WEBVTT

00:00:02.600 --> 00:00:23.160
<v SPEAKER_1>On today's Triple Helix episode of the podcast, I'm speaking with Brigadier General Chris Horner on a conversation we're recording on the 2nd of February, 2026, talking about Canada's plans for space, the creation and evolution of 3 Canadian Space Division and the future of Canadian space activity in the Canadian Armed Forces and Department of National Defence.

00:00:23.160 --> 00:00:25.340
<v SPEAKER_1>General Horner, welcome to Defence Deconstructed.

00:00:25.340 --> 00:00:26.220
<v SPEAKER_2>Hey, Dave, great to see you again.

00:00:27.500 --> 00:00:38.060
<v SPEAKER_1>So, we got you on today to talk a bit about what your organization is focused on these days and some initiatives with space in the Canadian Defence context.

00:00:38.060 --> 00:00:51.240
<v SPEAKER_1>I think maybe just because it's a bit of an exciting real life event coming up, maybe to start this conversation off, the Artemis launch, which is a pretty interesting and exciting new initiative in space exploration, is coming up shortly.

00:00:51.240 --> 00:01:01.560
<v SPEAKER_1>And there's a nexus of a type, I guess, with what your team does, if for no other reason than one of the folks that's going to be involved in that is a member of the Canadian Armed Forces and an astronaut.

00:01:01.560 --> 00:01:07.060
<v SPEAKER_1>So, a bit of an opening to talk a little bit about Artemis and how that impacts folks like you.

00:01:07.060 --> 00:01:08.260
<v SPEAKER_2>Absolutely.

00:01:08.260 --> 00:01:09.080
<v SPEAKER_2>Thanks, David.

00:01:09.260 --> 00:01:14.540
<v SPEAKER_2>I mean, Artemis too is going to capture human imagination again.

00:01:14.760 --> 00:01:17.840
<v SPEAKER_2>We're returning to the moon or the vicinity of the moon.

00:01:19.020 --> 00:01:22.400
<v SPEAKER_2>For the first time in history, a Canadian is on the crew.

00:01:22.400 --> 00:01:30.860
<v SPEAKER_2>For Canadians, this is a pretty visible reminder that our country sends people to space.

00:01:30.860 --> 00:01:40.100
<v SPEAKER_2>Some people would say that we're a space bearing nation, but we can get into my personal views on, I think you need to be able to launch things from your country to be truly a space bearing nation.

00:01:40.100 --> 00:01:45.040
<v SPEAKER_2>But we're certainly a country that builds and sends things to space and sends humans to space.

00:01:45.520 --> 00:01:52.440
<v SPEAKER_2>From a Canadian Armed Forces perspective, it's a reminder that it's not just about exploration.

00:01:52.440 --> 00:01:56.700
<v SPEAKER_2>It's essential to how we operate as a country.

00:01:56.700 --> 00:02:00.960
<v SPEAKER_2>It's essential to the elements of sovereignty, security and national prosperity.

00:02:01.020 --> 00:02:12.080
<v SPEAKER_2>Then from a truly operational perspective, I think it gives us pause as we look at the incredible things Colonel Hanson will go and do on behalf of humanity.

00:02:12.800 --> 00:02:28.040
<v SPEAKER_2>But why do we have to look at space from an operational domain in which conflict can arise, competitions occurring, and from a day-to-day basis, how does that shape our mission?

00:02:28.440 --> 00:02:41.980
<v SPEAKER_2>So there's parallels there between the exciting excitement to see Canadians as part of space exploration for the first time since the early 70s into deep space, right?

00:02:43.260 --> 00:02:48.640
<v SPEAKER_2>We've never as a country sent a Canadian into deep space beyond the International Space Station.

00:02:48.640 --> 00:02:53.660
<v SPEAKER_2>And so what is it that we value in outer space?

00:02:53.660 --> 00:02:58.480

<v SPEAKER_2>And what is it we value from a national security perspective about outer space?

00:02:58.480 --> 00:03:10.160
<v SPEAKER_2>And I think that's the sort of juxtaposition between cool astronauts doing cool astronaut things and doing science and seeing the incredible nature of that mission.

00:03:10.160 --> 00:03:22.380
<v SPEAKER_2>And how much of our actual nation relies on space from a day-to-day basis that we don't think about, that comes to fruition because of that exploration, because of that science and technology.

00:03:22.380 --> 00:03:35.480
<v SPEAKER_2>And then how do we defend those national critical infrastructures from adversaries that are building counter space capabilities, some at breathtaking paces, and aiming to potentially disrupt and degrade or deny those capabilities.

00:03:35.480 --> 00:03:44.140
<v SPEAKER_2>And I think Artemis shows us promise, while also puts into context the realities of space and why we need to defend it.

00:03:45.360 --> 00:03:48.680
<v SPEAKER_1>Maybe something to we could come back to a little later on in the conversation.

00:03:48.680 --> 00:03:51.260
<v SPEAKER_1>But you mentioned infrastructure as part of this.

00:03:51.260 --> 00:03:55.920
<v SPEAKER_1>And for folks that have been following this, there have been a couple of delays in the launch.

00:03:55.960 --> 00:03:59.220
<v SPEAKER_1>At least, by my understanding, in part based just on weather.

00:03:59.220 --> 00:04:10.900
<v SPEAKER_1>Maybe just touch a little bit about how the infrastructure related to space launch has and the limits on it have impacted the timeliness of the Artemis mission going forward.

00:04:10.900 --> 00:04:18.340
<v SPEAKER_2>So the infrastructure is there and the SLS, the space launch system that's being built, it's second to none.

00:04:18.340 --> 00:04:23.500
<v SPEAKER_2>And there were competitors that would say, you know, if you were a SpaceX person, you would say, well, Starship is better.

