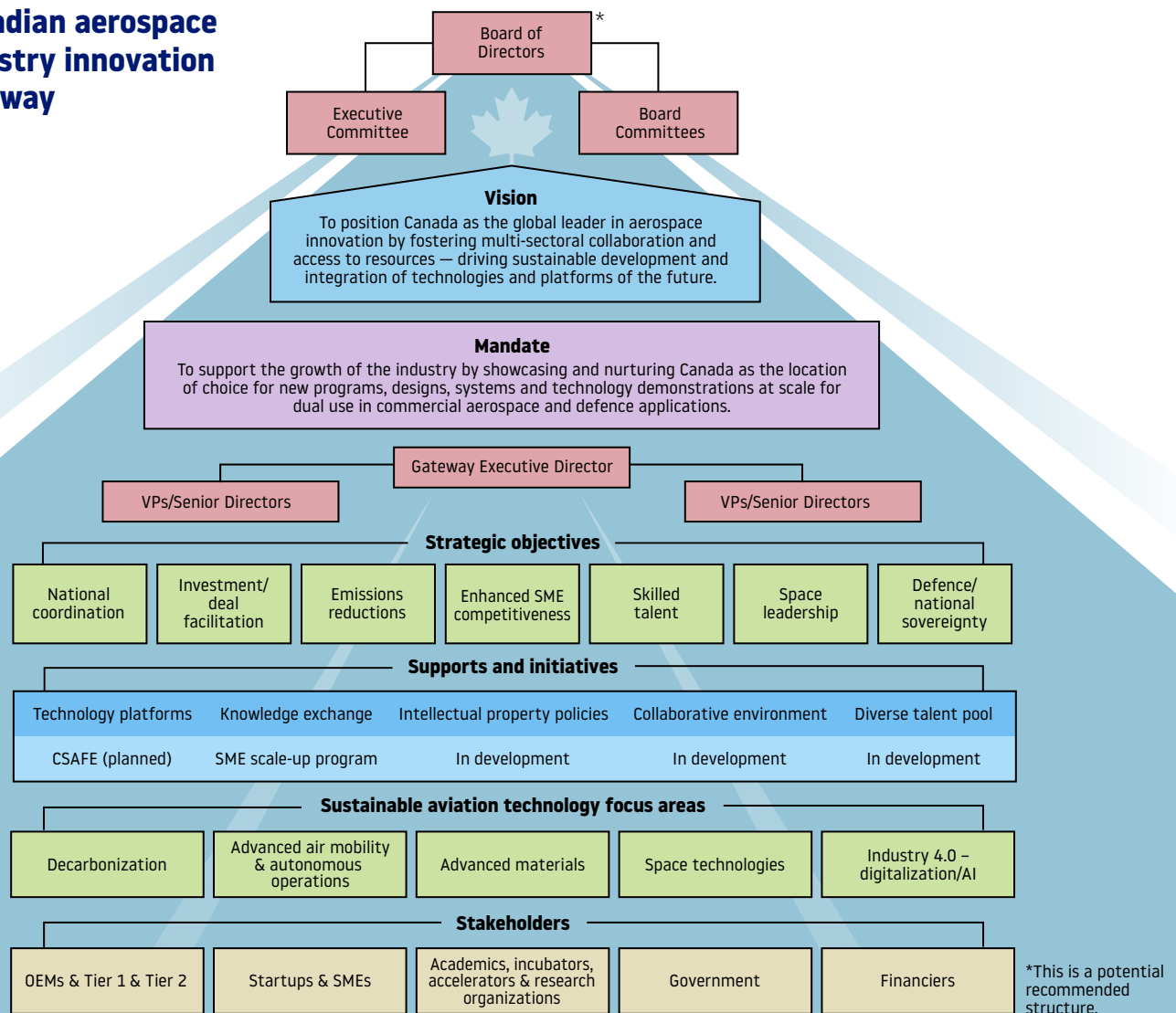
Further leveraging existing immigration programs (such as the Municipal Nominee Program) can help address existing aerospace labour shortages. Additionally, promoting aerospace-focused STEM programs can increase the fresh supply of talent to the sector.

Key opportunities

Stakeholder discussions revealed notable opportunities for Canada to leverage innovation and enable ongoing and sustained sector growth.

*Source: insights obtained from stakeholder consultations undertaken by AIAC.
Note: further information on barriers and gaps provided in the Appendix.

Canadian aerospace industry innovation gateway



Strategic objectives in detail

National coordination

Support organizations and initiatives such as CSAFE in identifying national and regional needs and gaps in Canadian aerospace, and develop value-added programming to address them in collaboration with regional associations and stakeholders.

Investment/deal facilitation

Develop a match-making program for industry and financiers, serve as a technical advisor to investment attraction agencies, and lead the strategic bundling of projects to enhance their commercial potential, strengthening their appeal for domestic and international investors. Ensure SMEs have a role in attracting R&D investment, and provide a concierge function to guide SMEs to funding sources.

Emissions reductions

Support the CSAFE initiative and pursue the goal of net-zero aviation by exploring the full range of potential carbon-reducing technologies including electrification and sustainable aviation fuel. Work as a partner to government in laying out a path to net zero aviation.

Enhanced SME competitiveness

Promote and advance the digitalization of Canadian aerospace SMEs and industry adoption of technologies such as AI, machine learning, quantum computing, the Internet of Things and digital twins — so that all players benefit. Includes establishment of a scale-up program specifically for SMEs, giving larger companies access to SME agility and innovation capacity while engaging SMEs in commercially oriented R&D so they can scale.

Strategic objectives in detail *continued*

Skilled talent

Encourage the development of a long-term talent recruitment and workforce development strategy for the Canadian aerospace sector.

Space leadership

Build on Canada's longstanding history of developing space technologies such as the Canadarm to secure the country's place in the new space era.

Defence/National sovereignty

Develop, deploy and maintain dual-use technologies and platforms needed to protect Canadian sovereignty and security — leveraging public procurement — and foster further collaboration between the Department of National Defence and global industry players.

ACCESSING NEW INVESTMENT STREAMS

The working group agreed an important role of the Canadian aerospace industry innovation gateway vision will be to forge ties and negotiate deals with private sources of venture and growth capital — diversifying the mix and means of funding available for advanced innovation.

Implementation steps: Getting started

A number of key activities will help establish the aerospace innovation gateway successfully early on. In addition to those outlined below, the gateway will also include effective IP policies, as described in detail on page 43.

1. Identify platforms of focus

Determine and continue to identify technology platforms that build on Canada's existing strengths and represent the greatest opportunities for ecosystem players such as AI and advanced manufacturing, with a strong focus on net-zero emissions reductions.

- **Seek ongoing opportunities in key areas** such as decarbonization, advanced air mobility and autonomous operations, advanced materials, space technologies and Industry 4.0 – digitalization/AI.

PRIORITY: MEDIUM | TIMEFRAME: >24 MONTHS

- **Build on CSAFE** (which is focused on sustainable aviation technologies and platforms across the lifecycle of the aircraft) and other initiatives that have a complementary focus on sustainable R&D and similar technology platforms.

PRIORITY: HIGH | TIMEFRAME: <6 MONTHS

- **Allocate time and resources** (i.e., project funding) to priority technology focus areas while continuing to support innovation broadly across the ecosystem, including SMEs.

PRIORITY: HIGH | TIMEFRAME: 6-24 MONTHS

- **Engage in multi-sectoral collaboration** to drive aerospace innovation — by leveraging commercialized technologies from other sectors and co-creating technologies with cross-sector market opportunities.

PRIORITY: MEDIUM | TIMEFRAME: 6-24 MONTHS

- **Establish a central organization** to coordinate research and development efforts across the industry.

PRIORITY: HIGH | TIMEFRAME: <6 MONTHS



2. Enable knowledge exchange

Focus on enabling the exchange of knowledge and information across the ecosystem (including commercial aviation and defence) to drive collaboration between different types of organizations.

- Develop a **data and technology strategy** to provide industry with insights for strategic decision-making and the selection of projects and platforms for the longer term with reduced risk. Seize opportunities to align with innovation needs (e.g., enhancing supports across TRLs 3 to 6), shape technology trends and enhance data monetization.

PRIORITY: HIGH | TIMEFRAME: <6 MONTHS

- Actively **acquire, consolidate and share technical data** relevant to the aerospace industry from members (if available) or third parties.

PRIORITY: MEDIUM | TIMEFRAME: <6 MONTHS

- Ensure that the gateway is known across the industry as a forum for information and knowledge sharing by **developing policies and tools** that foster trust, collaboration, and openness.