00:04:23.500 --> 00:04:26.480
<v SPEAKER_2>If you were a Blue Origin person, you would say certain things are better.

00:04:26.480 --> 00:04:36.000
<v SPEAKER_2>You know, NASA has a history of trying to reduce risks to human life to the maximum extent possible.

00:04:36.000 --> 00:04:42.380
<v SPEAKER_2>So the infrastructure has got to be pretty perfect before we're going to send astronauts to space.

00:04:42.380 --> 00:04:53.120
<v SPEAKER_2>And so the technological, the amount of technology that is in the Orion spacecraft, that's in the rocket, that's in the systems, that like little things here and there can cause delays.

00:04:53.340 --> 00:04:54.740
<v SPEAKER_2>You know, weather is one of those.

00:04:54.740 --> 00:05:11.560
<v SPEAKER_2>But I think the infrastructure now is so both technologically advanced compared to where we were, you know, when the space race first started in the 1960s and 70s, to this place where, you know, oh, people send rockets to space all the time.

00:05:11.560 --> 00:05:13.260
<v SPEAKER_2>Like how complicated is it, right?

00:05:13.260 --> 00:05:30.900
<v SPEAKER_2>So there's a bit of juxtaposition between understanding the risks involved and the technology involved and the infrastructure involved, and what feels like commonplace by seeing SpaceX send rockets to space on a regular basis and hey, we must have that solved.

00:05:30.900 --> 00:05:32.380
<v SPEAKER_2>And I think that's an important thing.

00:05:32.380 --> 00:05:39.340
<v SPEAKER_2>Just the infrastructure on the ground infrastructure is similar across whatever launch platform or lift vehicle you want to use.

00:05:39.340 --> 00:05:41.680
<v SPEAKER_2>It depends on the engine, it depends on the fuel.

00:05:41.680 --> 00:05:45.640
<v SPEAKER_2>But it's a launch pad, it's a tower, it's lightning rods, it's a control station.

00:05:45.800 --> 00:05:47.260
<v SPEAKER_2>There's things that are generally similar.

00:05:47.960 --> 00:05:59.480
<v SPEAKER_2>The vehicles themselves are so fundamentally different in different ways that that's where you can see either technological advantage or disadvantage, depending on what you're doing.

00:05:59.740 --> 00:06:05.940
<v SPEAKER_2>And again, there was delays with Artemis 1 because they wanted to make it work, and they got it to work.

00:06:05.940 --> 00:06:12.820
<v SPEAKER_2>And then they learned things from that, and as they build out Artemis 2, there's been delays in capability.

00:06:12.820 --> 00:06:22.660
<v SPEAKER_2>But we're in the first launch window, and slightly delayed due to weather, slightly delayed to today is the 2nd of February, so they'll do a wet dress rehearsal today.

00:06:24.080 --> 00:06:30.420
<v SPEAKER_2>That'll see if they can fill it up with gas and oxidizer, and if everything goes well, okay, well, then we start getting closer to launch.

00:06:30.420 --> 00:06:38.360
<v SPEAKER_2>But the technology is so advanced, but the risk is no less than it was in the 1960s.

00:06:40.320 --> 00:06:50.600
<v SPEAKER_1>Okay, so I think that's a bit of context for folks that might be tuning in to watch this pretty historic next round of exploration move forward.

00:06:50.600 --> 00:06:57.520
<v SPEAKER_1>But let's bring the conversation back to the Canadian Armed Forces, Canadian Defence and space activity.

00:06:57.520 --> 00:07:14.780
<v SPEAKER_1>Just take a few minutes and talk about how space, which sometimes to me curiously gets framed as an emerging technology, even though it's been around longer than me, talk about the importance of space to modern defence and to modern Canadian defence in particular.

00:07:14.780 --> 00:07:16.540
<v SPEAKER_2>Yeah, for sure, David.

00:07:16.560 --> 00:07:21.260

<v SPEAKER_2>I mean, our dependence on space is absolute.

00:07:21.680 --> 00:07:26.700
<v SPEAKER_2>And I say that very succinctly, although I can barely pronounce that word.

00:07:26.700 --> 00:07:35.580
<v SPEAKER_2>Everything that modern militaries do, land, air, sea, cyber and space domains, depend on space based capabilities.

00:07:35.580 --> 00:07:43.460
<v SPEAKER_2>If we were to lose assured access to that domain, to the space domain, we would struggle to defend critical assets of this country.

00:07:43.460 --> 00:07:53.440
<v SPEAKER_2>We'd struggle to defend and protect our deployed forces and coordinate our activities and our manoeuvres and really build that advantage for allied operations.

00:07:53.440 --> 00:07:57.080
<v SPEAKER_2>I mean, it's not, it's no longer theoretical.

00:07:57.080 --> 00:08:23.020
<v SPEAKER_2>It's not just some benign environment in which satellites freely float about, although, you know, physics suggests they do float about, that it is a reality in contemporary warfare that is a domain that's contested, and it's a domain that's congested, and that it's a domain in which adversaries are building capabilities that will hold at risk national sovereignty and security.

00:08:23.020 --> 00:08:25.560
<v SPEAKER_2>I mean, let's just consider the basics.

00:08:26.780 --> 00:08:40.980
<v SPEAKER_2>Knowing where our forces are, communicating across the Arctic and the globe, seeing the threats before they see us, guiding aircraft and precision munitions, long-range precision fires, synchronizing operations with allies, space underpins all of that.

00:08:40.980 --> 00:08:46.220
<v SPEAKER_2>It underpins the daily Canadian life, not just military operations.

00:08:46.280 --> 00:08:59.400
<v SPEAKER_2>20% of our economy more or less runs through space, whether that's banking or transportation logistics or energy grids or emergency services, precision farming.