PRIORITY: HIGH | TIMEFRAME: 6–24 MONTHS

3. Strengthen ties with ISED

Given the importance of federal government alignment and support, develop a close working relationship between the Canadian aerospace industry innovation gateway and ISED.

- **Work with the Department to champion aerospace** within government, across related industries, and to potential investors

PRIORITY: MEDIUM | TIMEFRAME: 6–24 MONTHS

4. Attract private investment

Connect with venture and growth capital firms and facilitate industry access to financing.

- **Act as a broker** to develop relationships and facilitate deals with private capital providers, bringing new sources of funding to the industry based on unique knowledge of ecosystem projects.

PRIORITY: HIGH | TIMEFRAME: <6 MONTHS

5. Promote collaboration

Actively create opportunities for organizations throughout the ecosystem to collaborate, including working with key organizations and initiatives such as CRIAQ, CSAFE and the various regional associations to further enable collaboration by utilizing their tools and resources, such as the Pratt & Whitney Canada hybrid electric flight demonstrator.

- **Develop a national sector strategy** that prioritizes job creation, job retention, growth and attraction of start-ups and SMEs, and overall GDP growth.

PRIORITY: HIGH | TIMEFRAME: <6 MONTHS

- **Utilize public procurement opportunities** to strategically encourage collaboration across the Canadian aerospace sector by requiring a minimum number of contributing partners on projects.

PRIORITY: MEDIUM | TIMEFRAME: >24 MONTHS

- **Advocate for the innovative use of R&D credits** (e.g., SR&ED tax credits) to foster activity within incubators, accelerators, research facilities and similar entities, and encourage the development of technology platforms by providing additional incentives for partnership with industry players.

PRIORITY: LOW | TIMEFRAME: >24 MONTHS

6. Promote diversity and inclusion (D&I)

Raise industry awareness of the competitive advantages held by diverse organizations and encourage the development and implementation of D&I strategies, with particular focus on working with Indigenous communities and businesses, and on increasing opportunities for women in the sector.

- **Lead the development of a D&I program** to increase industry inclusion of historically underrepresented groups, supported by an **ecosystem D&I strategy** to guide the gateway's Board and governing secretariat.

PRIORITY: HIGH | TIMEFRAME: >6 MONTHS

- **Provide industry with examples of KPIs** to track progress implementing D&I strategies, and **encourage collaboration** between those with strategies and those without.

PRIORITY: HIGH | TIMEFRAME: 6–24 MONTHS

- **Develop an inventory of domestic suppliers** led by Indigenous communities, women or newcomers to Canada.

PRIORITY: HIGH | TIMEFRAME: 6–24 MONTHS

- **Advocate for targeted programs to attract international talent** to Canada, supported by **regulatory reforms** to ease the administrative burden on Canadian firms (e.g., related to security clearances) and regional coordination to enhance inbound flows and talent migration in Canada.

PRIORITY: MEDIUM | TIMEFRAME: 6–24 MONTHS

SPAWNING SPILLOVER REVENUES IN OTHER INDUSTRY SECTORS

The opportunities for small and medium-sized enterprises (SMEs) multiply when they collaborate with Tier 1 aerospace companies and multinational OEMs. Well-supported SMEs often take their innovations to other sectors as well, scaling up there while contributing to the wider economy. Selling in other markets offsets the long timescales for certifying and commercializing technologies in aerospace and gives SMEs the chance to test solutions in the real world and apply lessons learned back to aerospace applications. Based on past Canadian successes and international leading practices, the vision of the Canadian aerospace industry innovation gateway is to increase collaboration between SMEs and OEMs — with multi-sectoral benefits.



Aerospace Industries
Association of Canada

L'Association des industries
aérospatiales du Canada

**“The pieces of the ecosystem are in place.
What we need is leadership and coordination.”**

— Quote from ecosystem consultations

Business model

The business model working group set out to define an approach that would align ecosystem players and resources, foster trust and open collaboration, and create access to funding and investment.

As part of its effort, the working group examined more than 20 models from across Canada and around the world, identifying and incorporating relevant best practices into its design. The most influential and informative case studies included Sustainable Development Technology Canada, La French Tech, the UK Advanced Manufacturing Research Centre, and France’s Aerospace Valley.






To mobilize stakeholders, create value and build ongoing momentum, the gateway business model centres on three core roles: orchestrator, funder/broker and IP administrator. These are unique to the gateway and fill long-recognized gaps in the Canadian aerospace ecosystem. Two complementary roles will support those functions by developing the ecosystem and promoting the industry in partnership with other existing entities and government departments.

WHAT THE WORKING GROUP SET OUT TO SOLVE

- **Strategic gaps in R&D** *focus and investment*
- **Limited collaboration and IP** *sharing to fuel innovation*
- **Need to reduce dependence on** *government funding*
- **Need to attract global innovation** *investments*
- **Need to attract and retain highly** *skilled workers*

Key needs and opportunities are answered across the proposed roles

Main pain/opportunity points addressed by business model roles

	 ORCHESTRATOR	 FUNDER/BROKER	 PROMOTER	 DEVELOPER	 IP ADMIN
Industry competitiveness, societal impact and public policy					
Public support of the industry takes time to mature into tangible social benefits.	✓	✓	○	○	○
Government procurement focus on low-cost, ready-made solutions and short timelines hinders innovation.	✓	○	○	○	○
Canada has begun lagging peers on attraction of new aerospace FDI.	○	○	✓	✓	○
Public funders are not naturally equipped to evaluate and share risks with companies.	○	✓	○	○	○
Current funding options for industry-academia collaborations take too long to process.	○	✓	○	○	○
Sectoral coordination					
Aerospace players in Canada lack a cohesive, common, long-term strategy and identity.	✓	○	✓	○	○
Industry stakeholders need a meaningful incentive to engage and collaborate.	○	✓	○	○	○
Certain regional aerospace ecosystems are not advantageously integrated across the country.	✓	✓	○	○	○
Industry needs a mechanism to collaborate with academic institutions for joint R&D.	○	✓	○	○	✓
Lack of a mechanism to foster trust in sharing IP leaves players wary of collaborating.	✓	○	○	○	✓
Innovation and competitiveness					
Aerospace has yet to fully leverage the potential in other fields of Canadian advantage.	✓	○	○	○	○
Companies must keep up with the rapidly evolving competitive requirements in global markets.	○	✓	✓	○	○
Support for mid-level TRL programs (4 to 6) incl. large-scale tech demonstration is difficult to obtain.	○	✓	○	○	○
Processes to onboard and clear foreign workers are long and complicated.	○	○	○	✓	○
There is a trend of qualified aerospace workers moving away from Canada to other jurisdictions.	○	○	✓	○	○



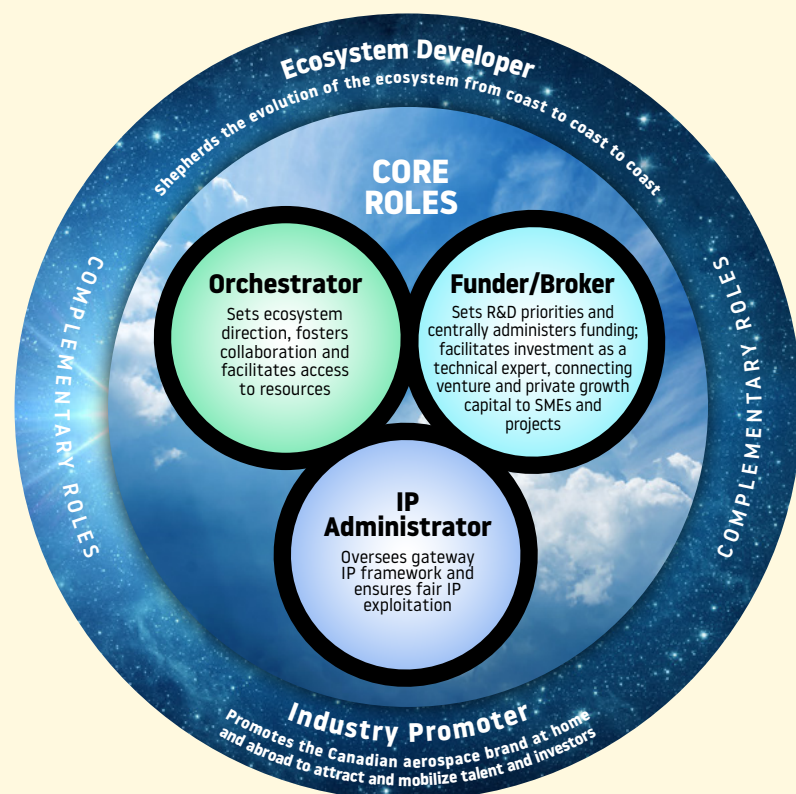
Addressed



Partially addressed



Not addressed



Business model at a glance

The business model accounts for all ecosystem participants and stakeholders — in industry, academia and government, at all levels and across all regions, with the national industry association as champion.

The gateway will perform its core roles directly as the only entity in Canada positioned to do so. Its complementary roles will be carried out through partnership and by enabling other organizations to act.

Multiple delivery models, aligning with and amplifying industry efforts

	Role	Delivery models	Opportunities
CORE ROLES	Orchestrator/IP Administrator	<ul style="list-style-type: none"> Default delivery: <i>Activities led by the gateway</i> When and where capabilities exist: <i>Empowerment of regional associations and partnerships with existing organizations</i> 	<ul style="list-style-type: none"> Collaboration across regions and industries (e.g., automotive, AI) International collaboration Strengthened collaboration with academia
	Funder/Broker	<ul style="list-style-type: none"> Default delivery: <i>Activities led by the gateway</i> The Funder dimension is “direct” in prioritizing investments and allocating project funding while the Broker dimension is “indirect” in attracting investments 	<ul style="list-style-type: none"> Specific focus areas, e.g., TRLs 4-6 and large-scale demonstrations VC/private equity investor attraction Addressing other “challenges” (e.g., space leadership)
	IP Administrator	<ul style="list-style-type: none"> Default delivery: <i>Activities led by the gateway</i> The IP role was identified in consultations as a core gap for the sector 	<ul style="list-style-type: none"> Developing shared norms, tools and templates to facilitate collaboration among industry players and with academia, as outlined by the IP working group
COMPLEMENTARY ROLES	Ecosystem Developer	<ul style="list-style-type: none"> Default delivery: <i>Empowerment of regional associations and partnerships with existing organizations</i> <i>Activities led by the gateway</i> for initiatives that provide resources, training and development to regional organizations 	<ul style="list-style-type: none"> Talent attraction and development SME digitalization and productivity Facilitating access to critical infrastructure, including in academia and research
	Industry Promoter	<ul style="list-style-type: none"> Default delivery: <i>Partnerships with existing organizations</i> <i>Activities led by the gateway</i> for activities that address a gap (e.g., development of a national aerospace brand) 	<ul style="list-style-type: none"> Informing existing players with specialized aerospace knowledge and perspective Complementing existing players in aerospace-specific venues and contexts

Potential gateway activities in detail

As orchestrator, the gateway will be ideally positioned to spearhead development of a first-of-its-kind national strategy for aerospace innovation in Canada — one that will inform long-term direction for the industry and ensure alignment with national interests.

The gateway will engage and support stakeholders in novel ways — through TED Talk-style forums and ‘concierge’ services, for example — and, as IP administrator, will provide an IP helpdesk to maximize industry exploitation of intellectual property.

In its funder and broker roles, the gateway will define funding programs to address identified needs and challenges. It will accelerate investment, potentially through Dragon’s Den-type events, and will forge ties with venture capital and private equity partners to support industry SMEs.

Ecosystem development will focus on facilitating the development of tools, resources, assets and relationships to build overall capacity. That will be complemented by collaboration with government and other bodies to promote a recognizable industry brand that draws investment and talent to Canada.

The table below indicates these and other potential activities the gateway may engage in.

MAKING THE NRC MORE ACCESSIBLE TO AEROSPACE COMPANIES

Throughout the ecosystem consultations, participants routinely said the National Research Council of Canada (NRC) is admired and even envied by other aerospace nations. They also reported that the NRC’s fee structure often makes its world-class facilities and services inaccessible to firms of all sizes, but especially startups and SMEs. It is recommended that, in activating the gateway, the government consider subsidizing or waiving NRC fees to make full use of its one-of-a-kind capabilities and accelerate aerospace innovation.

DEFENCE PROCUREMENT AS AN INNOVATION LEVER

The Government of Canada has the opportunity to drive innovation activity domestically by leveraging defence procurement. Engaging with firms that operate in Canada as it defines needed technological capabilities would stimulate world-leading R&D and fuel the industry’s international competitiveness and growth.

Potential innovation gateway activities by role

Core roles

Orchestrator	<ul style="list-style-type: none"> • Develop a national strategy for aerospace innovation and define strategic initiatives • Facilitate virtual collaboration and matchmaking • Hold “collision” events such as innovation priority-setting “TEDTalks” • Run a concierge/helpdesk to support industry players with IP issues, funding and access to knowledge resources
Funder/Broker	<ul style="list-style-type: none"> • Translate industry challenges into an investment strategy • Define specific funding programs to meet identified challenges • Leverage synergies within the ecosystem by accessing other sources of funding • Seek out, originate, assess and select projects for funding • Manage innovation ecosystem programs and portfolio of project-based investments, with reporting • Host investment-accelerating Dragon's Den events
IP Administrator	<ul style="list-style-type: none"> • Acquire datasets of shared interest that are too costly for individual organizations to procure on their own • Pool data from various sources and facilitate its sharing via an IP knowledge centre • Provide training in good IP practices and strategies • Manage fair exploitation of IP developed by Canadian aerospace for the benefit of the domestic industry

Complementary roles

Ecosystem Developer	<ul style="list-style-type: none"> • Publish strategic insights of broad interest to industry players and particular interest to the Government of Canada • Spearhead joint initiatives such as developing IP frameworks and act as an agile implementer for the Government of Canada • Offer tools, resources and training to regional associations, ecosystem organizations and stakeholders • Oversee and report on the impact of partnership initiatives with ecosystem members
Industry Promoter	<ul style="list-style-type: none"> • Develop a Canadian aerospace brand strategy • Develop relationships and partnerships internationally • Develop a communications strategy with a media office for implementation • Develop and execute a promotion strategy nationally and internationally • Represent Canadian aerospace abroad and support Canadian industry stakeholders internationally

Project selection and funding

A national Canadian aerospace strategy would be the foundation for setting priorities and choosing initiatives that the gateway will support. Specific projects for funding will fall under those initiatives. The process for selecting projects will be determined by the Board of Directors once the gateway is established. Some potential selection criteria could relate to the inclusion of:

- Sustainability as a project component
- Startups and SMEs
- Participants from multiple regions of the country
- Companies led by underrepresented groups, with particular emphasis on Indigenous and women-led firms
- Post-secondary institutions

Cost tracking and data collection

The working group reviewed possible models for cost tracking and data collection. While these will be determined by the industry-led Board of Directors, an initial proposal is for the gateway to align funded initiatives' reporting cycles with its own reporting to ISED on an annual basis, including progress reports and annual report submissions. The gateway will establish and follow clear procedures for reporting, payment and auditing to ensure accountability and progress against its mandate, with key performance indicators to gauge results.

'SHOVEL-READY' PROJECTS

Suggested strategic initiatives emerging from the stakeholder consultations and working group meetings include:

- CSAFE
- National aerospace strategy
- National series of innovation collaboration events
- Aerospace industry Dragon's Den events or innovation prize
- IP workshops and supports (helpdesk, concierge service) to build IP capacity

Sustainability plan

With the business model defined, the working group set out to define a sustainability plan for the coordinated innovation ecosystem, surveying top global models and accounting for the full lifecycle from initial design through to ongoing renewal.

That effort included consideration of the various funding structures employed by other innovation ecosystems — and how those structures evolve over time — as well as key principles for success and a developmental roadmap for the innovation gateway in its first five years.

Success factors for establishing an innovation gateway

Start with a compelling, game-changing ambition	Propose something transformational that builds enthusiasm
	Catch attention and build expectations
	Establish inspiring stretch targets
Establish a self-contained autonomous entity	Set up standalone organization structure, leadership and governance mechanisms
	Leave room to establish differentiated management practices and talent environments
	Empower with control of key functions for core responsibilities (e.g., strategy, partnerships)
Endow the organization with runway from longer-term capital	Commit to the intended scale so the organization can hold its own
	Manage expectations to be patient and stick with commitment through the ramp up
	Leave space for learning, sidesteps and setbacks
Recruit and onboard superior talent	Establish credibility of the ecosystem
	Access networks and pools of talent
	Rapidly build organizational capabilities aligned with core roles
Leverage ecosystem capabilities	Focus direct responsibilities on core differentiating capabilities
	Work to develop and empower ecosystem organizations
	Partner with established players in their areas of expertise
Deliver tangible value to priority stakeholders with minimal friction	Provide overwhelming value, quickly, to the Sponsor (ISED)
	Make it seamless for influential stakeholders to engage and attract others
	Develop an enticing value proposition for the broader base
Sustain momentum	Scale strategically to achieve impactful quick wins
	Promote and celebrate successes of Canadian aerospace
	Weigh the pros and cons of diversifying funding sources in light of evolving landscape

Blended sources of operational funding

Based on a study of the common funding models for innovation ecosystems, the working group recommends a blend of subsidized and entrepreneurial public-private partnership for the innovation gateway.