00:09:00.220 --> 00:09:24.440

<v SPEAKER_2>All of that is why we describe, you know, space and defending the domain or operating in the domain and ensuring access to domain as really a moral obligation of us to ensure the Joint Force is given that advantage and that advantage is intact while denying the adversary the same, because there's a human dimension here.

00:09:24.440 --> 00:09:32.600
<v SPEAKER_2>Over the last century, technology has improved and we've got better intelligence and resilient command and control and precision effects.

00:09:32.600 --> 00:09:34.980
<v SPEAKER_2>But all of those are now space enabled.

00:09:34.980 --> 00:09:44.240
<v SPEAKER_2>So when you think about, you know, brief history lesson, go back to the First World War, our casualty rates per 100,000 were somewhere in the 700.

00:09:44.240 --> 00:09:46.440
<v SPEAKER_2>By the Second World War, we're down in the 300s.

00:09:46.440 --> 00:09:48.600
<v SPEAKER_2>By Korea, we're down into the tens.

00:09:48.600 --> 00:09:54.580
<v SPEAKER_2>By the Afghanistan days, we were at about 0.55 casualties per 100,000 Canadians.

00:09:54.580 --> 00:09:58.000
<v SPEAKER_2>The reality is there are several factors around that.

00:09:58.540 --> 00:10:08.800
<v SPEAKER_2>One of them is the technological dependence first-rate war fighting countries have, and that dependence is now inextricably tied to space.

00:10:08.800 --> 00:10:31.700
<v SPEAKER_2>And so, from my perspective, that foundational piece for us, that moral obligation from a space professional perspective is that we owe it to the Joint Force, to the sailors, soldiers, aviators and operators to maintain their technological edge, to maintain that decisional advantage and protect those systems that enable them to fight and win in any conflict.

00:10:33.420 --> 00:10:37.300
<v SPEAKER_1>You talked there, used the phrase maintaining that edge.

00:10:37.300 --> 00:10:48.120
<v SPEAKER_1>Maybe just use that as a bit of a segue to talk about,

before we get into some of the specifics of your organization, what's sort of the trajectory of Canadian defence space activity?

00:10:48.360 --> 00:10:52.080
<v SPEAKER_1>What are some of the things that we are looking to do other than creating your organization?

00:10:52.080 --> 00:11:04.720
<v SPEAKER_1>But some of the investments or some of the work that National Defence is devoting to maintain that competency, enhance the capability moving forward when it comes to space assets and capability.

00:11:04.720 --> 00:11:06.680
<v SPEAKER_2>For sure.

00:11:06.680 --> 00:11:09.440
<v SPEAKER_2>A couple of things and a couple of horizons and a couple of ways to look at that.

00:11:10.340 --> 00:11:14.140
<v SPEAKER_2>There's a lot of focus on the now to 2028 window.

00:11:14.460 --> 00:11:18.300
<v SPEAKER_2>That window is getting smaller and smaller as 2028 gets closer and closer.

00:11:18.300 --> 00:11:24.320
<v SPEAKER_2>There's reasons we're focused on that and there's direction we've been given as part of the Air Force's strategy and Air Force's campaign plan.

00:11:25.120 --> 00:11:36.520
<v SPEAKER_2>That is to prepare the force for what we will have should we contest peer adversaries in 2028 and beyond.

00:11:36.520 --> 00:11:42.720
<v SPEAKER_2>For that, we need to look across the core mission areas of the work that we do.

00:11:42.720 --> 00:11:53.380
<v SPEAKER_2>Those mission areas are space-based intelligence, surveillance, and reconnaissance, so looking down at the earth and doing the intelligence, surveillance, and reconnaissance mission from space assets.

00:11:53.380 --> 00:12:05.380
<v SPEAKER_2>Space domain awareness, so looking up from the earth or from things in space to see what is in the environment, what is in the domain, characterizing that, understanding what the threat landscape

is in the domain.

00:12:05.380 --> 00:12:16.600
<v SPEAKER_2>You've got satellite communications and navigation, and that's GPS and satellite communications globally for forces, but also across the country from a civilian perspective.

00:12:16.660 --> 00:12:22.640
<v SPEAKER_2>And then looking into the high north, and then the last one is space control, and I'll park space control, that's how we control the domain.

00:12:22.640 --> 00:12:23.780
<v SPEAKER_2>I'll park that at the end.

00:12:23.780 --> 00:12:44.320
<v SPEAKER_2>So if we look at, hey, those are the four key mission areas that from a defence perspective, we want to enable by 2028, and then from the second horizon between 2028 and 2035, how do we shape the force of the future so that we're this enduring, ready, relevant, and resilient force moving into the next decade and the next century.

00:12:45.980 --> 00:12:59.500
<v SPEAKER_2>What we are doing is first, there are a couple of majors, $26 billion of funded projects focused on space-based intelligence surveillance reconnaissance and satellite communications and navigation.

00:12:59.500 --> 00:13:11.800
<v SPEAKER_2>So those are the Defence Enhanced Surveillance of Space Program, terrible acronym, and the Enhanced Satellite Communications Polar Project or Program, ESCAPE.

00:13:11.800 --> 00:13:16.720
<v SPEAKER_2>Again, I don't make up the acronyms, I just try to remember them, but these are…

00:13:16.720 --> 00:13:18.860
<v SPEAKER_1>Budo's to you for remembering the real words.

00:13:18.860 --> 00:13:22.740
<v SPEAKER_2>I'm just trying to sort through my mind what all those letters mean.

00:13:22.740 --> 00:13:29.420
<v SPEAKER_2>The reality is these are sovereign capabilities for this nation for the first time.

00:13:29.420 --> 00:13:47.580
<v SPEAKER_2>So from a satellite communication perspective, we are in

partnerships globally with the US and other nations across multiple different types of satellite communications that enable our command and control, that enable voice and data communications, that enable lots of things.