In the early going, priorities will be to establish the innovation gateway's track record by delivering overwhelming value to the Government of Canada and generating revenues for select value-added services. Securing funding beyond project financing and election cycles will be important, as will ensuring the innovation gateway reassesses its funding strategy and diversity of sources as commitments and scenarios evolve.

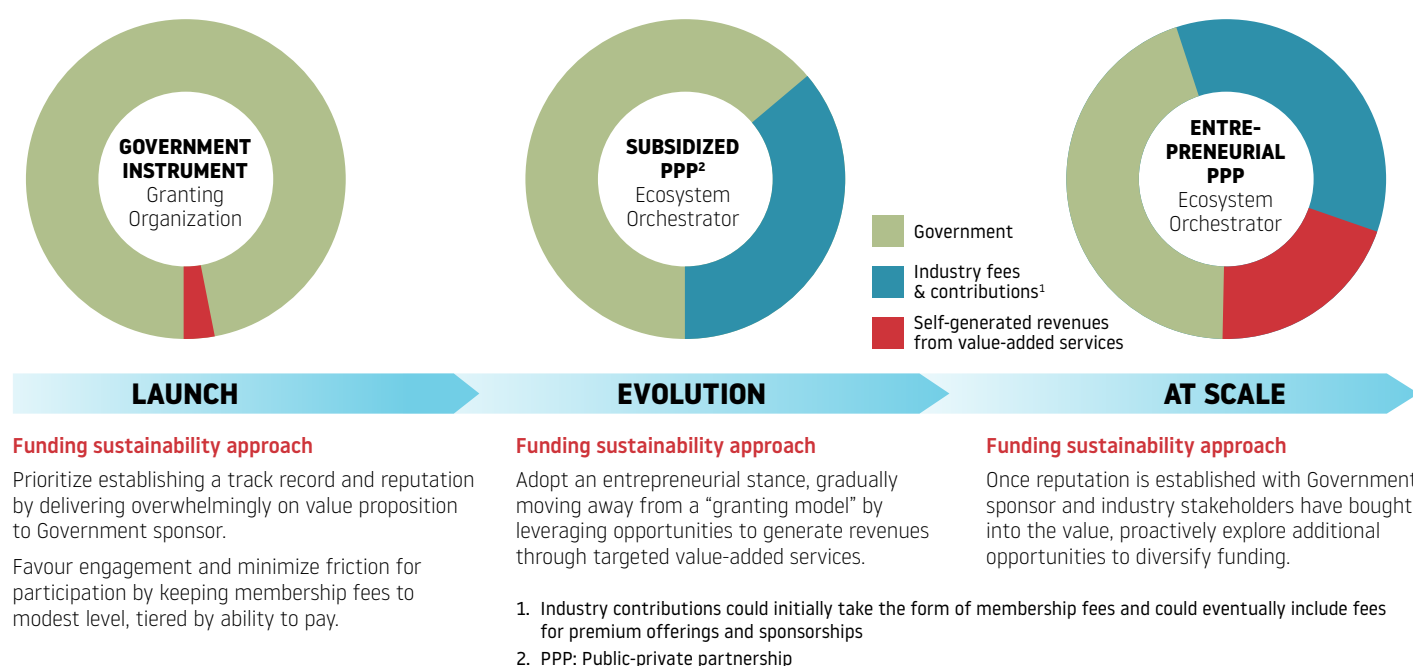
At scale, the innovation gateway will self-generate a share of its funding through revenues — after the initial five years of setup and maturation. A starting point would be to incorporate some form of private contributions, such as gifts or endowments from foundational private partners or from membership fees. These fees will remain symbolic, tiered to members' ability to pay to ensure the broadest possible participation.

Such a progression would see the funding model evolve from being more heavily a government instrument toward a subsidized public-private partnership and, ultimately, an entrepreneurial venture.

The estimated operating budget for the innovation gateway on startup is \$5 to \$7 million per year, with setup costs of \$1.5 to \$2.5 million. Beyond year four, the annual operating budget is expected to be in the range of \$8 to \$12 million. This will ensure the gateway entity has the means and heft to support the industry and stand alongside well-funded, established regional ecosystem players. There are also upfront costs expected to establish the gateway (with precise budgeting pending confirmation of the business model).

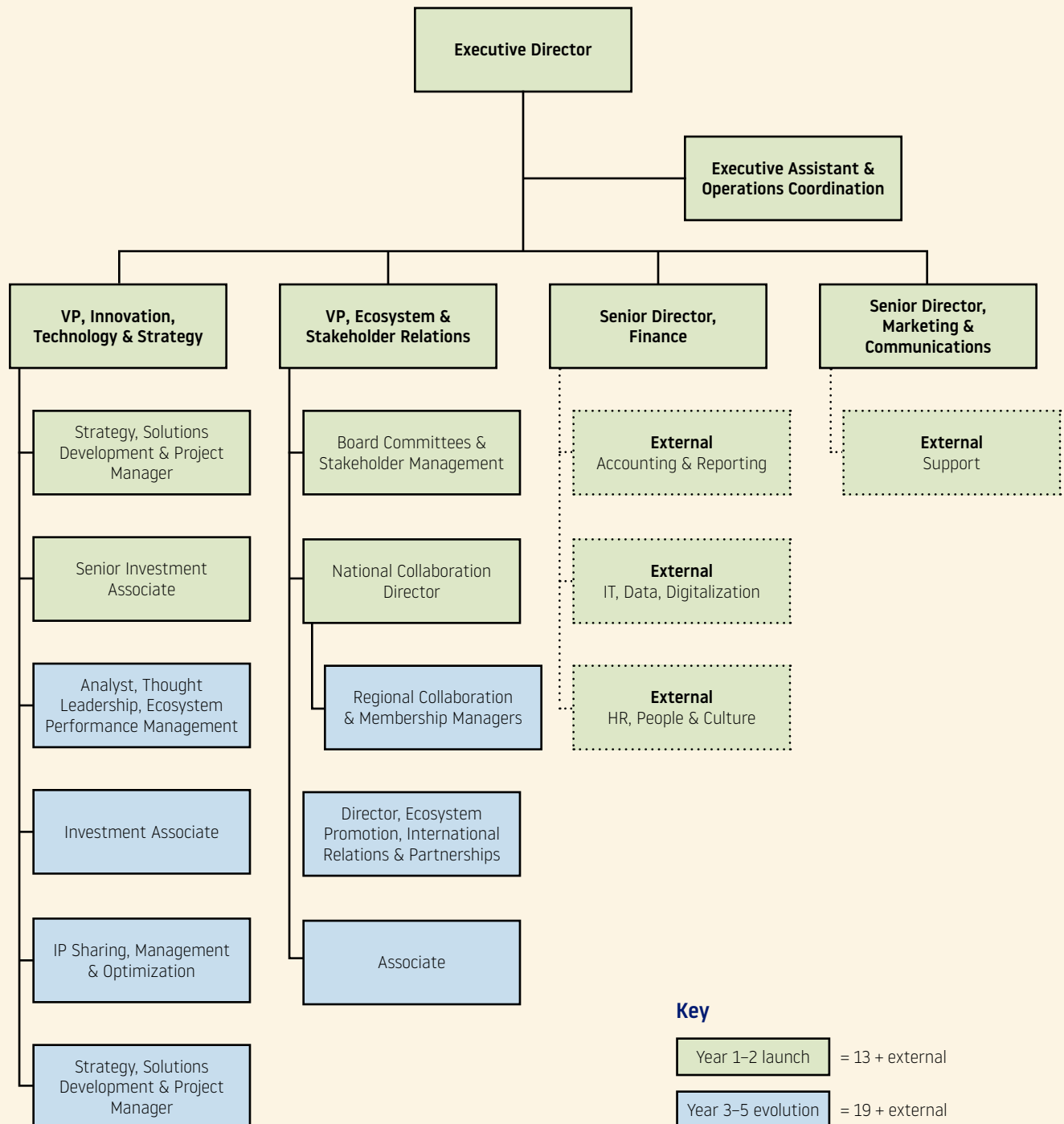
Potential funding model and evolution

The working group considered multiple potential funding models, with the aim of evolving the gateway from being largely government-funded at the outset to having a greater mix of funding sources over time. Below is one example of how that progression might unfold, though the future Board of Directors will work with government partners to define a specific model once the gateway is established. The proportions shown are approximations only for the sake of illustration.



Model organizational chart

The Board of Directors will define the gateway's organizational chart. Below is one potential structure.



Potential five-year roadmap

Looking out over the innovation gateway's first five years of operation, the aim is to progress from laying a solid foundation to exploring revenue-generation opportunities and ultimately engage in longer-term undertakings that mobilize resources from multiple stakeholders.



HOW TO SUPPORT AN INDUSTRY: LESSONS FROM FRANCE

France's end-to-end approach to enabling aerospace innovation is a key inspiration for the innovation gateway. To define and implement a national aerospace research program, the country brings French companies and agencies together every year through CORAC, the Conseil pour la Recherche Aéronautique Civile, chaired by the Minister of Transport. Toulouse Aerospace is an ecosystem orchestrator that has made its namesake city a hub of aerospace engineering and home to a quarter of all space-related jobs in Europe. La French Tech champions France's technology startup ecosystem at home and abroad, so far producing 25 unicorns three years ahead of schedule and having two companies issue IPOs in 2021.

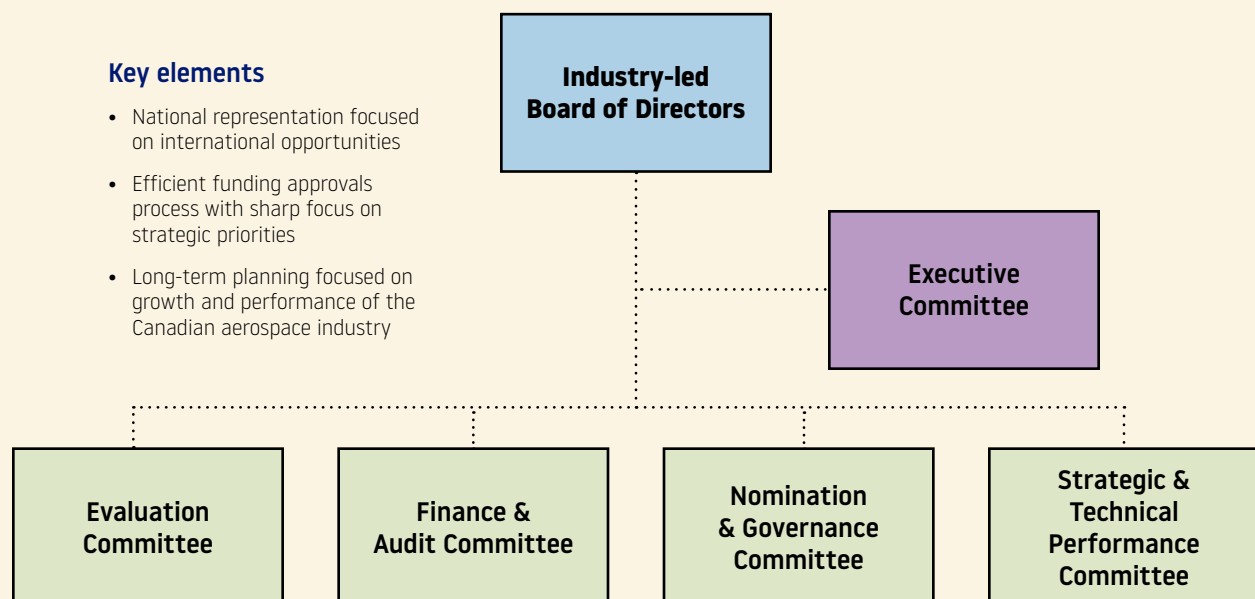
Governance framework

The Board of Directors and governance framework established through the CSAFE initiative could serve as the launchpad for the gateway, ensuring it remains ambitious, industry-led and focused on delivering maximum benefit to Canada for decades to come.

Based on best-practice models such as Protein Industries Canada, the gateway's governance framework is designed to realize all aspects of the proposed network strategy, proposed business model, sustainability plan and IP policies. Evolving out of the CSAFE Board and the same not-for-profit entity created for CSAFE, the gateway's Board will support CSAFE and future initiatives such as the gateway's proposed SME scale-up program.

The Board of Directors will guide strategic planning, putting priority on achieving industry growth targets and generating economic value for Canada through a focus on key technology platforms and projects. The Board will include industry representatives from both inside and outside aerospace as well as academia, government and the investment community.

Proposed gateway governance structure



Designed to deliver results

The Board will ensure the efficient, effective functioning of the gateway through four principal roles:

- **Gateway oversight** — Focusing on strategy, project evaluation, technical performance and governance, encouraging the management of a financially self-sufficient organization.
- **Project funding approval** — Reviewing projects for feasibility, industry contribution and commercial viability in alignment with the gateway's strategic objectives and areas of focus. The Evaluation Committee will have the main responsibility for this at the Board level. For project selection criteria, see the Business Model chapter, page 29.
- **Collaboration oversight** — Acting as a liaison and coordinator for industry participants and subject-matter experts to accelerate innovation, drive sustainable development and facilitate growth within Canadian aerospace.
- **Global investment and business attraction** — Directing the gateway as a platform to draw investment to Canada and keep investment in Canada, ensuring funds are deployed efficiently to address Canadian priorities.

Collaboration across the ecosystem

The Board is responsible for fostering an environment that encourages collaboration and risk-taking, and places innovation at the forefront for the aerospace industry.

Financial sustainability

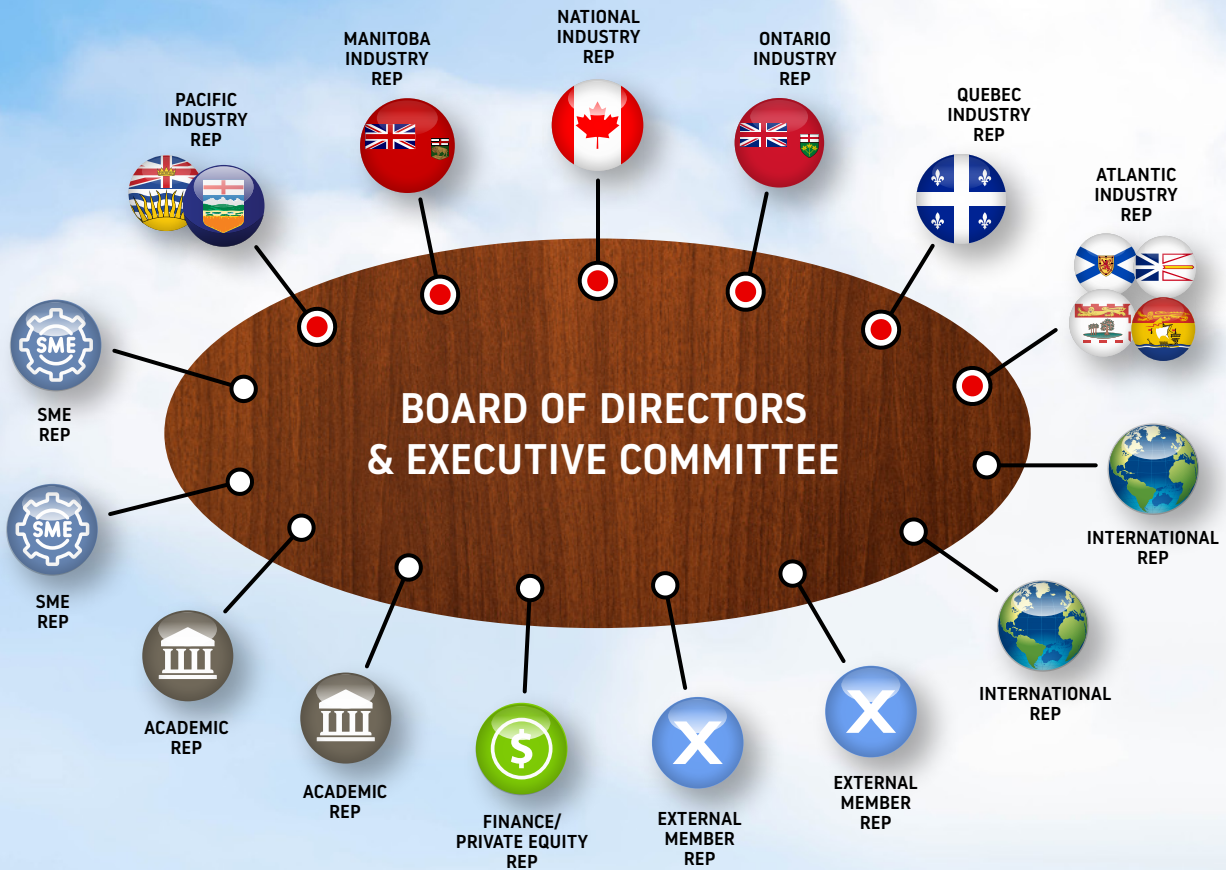
To ensure the long-term viability of the gateway, the Board must curate a pipeline of funding that is managed effectively and provided to successful project applicants. It must also enable the financial sustainability of the secretariat.