00:13:47.580 --> 00:13:51.380
<v SPEAKER_2>But none of those are wholly Canadian or wholly sovereign.

00:13:51.380 --> 00:14:07.560
<v SPEAKER_2>And so as we go into escape and we build out this capability for the Arctic, or opportunities beyond the Arctic, it is looking at it from a Defence, sovereign Canadian solution perspective to deliver war fighting advantage for Canadians.

00:14:07.560 --> 00:14:19.780
<v SPEAKER_2>So that's the first time we will have gone down that road from that missionary, to give us some strength and sovereignty in that specific mission area, which is a fantastic move forward.

00:14:19.780 --> 00:14:21.640
<v SPEAKER_2>From the ISR perspective, it's the same.

00:14:21.640 --> 00:14:30.540
<v SPEAKER_2>DESPI is our first Defence, pure Defence, Surveillance from Space Program, or ISR program.

00:14:30.540 --> 00:14:46.020
<v SPEAKER_2>And this is a constellation of satellites that will provide synthetic aperture radar looks at the Earth and other capabilities to allow us to deliver the mission requirements the Joint Force needs and doing it as a sovereign nation for the first time.

00:14:46.020 --> 00:14:52.920
<v SPEAKER_2>Now, we use RadarSat Constellation mission flown by the Canadian Space Agency.

00:14:52.920 --> 00:15:01.460
<v SPEAKER_2>It takes care of a lot of things that we require from an operational perspective, but nowhere near 100% of what we need, nowhere near 60% of what we need.

00:15:01.460 --> 00:15:25.820
<v SPEAKER_2>And so as we leverage sovereign national capability, we are growing that defence portfolio because we understand that leveraging these sensors gives us a capability of decisional advantage, whether that's indications and warning, whether it's targeting support, whether it's persistent understanding of an environment, it gives us all of those things as a national defence element.

00:15:25.820 --> 00:16:01.620
<v SPEAKER_2>And then when we look at continental defence, you know, looking at how we invest in sensing, resilient communications and space-based awareness platforms is the next tranche of investment in, whether we want to call it NORAD, whether we want to call it Continental Defence or Defence of Canada, it is how do we extend things to understand the adversary's long-range precision fires, to do indications and warnings at the greatest distance, to be able to defeat threats to Canada across the integrated air and missile defence.

00:16:03.080 --> 00:16:12.640
<v SPEAKER_2>The joint, the over-the-horizon radar that has already been announced, that's I think $3 billion that they're trying to build, that the government's working to build somewhere in southern Ontario.

00:16:12.760 --> 00:16:17.740
<v SPEAKER_2>That's an element of it that replaces elements of the North Warning System.

00:16:17.740 --> 00:16:48.480
<v SPEAKER_2>But to truly get after that from a multi-layer perspective, you need centralized command, federated control, you need multiple different sensor sets, and so that's when the space domain comes in to taking a look at some of those surveillance from space projects to how do we integrate space-based radars looking down to track aircraft or hypersonic vehicles and the things from the ground so that you fuse all that data together and you can defend the country, you can defend the continent.

00:16:48.480 --> 00:17:22.820
<v SPEAKER_2>So you've got planned tens of billions of dollars of investment in sovereign capability, you've got future programs of record that are coming online that will require funding from government, that will require lots of work to be done in the project world as you know, but all of these things go back to the core belief that Canada both contributes to and benefits from coalition partnerships, but carrying our own water is incredibly important and doing that through the space domain is what we're trying to do.

00:17:24.800 --> 00:17:28.720
<v SPEAKER_1>Before we get to talking about your organization, maybe just take a minute.

00:17:28.720 --> 00:17:43.680
<v SPEAKER_1>So you talked a little bit about sovereign requirements, at least to my understanding, there's a unique requirement just based on our geography, that some of our space capabilities employ different

orbit patterns than some others.

00:17:43.680 --> 00:17:53.320
<v SPEAKER_1>So I think maybe you just take a second to just situate the need for Canada to have a unique space capability based on our own geography.

00:17:53.320 --> 00:17:57.860
<v SPEAKER_2>So like a lesson in astrophysics is what you're asking for.

00:17:58.080 --> 00:17:59.180
<v SPEAKER_1>Very simple.

00:17:59.180 --> 00:18:00.320
<v SPEAKER_2>Very simple.

00:18:00.320 --> 00:18:05.460
<v SPEAKER_2>So the reality when we look at, well, let's use communications for an example.

00:18:05.460 --> 00:18:21.380
<v SPEAKER_2>Most satellite communication is a geostationary or geosynchronous platform, which means 36,000 kilometers out from the earth, maintaining its same position from the earth as a satellite, and wherever the earth moves, the satellite moves with it, which is great.

00:18:22.020 --> 00:18:23.320
<v SPEAKER_2>It's always in the same spot.

00:18:23.320 --> 00:18:34.460
<v SPEAKER_2>The problem is the way they point the beams at the earth, they don't really go higher than 65 North or lower than 65 South, which presents huge challenges for the Arctic.

00:18:34.460 --> 00:18:45.220
<v SPEAKER_2>So these large, very capable satellite communication platforms that we have used for operations globally, don't work really beyond 65 North.

00:18:45.300 --> 00:18:55.800
<v SPEAKER_2>And so we get into these constellations of either polar orbits or highly elliptical orbits or capabilities where you can make a...

00:18:55.800 --> 00:19:07.720
<v SPEAKER_2>When it's highly elliptical, it spends a lot of extra time over the Arctic where the sensor or the communication platform is over the Arctic, very little time around the bottom of the earth and

then back up.

00:19:07.720 --> 00:19:29.700
<v SPEAKER_2>These are those types of orbits or types of orbital regimes that make it important from a Canadian perspective to understand that, hey, just a big geostationary bus doesn't work for the Arctic because of where we are, which is why we also are looking at things like what we call a proliferated low earth orbit constellation.