Diversity and inclusion

A leading priority for the aerospace industry is to enhance its diversity and enable further inclusion. The Board and its sub-committees will intentionally consider the diversity of skills, talent, experience, gender and cultural background when selecting members, developing strategies and assessing projects for funding.

Board and Executive Committee composition

The following membership is proposed for the Board and Executive Committee to ensure industry leadership and diverse representation.




Board Mandate

The Board will be responsible for oversight of the secretariat, approval of project funding, oversight of industry collaboration and attraction of global investors and businesses.

Executive Committee Mandate

The Executive Committee will oversee management of the secretariat and exercise powers delegated by the Board including decision-making between full Board meetings and in emergency situations, reviewing and prioritizing projects for funding, and advising the Executive Director on operational matters.

 Denotes Executive Committee member

Ex-officio Representatives

- Secretariat (Executive Director)
- Vice-President, Innovation, Technology & Strategy
- Vice President, Stakeholder Relations
- Senior Director, Corporate Support Services
- Government of Canada Representative (ISED) and AIAC (CEO)

Board sub-committee overview

As proposed, the Board will have five sub-committees, each outlined below with their respective reporting structure and operational details.

	Purpose	Structure	Operations
Finance & Audit	The committee will focus on financial reporting, budgeting, internal controls and oversight of internal and external audits and financial sustainability of the gateway.	Chair: Appointed by the Board (2-year term) Members: 4 Board members; 1 external member Ex-officio: Senior Director, Corporate Support Services	<ul style="list-style-type: none"> Meeting frequency: Quarterly Reports to: Executive Committee KPI: Net project funding; direct expenses equal revenue
Strategy & Technical Performance	The committee will oversee the strategy to grow the aerospace sector within Canada through increased innovation and assess performance based on technology adoption.	Chair: Appointed by the Board (3-year term) Members: 10 Board members (6 executive members; 2 academic reps; 2 international reps) Ex-officio: Vice-President, Innovation, Technology & Strategy	<ul style="list-style-type: none"> Meeting frequency: Monthly Reports to: Board of Directors KPI: # of projects funded per fiscal year
Nomination & Governance	The committee will assess individuals for Board representation and manage oversight of the governance of the gateway.	Chair: Appointed by the Board (2-year term) Members: 5 Board members (3 executive members; 2 other members) Ex-officio: Executive Director	<ul style="list-style-type: none"> Meeting frequency: Quarterly Reports to: Executive Committee KPI: Average turnover; # days role is unappointed
Evaluation	The committee will focus on evaluating applications received by the secretariat for projects that align with the areas of focus.	Chair: Appointed by the Board (2-year term) Members: 9 Board members (2 academic reps; 2 international reps; 2 SME reps; 1 finance rep; 2 external reps) Ex-officio: Senior Director, Corporate Support Services; external reviewers (as needed)	<ul style="list-style-type: none"> Meeting frequency: Quarterly Reports to: Executive Committee KPI: # of projects evaluated per fiscal year
Executive	The committee holds special authority and responsibility above all other committees and acting on behalf of the full Board for decision-making or in crisis circumstances.	Chair: Chair of the Board of Directors Members: 7 Board members (5 Executive members; 2 other members) Ex-officio: Executive Director	<ul style="list-style-type: none"> Meeting frequency: Monthly Reports to: Board of Directors KPI: Overall sector growth (GDP); increased positive trade balance; increase FDI flows into Canada

“We need a sense of urgency. Global companies want to work with Canada. The ball’s in our court.”

— Ecosystem consultation participant

IP policies

Based on industry insights into how effective IP policies can propel collaboration, the IP working group developed clear, mutually beneficial policies for sharing intellectual property at every R&D stage. These policies are tailored to the distinct realities of different technology readiness levels (TRLs) and commercialization considerations within the unique aerospace context.

The aerospace IP spectrum

Aerospace IP tends to focus on either *exploration* or *exploitation*. Exploration deals with foundational and early-stage developmental IP, which are generally more shareable and often co-developed by industry partners. Exploitation deals with later-stage developmental and commercial IP, and tends to be less collaborative because it is market-facing and competitive.

IP generated from activities across technology readiness levels (TRLs) 1–5 is usually exploratory, while IP generated at TRLs 6–9 tends to be exploitative. TRL 6 is generally viewed as the transition point between exploration and exploitation.

From exploration to exploitation across the TRLs, IP progresses from what’s considered ‘foundational’ IP to developmental and ultimately commercial (or pre-commercial) IP. Industry players are generally open to co-developing and sharing foundational and some developmental IP. Commercial IP is shared less often as it is key to a specific company’s competitive advantage, though there are opportunities to increase sharing at this level.

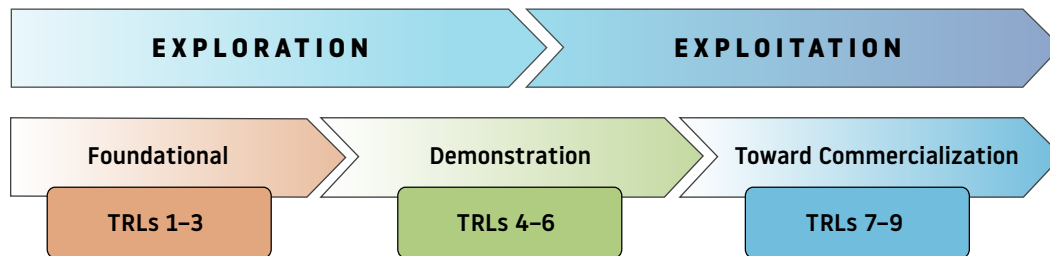
Determining what is foundational, developmental or commercial IP varies by company, business model and market segment.

WHAT THE WORKING GROUP SET OUT TO SOLVE

- *SME fears of **losing valuable IP** to bigger players*
- *Competitors’ concerns about **preserving market advantages***
- ***Reluctance to share risk** for mid-TRL innovation*
- ***Reluctance to collaborate** on high-TRL innovations*
- ***Losing talent** to other jurisdictions where IP policies are more appealing*

Other countries have shown that government incentives can spur collaboration among competitors at the commercialization stage. The Government of Canada has the opportunity to take this step and propel Canadian innovation.

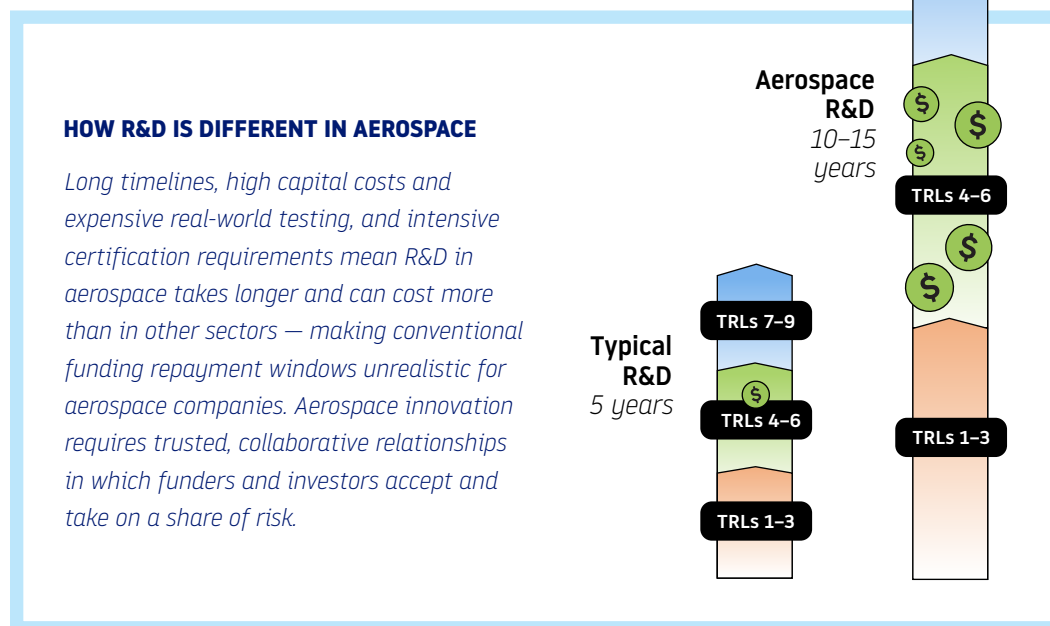
How IP development flows



Developing composite materials in a laboratory setting or candidate software to optimize aircraft route planning are examples of exploration-stage IP. Testing composites in a real-life environment or embedding software in a vehicle for live data gathering and performance trials are examples of exploitation.

Two types of IP are involved at each stage of development:

- **Background IP** refers to IP owned by an industry player coming into a project.
- **Foreground IP** is IP developed through a collaborative project.



A framework for pan-Canadian collaboration

Central to the gateway's IP approach is its role as IP Administrator.²⁴ This involves managing IP and technical data and liaising with third-party stakeholders on behalf of the industry. Below are the highlights of the proposed policies. For more detail, see the IP Policies Working Group Report Annex.

Each participant in a project will, among other things:

- Be a Canadian company.
- Identify the specific areas where it intends to exploit Foreground IP, and commit to doing so in those areas only unless otherwise negotiated with the gateway's IP administrator.
- Be fair, reasonable and non-discriminatory in all engagements with the gateway and other ecosystem members.
- Follow the confidentiality rules set by the gateway and in agreements governing gateway-facilitated projects.
- Commit to the IP framework developed for gateway-facilitated TRL 1-6 projects (generic agreements will have been negotiated in advance to accelerate the start of projects).
- Be Cybersecurity Maturity Model Certification (CMMC)-approved.
- Commit to an IP dispute resolution mechanism established by the gateway IP administrator.
- Commit to allowing an independent audit team to audit their business to ensure compliance with gateway membership requirements.

A key role for government

Industry sees the Government of Canada as a necessary partner for IP development — in the early stages, through research grants and innovation investments and, toward commercialization, for large-scale technology demonstrations and collaboration incentives. Government also has a role to play in procuring access to IP when it acquires equipment and platforms, for sharing with industry to apply and exploit. This will boost innovation and collaboration, and will also strengthen Canadian control over its own IP while reducing the cost of maintaining and modifying procured equipment and platforms.

²⁴ Throughout this section, 'IP Administrator' refers to the IP administration role of the gateway.

IP policies at a glance

The proposed IP framework covers all forms of IP from exploration to exploitation:

TRLs 1-3

- Participating Canadian aerospace stakeholders **jointly own the Foreground IP** developed through the project and can transfer their Foreground IP rights to a third party after the project is completed, as long as that third party abides by the original terms of engagement.
- **Foreground IP must be licensed to requesting industry players** — exclusively or co-exclusively to a specific area of the industry — for no additional payment beyond the ecosystem “membership fee.” Licenses last as long as the requesting industry participant remains a Canadian entity and contributes annually to the IP Administrator. Licenses cannot be sublicensed, assigned or transferred to third parties, though they **may be sublicensed to parent and sister companies** if the requesting industry player remains the beneficiary and the ability of other industry players to license the Foreground IP is not affected.
- Industry players will **license Background IP to other industry players when it is needed** exploit the Foreground IP, provided those other players are Canadian entities.
- With majority support, participating industry players **may license Foreground IP to others outside the ecosystem**, with a portion of the royalties paid to participating stakeholders and a portion to the innovation gateway IP Administrator.

With academia

- **Industry participants gain exclusivity to exploit Foreground IP in aerospace, aviation and space** as long as they remain Canadian entities and do not sell their interest Foreground IP to an entity outside IP Administrator membership.
- **Academic institutions gain exclusivity in other industries** (i.e., excluding aerospace, aviation and space) to exploit Foreground IP.
- Industry participants (including their successors and assigns) **jointly own the Foreground IP** with the academic institutions, and all parties must **commit to licensing any Background IP required to exploit the Foreground IP**.
- **Industry participants and academic institutions will issue cross-licenses to each other** to exploit the IP developed through the project. Industry participants must remain Canadian entities and continue to own their portion of the Foreground IP.

TRLs 4-6

- Project participants **determine ownership of Foreground IP to be developed prior to project startup**. That ownership determination applies also to their successors and assigns.
- **Royalty-bearing licenses for Foreground IP are granted as requested**, exclusive or co-exclusive to a specific area of the industry. Licenses cannot be sublicensed, assigned or transferred to third parties, though they **may be sublicensed to parent and sister companies** if the requesting industry player remains the beneficiary and the ability of other industry players to license the Foreground IP is not affected.
- **Foreground IP** may be licensed to parent and sister companies of requesting industry players, provided all are Canadian entities.
- Each industry player will **license required Background IP to other industry players** to exploit the Foreground IP, as long as those licensees are Canadian entities.
- **Qualifying SMEs may seek licenses** to use Foreground IP for applications outside of the aerospace industry. This will help them build greater profile with companies outside of the aerospace industry.

TRLs 7-9

- Industry players can **request access to resources** via the IP Administrator.
- Each must identify the **specific areas of aerospace** where they intend **to exploit the Foreground IP**.
- Participants (or their successors or assigns) **collectively own the Foreground IP**.
- Participants (or their successors or assigns) will **license to each other any Background IP** that may be needed and issue cross-licenses per their specified areas.
- **No party will issue any other licenses unless there is unanimous consent** from participating industry players.
- If a participating industry player **ceases to be a Canadian entity, it loses the exclusivity to exploit Foreground IP in specific area(s) of the aerospace industry**. Selling any interest in Foreground IP to a party that is not an IP Administrator member will require a payment to the IP Administrator.

There is an opportunity at this stage for government to incentivize commercial-stage collaboration.

CANADIAN COMPANIES BOUGHT BY INTERNATIONAL FIRMS

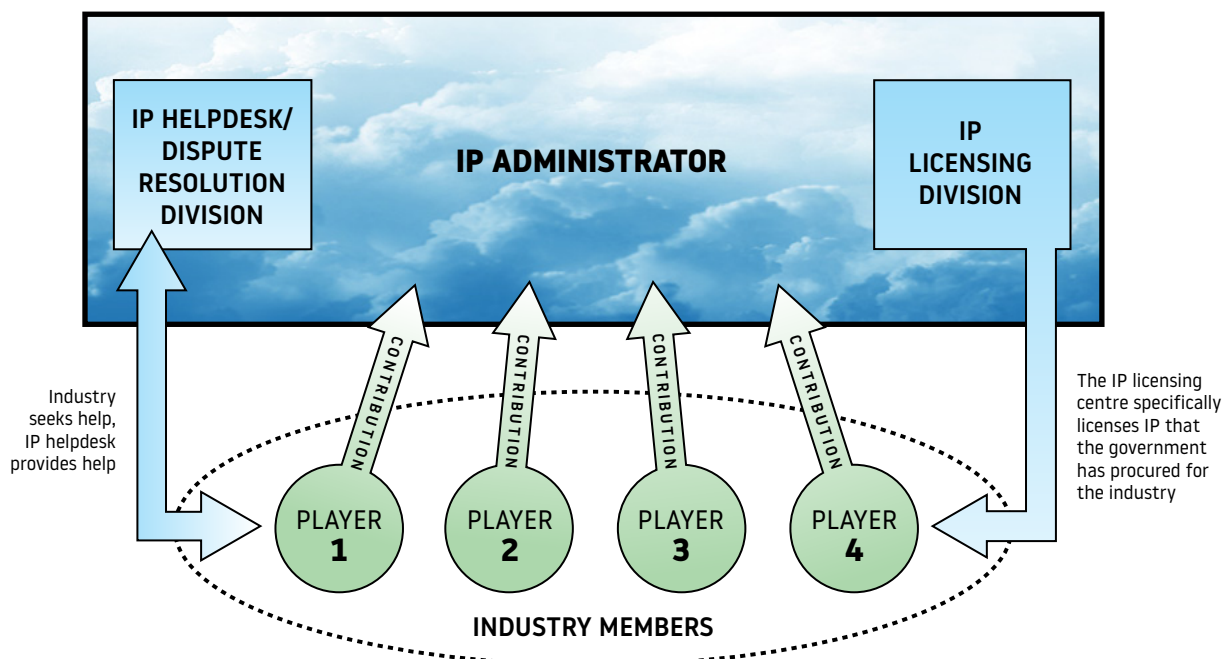
If a Canadian company participating in the innovation ecosystem is purchased by a foreign firm, a condition of the sale should be that any purchased IP remains accessible to the Canadian aerospace ecosystem per the licensing terms agreed to under the proposed framework. This is common to transactions in other industries. If the purchased Canadian aerospace company does not make this a condition of the sale and ecosystem counterparts lose access to the IP, the seller would be responsible for indemnifying the losses suffered (which would be a significant financial risk and so a strong disincentive). The overarching principle is to ensure IP remains accessible to Canadian players regardless of who owns it.