00:19:29.700 --> 00:19:32.340
<v SPEAKER_2>So Starlink is a good example of that.

00:19:32.340 --> 00:19:34.340
<v SPEAKER_2>UTELSAT-1Web is a good example of that.

00:19:34.340 --> 00:19:39.200
<v SPEAKER_2>These are hundreds or thousands of satellites and a mesh over the earth.

00:19:39.200 --> 00:19:45.060
<v SPEAKER_2>But even still, when you look at their orientation to the earth, they're commercially driven.

00:19:45.060 --> 00:19:52.860
<v SPEAKER_2>So they fly over areas in that central band of the earth where the people are, not necessarily over the polar region.

00:19:52.860 --> 00:20:13.640
<v SPEAKER_2>And so whatever solutions we look at from a Canadian perspective, be that ISR solution or Intelligent Surveillance and Reconnaissance Solution, or COM solution, or other capabilities, have to be able to operate in, not quite in the Arctic, above the Arctic or have the dwell time over the Arctic, to bring that benefit to Canada.

00:20:13.640 --> 00:20:28.100
<v SPEAKER_2>So it's just the orientation of the satellites to the Earth, the way they spin around the Earth, is different because Canada is so far, elements of Canada are so far north that to protect our sovereignty and security, you need to put them in those unique orbits.

00:20:28.100 --> 00:20:29.040
<v SPEAKER_1>Okay, that's great.

00:20:29.040 --> 00:20:51.100
<v SPEAKER_1>So particularly given the trajectory of increased focus on our north, enhancing our defence competency there, it introduces some unique considerations in particular to what we do from a space point of view, because other people might have very extensive space capability, but it doesn't cover the same geographic remit that the

Canadian Armed Forces are interested in.

00:20:51.100 --> 00:20:51.700
<v SPEAKER_2>Absolutely.

00:20:51.700 --> 00:21:23.980
<v SPEAKER_2>And when we look at threats to Canada, you know, greatest threat probably right now is in, you know, things flying from somewhere far away at a hypersonic speed and impacting somewhere in Canada, which is why we talk a lot about integrated air and missile defence, because hypersonic vehicles, different types of missile systems, different types of aircraft come from far away very quickly, often from, you know, different systems that will go through the space domain and then re-enter, move very quickly.

00:21:23.980 --> 00:21:37.340
<v SPEAKER_2>And to understand how they come into Canada over the Arctic means you need to have sensors that are over the Arctic that allow you to see those threats or provide that warning as quickly as possible.

00:21:38.480 --> 00:21:38.820
<v SPEAKER_1>Okay.

00:21:38.820 --> 00:21:45.260
<v SPEAKER_1>So thanks for giving a scene setter about the overall space trajectory for Canadian Defence.

00:21:45.260 --> 00:21:47.600
<v SPEAKER_1>Could you talk a little bit about your organization?

00:21:47.600 --> 00:21:51.680
<v SPEAKER_1>You know, we haven't been around that long for folks that aren't familiar.

00:21:51.680 --> 00:21:54.980
<v SPEAKER_1>What is it that you and your team do?

00:21:54.980 --> 00:21:59.600
<v SPEAKER_2>Yeah, so 3 Canadian Space Division is Canada's operational headquarters for the space domain.

00:21:59.600 --> 00:22:20.800
<v SPEAKER_2>Our mission is to generate agile, integrated, mission-ready space warfighting enterprise so that the Canadian Forces can employ world-class defence space capabilities and affects the maintain Canada's and our allies' strategic advantage into and through, or by with and through the space domain.

00:22:20.800 --> 00:22:27.560

<v SPEAKER_2>I mean, practically, what that means from the perspective of, hey, what do we do every day?

00:22:28.000 --> 00:22:34.800
<v SPEAKER_2>We control the domain, and that is insuring access to the domain and the freedom of manoeuvre for Canada and its allies.

00:22:34.800 --> 00:22:42.760
<v SPEAKER_2>Now, that doesn't mean I've cleared a bunch of satellites out of the way so that Colonel Hanson can fly through space and go to the moon and come back.

00:22:43.820 --> 00:22:46.080
<v SPEAKER_2>Let's not conceptually think of it that way.

00:22:46.080 --> 00:23:14.860
<v SPEAKER_2>But assuring access to and from freedom of manoeuvre in space means that our national technical means, our national capabilities to connect the core elements of Canadian society that go through space are protected and that we can, as required, replenish those or put new capabilities in the space from a civilian or dual use or military perspective to allow us to continue to grow our economy.

00:23:14.860 --> 00:23:21.180
<v SPEAKER_2>And like I talked about it, our economy depends on space, 20% of it, it's about a billion dollars of GDP a day.

00:23:21.180 --> 00:23:30.720
<v SPEAKER_2>And I think fundamentally, we look at it from, hey, we control the domain and allows us to do that protection of critical national infrastructure.

00:23:30.720 --> 00:23:40.100
<v SPEAKER_2>But I kind of flipped that on its head and I talked a little bit about it when I just opened up about, what is the purpose of having a military space organization?

00:23:40.100 --> 00:23:49.820
<v SPEAKER_2>I would argue that the Army, Navy, Air Force, and Special Forces often have deployed forward and done things.

00:23:49.820 --> 00:24:09.820
<v SPEAKER_2>The business that Canada has asked them to do, agnostic of the fact that space is enabling them to do that and not being savvy space experts, because that's not what we've asked sailors and aviators and our operators to go and do, but their business is inherently tied to those nodes in space.

00:24:09.820 --> 00:24:18.540
<v SPEAKER_2>And so to me, it's sort of a two-pronged approach that

we've stood up the division in 2022 and we are operationally up.