NOTE: Policy decisions related to the gateway, such as the timeframe IP remains in Canada, will be determined by the Board of Directors once established.

Why centralized IP administration matters

The innovation gateway will play several crucial roles in implementing IP policies, while taking no interest in IP ownership itself. Those roles include:

- **IP administration:** Managing a framework for fair exploitation of IP developed for the benefit of Canadian aerospace within Canadian aerospace and supporting IP acquisition through procurement.
- **Data management:** Maintaining and making available a repository of technical and IP data to industry players through an IP Knowledge Centre, possibly via licensing arrangements.
- **IP training:** Helping industry players better manage and take advantage of IP in Canada and beyond, including formal IP training, workshops and an IP helpdesk function.



A historic step

Canada's aerospace industry has generated countless proposals for groundbreaking ventures and ambitious projects over the years. Creating a Canadian aerospace industry innovation gateway would be something entirely different: a genuine game changer, a paradigm shift.

The innovation gateway will coordinate R&D activities on all scales at all stages across the entire ecosystem to a degree never seen before in this country.

It will contribute profoundly to national priorities of sustainability and sovereignty. It will bring one of Canada's most critical industries back from the pandemic, launch a whole new era of growth and exploration, attract international investment and deliver Canadian solutions to the world.

Its success requires the full commitment of all aerospace stakeholders — and the full support of ISED and the Government of Canada.

We, the members of Canada's aerospace industry, are ready to start, to take the historic step available with this proposal and make it real.

**Working in partnership,
we can make it happen.**

Thank you for reviewing this report and considering the Canadian aerospace industry innovation gateway we have proposed. As members of Canada's aerospace industry, we are fully committed to doing our part to realize the potential of an orchestrated innovation ecosystem — but we cannot do it alone. With the support of ISED and the Government of Canada, the innovation gateway will become the springboard to decades of Canadian leadership in the global aerospace arena.

Mike Mueller, President and CEO, AIAC

The aerospace innovation ecosystem Steering Committee and Working Group Co-chairs



Checklist against statement of work

Below is the full set of inclusions requested by ISED at the outset of this exercise. Page references indicate where relevant content is addressed. Some items will be fleshed out further as part of the subsequent SIF application process.

Statement of Work	Section(s) Where Addressed
NETWORK STRATEGY	
Summary of the proposed short-term and long-term objectives, as well as desired outcomes, of a potential aerospace innovation network.	Gateway to the Future (Page 9) Network Strategy (Page 23)
Overview of the major expected benefits of a potential network, including: collaboration, job maintenance/creation, market impact, environmental impact, and employment equity.	Massive Potential to Transform (Page 11) Network Strategy (Page 23)
Explanation of how a network would accelerate the exchange of knowledge innovation to support the Canadian aerospace ecosystem.	Network Strategy (Page 23)
Overview of the types of organizations that could contribute to the network, including key committed partners to date (if applicable).	Changing the Game (Pages 21–22) Network Strategy (Pages 25–28)
Description of the technology focus areas that a potential network would seek to advance, including a description of how and why these areas were chosen.	Welcome to Tomorrow (Page 15) Network Strategy (Page 23) Network Strategy Annex
Explanation of how the network's objectives will align with other industry-led collaboration efforts to avoid duplication with other aerospace innovation networks.	The Capabilities to Put Canada Back on Top (Page 5) A Pivotal Moment for Aerospace (Page 7) Network Strategy (Page 23) Network Strategy Annex
Description of how the network will support increased gender balance and diversity within the aerospace sector.	Network Strategy (Page 28) Network Strategy Annex

Statement of Work	Section(s) Where Addressed
BUSINESS MODEL	
Sample cost breakdown for a potential network (if possible).	Business Model and Sustainability Plan (Page 36) Business Model and Sustainability Plan Annex
Overview of how costs will be tracked and description of the accounting system to be used by a potential network.	Business Model and Sustainability Plan (Page 34) Business Model and Sustainability Plan Annex
Description of how data will be collected, by a potential network, from participating organizations to report on results and costs claimed.	Business Model and Sustainability Plan (Page 34) Business Model and Sustainability Plan Annex
Description of the project selection criteria that will be used to choose a potential network's projects.	Business Model and Sustainability Plan (Page 34) Governance Framework (Page 39)
Overview of any planned or 'shovel-ready' projects that may have been identified, through consultations, for a potential network (if applicable).	The Capabilities to Put Canada Back on Top (Page 5) A Pivotal Moment for Aerospace (Page 7) Network Strategy (Page 23) Business Model and Sustainability Plan (Page 34)
GOVERNANCE FRAMEWORK	
Description of a potential network governance model, including organizational and management structure, role of main industry partners, Board of Directors, and key committees.	Governance Framework (Page 39) Governance Framework Annex
Description of the process by which a potential network would make decisions and select the projects or initiatives that it would support.	Governance Framework (Page 39) Governance Framework Annex
Explanation of how industry would be involved in leadership of a potential network and in setting strategies and priorities.	Governance Framework (Page 39) Governance Framework Annex
Plan to promote collaboration within a potential network, including networking activities for partner organizations.	Network Strategy (Page 23) Business Model and Sustainability Plan (Page 29) Business Model and Sustainability Plan Annex Governance Framework (Page 39) Network Strategy Annex

Statement of Work	Section(s) Where Addressed
SUSTAINABILITY PLAN	
Plan for how the network could be sustained in the short, medium, and long-term, including potential private and public sources of funding and maintenance of network infrastructure (e.g., operational and administrative costs).	Business Model and Sustainability Plan z (Page 35) Business Model and Sustainability Plan Annex
IP POLICIES	
Overview of a potential network's IP strategy.	IP Policies (Page 43) IP Policies Annex
Explanation of how the IP strategy will ensure network-supported IP is managed in a manner that maximizes accessibility to partners.	IP Policies (Pages 45–46) IP Policies Annex
Description of what would happen to IP generated by a potential network at the close of the agreement between the network and its partners.	IP Policies (Pages 45–46) IP Policies Annex
Explain if a potential network would acquire or license external IP (if applicable).	IP Policies (Page 45) IP Policies Annex
Plan for how long the ownership of the IP generated by the network will remain in Canada.	IP Policies (Pages 46–47) IP Policies Annex

Acknowledgements

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Working group chairs:

Houssam Alaouie, Senior Director, R&D Programs and Relations with Higher Education Institutions, CAE
Michel Dion, Senior Manager – Innovation, Bell Textron Canada
Pierre Pyun, VP Government Affairs, Bombardier
Cara Salci, VP Strategy & Government Relations, Thales Group
Pablo Tseng, Partner, Intellectual Property & Technology, McMillan
Tim Whittier, Director, Government Relations – Landing Systems, Collins Aerospace

Working group consultants:

Omar Raza, Senior Executive, Global Infrastructure, KPMG LLP
Emmanuel Verrier-Choquette, Partner, Authentique Partners
Pablo Tseng, Partner, Intellectual Property & Technology, McMillan

Other steering committee members:

Richard Foster, Chair, AIAC; VP L3Harris Technologies Canada
Amandeep Kaler, Vice Chair, AIAC; CEO Avcorp Industries
John Mannarino, President, Mannarino Systems & Software Inc.
Krista Robinson, Partner, SR&ED and Business Tax Incentives, EY Canada

Ecosystem consultations and report development:

Peter Hall, Chief Economist, Econosphere
Bill Yetman, Yetman Consulting
Dale Morris, Strategic Messaging Consultant
Andrew Kirkwood, Senior Writer and Editor
Dave O'Malley, Creative Director, Aerographics

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