00:24:19.320 --> 00:24:43.780
<v SPEAKER_2>We're bringing the division to kind of a greater operational level of reaching IOC and then full operational capability in the early 2030s, because it's dependent on me being able to support and enable the Joint Force and all of the capabilities they require for precision strike or long range strike or communication C2, all of those things, and protecting them from space-enabled attack.

00:24:43.780 --> 00:24:47.500
<v SPEAKER_2>And that sounds terrifying, but it's not things falling from space.

00:24:48.020 --> 00:24:51.360
<v SPEAKER_2>It is the idea that the adversary gets a say.

00:24:51.360 --> 00:25:01.700
<v SPEAKER_2>And so they've got their own adversary ISR and adversary comms and adversary domain awareness and adversary targeting capabilities, all that are in space.

00:25:01.700 --> 00:25:41.140
<v SPEAKER_2>So if I'm going to push Canadian Forces members forward, or the government is going to push us into conflict or crisis, I would want to know that the Joint Force is being protected from space-enabled infrastructure and space-enabled attack because we, from a space division perspective, have put forth the personnel and the capabilities to preclude an adversary from using space to their advantage, aka denying them the advantage from space, while ensuring we, partners, allies, and Canadians, have that advantage, that decisional advantage, in the air on the battlefield or at sea, enabled through the domain.

00:25:41.140 --> 00:25:52.140
<v SPEAKER_2>And so, you know, that's a long answer to say there wasn't really a single, you know, belly button to poke to understand how that worked from the Canadian Forces perspective.

00:25:52.140 --> 00:26:20.580
<v SPEAKER_2>And so, they stood up the division to centralize the thinking for the Joint Force around that supporting and protecting the Joint Force perspective, and then synchronizing our actions across all of our named operations, across understanding the space domain from a day-to-day baseline operations perspective, and enabling the forces deployed under CJOC or CANSOF or NORAD, that space enablement.

00:26:20.580 --> 00:26:33.760
<v SPEAKER_2>So, the one other thing I guess that would add to that is we're also partners of a seven-nation consortium of countries called

Multinational Force Operational Olympic Defender.

00:26:33.760 --> 00:26:36.360
<v SPEAKER_2>So, that is the Five Eyes plus France and Germany.

00:26:37.220 --> 00:27:11.620
<v SPEAKER_2>And the job there is no different than what I just talked about for our country from that sovereignty, security, protection and defence of orbital assets perspective, where as seven nations, we can build on each other's capabilities or share each other's capabilities that in peacetime or in crisis, we can continue to operate through a contested environment, so that we're survivable in conflict because we've figured out how to integrate and operate together.

00:27:11.620 --> 00:27:18.260
<v SPEAKER_2>And so outside of that understanding of, excuse me, what do we do in terms of the Canadian forces?

00:27:18.260 --> 00:27:37.420
<v SPEAKER_2>It's also that contribution and partnership to that multinational forum, which allows us to have broader access to capabilities and intelligence and resources really, as we share that whole of globe kind of protection from a space perspective.

00:27:38.480 --> 00:27:44.420
<v SPEAKER_1>This episode of Defence Deconstructed is brought to you by Irving Shipbuilding, Canada's national shipbuilder is currently hiring.

00:27:44.420 --> 00:27:49.440
<v SPEAKER_1>For more information on the many jobs and opportunities currently available, please visit www.shipsforcanada.ca.

00:27:54.160 --> 00:28:11.120
<v SPEAKER_1>Since you were just talking about your connection with different allies, how does your division compare, maybe not in size necessarily, because some of those countries have larger forces, but is this a direction that other countries had been going in, some of them may be following what we're doing?

00:28:11.120 --> 00:28:20.940
<v SPEAKER_1>I mean, how many other peers have created specialized, dedicated space capability functions the way that we have with your organization?

00:28:20.940 --> 00:28:49.520
<v SPEAKER_2>So if I park the United States for a minute, because that's a different conversation because of their structure, and I look at our other partners, Australia, UK, New Zealand, Germany, France, the other partners under Operation Olympic Defender, we are all more

or less in exactly the same place, with about the same force structure, maybe different capabilities, but all on about the same timeline.

00:28:49.520 --> 00:29:30.280
<v SPEAKER_2>Comically, the commander of the UK Space Command and Australian Space Command and French Space Command and myself, we are all the second commanders of those organizations, having had their organizations stand up between about 2021 and 2024, where we are all trying to understand how we link together, how we enable our joint forces or equivalents in other countries, and how we have capabilities that maybe our nations had, that were either benign space capabilities that seemed fine and nobody is going to bother those two.

00:29:30.280 --> 00:29:43.700
<v SPEAKER_2>The realization that the threat is real, the realization that there are adversaries building capabilities that seek to contest our space superiority as an alliance.

00:29:43.700 --> 00:29:47.300
<v SPEAKER_2>I'm not going to say that Canada has space superiority on its own.

00:29:47.300 --> 00:29:52.760
<v SPEAKER_2>But I look at those different nations, and we call ourselves different things.

00:29:52.760 --> 00:29:54.920
<v SPEAKER_2>We are 3 Canadian Space Division.

00:29:54.920 --> 00:29:57.920
<v SPEAKER_2>We are a level underneath the Air Force's headquarters.

00:29:57.920 --> 00:30:04.620
<v SPEAKER_2>I'm also in a direct chain of command to CJOC to support operations, and so I'm kind of a bifurcated chain of command.

00:30:04.620 --> 00:30:11.340
<v SPEAKER_2>And in Australia, it falls under a different kind of organization, but it is Australian Space Command.

00:30:11.580 --> 00:30:15.820
<v SPEAKER_2>In the UK, it's the UK Space Command, and that falls under the Air Force and other elements.

00:30:15.820 --> 00:30:23.780
<v SPEAKER_2>So we are all a little different in our structure, but we're all equivalent more or less in size, scale and focus.

00:30:23.780 --> 00:30:26.160

<v SPEAKER_2>And I think that last part is important.

00:30:26.160 --> 00:30:32.900
<v SPEAKER_2>We are all more or less in agreement with the criticality of space.

00:30:32.900 --> 00:30:48.860
<v SPEAKER_2>Our countries at the political level and at the high levels of the military in each of those countries are all in about the same level of comfort or discomfort, whichever words you want to use, with understanding the criticality of the space domain.

00:30:48.860 --> 00:31:10.680
<v SPEAKER_2>And so it's a great benefit in the current time because as we maneuver through, whether that's parliamentary processes or bureaucratic processes or just speaking to Canadians, from my point of view, we are sharing similar challenges, but we're also sharing similar opportunities in how we have moved through those systems.

00:31:10.860 --> 00:31:14.360
<v SPEAKER_2>Now, that is very different from the United States.

00:31:14.540 --> 00:31:20.680
<v SPEAKER_2>And as you know, the United States built the US Space Force and US Space Command, you know, six plus years ago now.

00:31:20.680 --> 00:31:33.200
<v SPEAKER_2>And that came from a long, long history of Air Force Space Command and things that came out of STRATCOM and having spacefaring capabilities from an intelligence perspective and other perspective for decades.

00:31:33.200 --> 00:31:46.920
<v SPEAKER_2>And so none of us compare ourselves to the US and none of us try to build out the infrastructure that the US has with their 17,000 people in their Space Force and their constellations of satellites.

00:31:46.920 --> 00:31:55.140
<v SPEAKER_2>But we don't need to because it's not about, again, an individual nation achieving space superiority.

00:31:56.020 --> 00:32:04.560
<v SPEAKER_2>It's not about an individual nation putting 1,000 satellites in orbit and having that being all-powerful.

00:32:04.560 --> 00:32:24.420
<v SPEAKER_2>When we can rely on these core partners and allies to share data and share mission sets and understand where, hey, what's a good investment for Canada from a space domain that, as the Canadian

sovereignty, it can also be a contribution to what Germany and France is working on.

00:32:24.520 --> 00:32:27.100
<v SPEAKER_2>Because our real estate is a little different on the globe.

00:32:27.100 --> 00:32:36.120
<v SPEAKER_2>How does that play with other partners that we look at globally in the Indo-Pacific, with Japan or with Korea, or with our partners in South America?

00:32:37.260 --> 00:32:43.880
<v SPEAKER_2>How do we pick things or pick capabilities that obviously serve the country first?

00:32:43.880 --> 00:32:46.120
<v SPEAKER_2>Defence of Canada is the primary objective.

00:32:46.120 --> 00:32:48.840
<v SPEAKER_2>Then it's the continent, and then we go out from there.

00:32:48.840 --> 00:32:50.300
<v SPEAKER_2>How do we enable things?

00:32:50.300 --> 00:33:09.540
<v SPEAKER_2>In the space domain, it's how do we enable those partnerships of 7 nations or 10 nations to be a resilient capability or reliable partners in peacetime, resilient capabilities in crisis, and then survivable systems when we move into conflict?

00:33:09.540 --> 00:33:11.660
<v SPEAKER_2>That's kind of what we're working through.

00:33:12.700 --> 00:33:16.360
<v SPEAKER_1>Maybe just take a minute and talk about the folks that work for the organization.

00:33:17.860 --> 00:33:26.920
<v SPEAKER_1>Both the new command, sorry, new division, so it hasn't been that long, but we've also have had very long experience with space.

00:33:26.920 --> 00:33:37.660
<v SPEAKER_1>Canada has for a long time had space competency, and as you pointed out, it's integral to basically all the things that the CAF does in various different ways.

00:33:37.720 --> 00:33:45.720
<v SPEAKER_1>You have both a legacy Canadian military involvement and

wider space activity, but also you're a new structure, new element.

00:33:45.800 --> 00:33:47.360
<v SPEAKER_1>So what kind of people work for you?

00:33:47.360 --> 00:33:50.260
<v SPEAKER_1>Are there people that have tended to deal with these issues historically?

00:33:50.260 --> 00:33:52.500
<v SPEAKER_1>It makes us some new people coming in.

00:33:52.500 --> 00:33:56.620
<v SPEAKER_1>How does one end up working for 3 Canadian Space Division?

00:33:56.620 --> 00:33:59.260
<v SPEAKER_1>And what will that look like moving forward?

00:33:59.260 --> 00:34:09.480
<v SPEAKER_2>Yeah, so the history is before 3 Canadian Space Division stood up, space and space activity in defence kind of looked like a staff function.

00:34:09.480 --> 00:34:23.960
<v SPEAKER_2>It was kind of distributed and fragmented and not at all optimized for operations or readiness, right, which is the reason we kind of hit on why did we stand up a division, centralize the headquarters, make an operational headquarters, focus the domain and shift the mindset.

00:34:23.960 --> 00:34:31.940
<v SPEAKER_2>Now, traditionally, the people that did some of those staff functions before and worked on space projects, they work here.

00:34:31.940 --> 00:34:41.540
<v SPEAKER_2>But more and more over the last few years, we have folks from across the Canadian Forces, naval warfare officers, infantry officers, artillery officers.

00:34:41.960 --> 00:34:44.140
<v SPEAKER_2>I've got embedded US guardians from the US.

00:34:44.140 --> 00:34:54.960
<v SPEAKER_2>Space Force, intelligence officers, all that form elements of the headquarters because space is truly a joint thing, and so we have a truly joint headquarters.

00:34:54.960 --> 00:35:01.620
<v SPEAKER_2>As an example, my deputy commander of the division is a

signals, army signals officer.

00:35:01.620 --> 00:35:08.640
<v SPEAKER_2>The deputy Joint Force Space Component Commander is a US colonel, US.

00:35:08.640 --> 00:35:09.360
<v SPEAKER_2>Space Force colonel.

00:35:09.960 --> 00:35:15.740
<v SPEAKER_2>And then I, as my chief of staff, I have a pilot from the Air Force.

00:35:15.740 --> 00:35:41.580
<v SPEAKER_2>And so, but it makes a lot of sense when we talk about the different things that we require to do, because we need that kind of plethora of expertise or breadth of expertise, because a lot of what we're working through in these early days of building military capability in the domain is a focus away from, hey, we're going to have a project, and we're going to build a satellite, and we're going to send that satellite to space.

00:35:41.580 --> 00:35:43.040
<v SPEAKER_2>Those things are happening.

00:35:43.040 --> 00:35:49.540
<v SPEAKER_2>But we're also talking about operations and war fighting in a domain.

00:35:49.540 --> 00:35:53.560
<v SPEAKER_2>And what does that mean from authorities and responsibilities and accountabilities?

00:35:53.560 --> 00:36:09.140
<v SPEAKER_2>And what does that mean for new missions that will come to pass as we look at, you know, a contested environment, as we look at multinational operations to preclude adversaries from doing certain things?

00:36:09.140 --> 00:36:18.420
<v SPEAKER_2>How do we, how do we force generate those professionals to a defined level of readiness so that we have the right staff at the right time?

00:36:18.420 --> 00:36:32.880
<v SPEAKER_2>And so right now, it's a bit of a mishmash of people who were either in the organization or were, let's call them space curious or space motivated, and they came over and now they're part of the team and we're building that out.

00:36:32.880 --> 00:36:48.100
<v SPEAKER_2>Now over the next decade to 15 years, we projected growth sort of to 2035, 2040 of about 1,000 to 1,100 people in the domain, in space.

00:36:48.100 --> 00:36:49.700
<v SPEAKER_2>Now that's not all in my headquarters.

00:36:50.040 --> 00:37:02.200
<v SPEAKER_2>That will be different organizations that are stood up to fly the DESPI satellite, to work in a new satellite operation center, to control all the SATCOM, to bring on space control capabilities, to deliver effects both home and abroad.

00:37:02.200 --> 00:37:06.060
<v SPEAKER_2>So different organizations will happen over the next 10 to 15 years.

00:37:06.060 --> 00:37:11.320
<v SPEAKER_2>To do that, we had to make an argument about a year ago of...

00:37:12.940 --> 00:37:17.360
<v SPEAKER_2>The way we did things until this point was a bit of accidental excellence.

00:37:17.360 --> 00:37:29.540
<v SPEAKER_2>There are space positions, there are space positions globally where people can go on exchange, and you go from one occupation and you go do that for 2 or 3 years, and then you come back and you go back to your original jobs or back to an original occupational structure.

00:37:29.540 --> 00:37:43.300
<v SPEAKER_2>And there was no pathway for a space professional to start and move through an entire career where they're building that level of knowledge and professional knowledge as they continue on.

00:37:43.300 --> 00:37:52.440
<v SPEAKER_2>So we, as of this coming summer, we're going to stand up, at least on the non-commission side, non-commission member, a space operator.

00:37:52.440 --> 00:37:56.180
<v SPEAKER_2>Don't quote me on the name because they haven't landed on the right name yet.

00:37:56.180 --> 00:38:08.220
<v SPEAKER_2>But a space operator where you can be recruited off the street and from after basic training through your operational

functional training, you become a space professional and that continues your whole career.

00:38:08.220 --> 00:38:10.400
<v SPEAKER_2>And that means a whole bunch of different things.

00:38:10.400 --> 00:38:16.100
<v SPEAKER_2>That means an ability for us to actually grow those thousand people over time.

00:38:16.100 --> 00:38:24.000
<v SPEAKER_2>Some are sprinkled in from the Joint Force and some are those traditional Army, Navy, Air Force folks that come here, bring their expertise and then go back.

00:38:24.000 --> 00:38:32.180
<v SPEAKER_2>But we build a cadre of people whose job it is to be that space war fighting professional for the Canadian Forces.

00:38:32.180 --> 00:38:34.400
<v SPEAKER_2>We'll see some of that start this summer.

00:38:34.400 --> 00:38:43.720
<v SPEAKER_2>I think it's going to take us about another year of evaluation and call it convincing of the institution to get to an officer version of that.

00:38:43.720 --> 00:39:02.560
<v SPEAKER_2>Because just like we need pilots and just like we need air combat systems officers and just like we need communications and electronics engineers, you are going to need leaders from all levels that require a bespoke and deep knowledge of space operations.

00:39:02.560 --> 00:39:08.160
<v SPEAKER_2>That can't be one three-year posting to somewhere in the US or somewhere in Europe and then you come back and you're the expert.

00:39:08.160 --> 00:39:15.480
<v SPEAKER_2>No, it takes multiple years to understand how to safely fly and operate a satellite as payloads.

00:39:15.600 --> 00:39:25.640
<v SPEAKER_2>It takes multiple years to understand how to manipulate the electromagnetic spectrum in a way that adds advantage while denying the adversary the same.

00:39:26.000 --> 00:39:30.800
<v SPEAKER_2>We need to build those people over time as we bring those capabilities on.

00:39:30.800 --> 00:39:39.040
<v SPEAKER_2>It will be sort of a just-in-time delivery of we're training enough people and we brought on a capability and we train some more and we bring on the next capability.

00:39:39.040 --> 00:39:45.460
<v SPEAKER_2>That dance is going to be super hard and our ability to do that will be tested and challenged.

00:39:45.540 --> 00:40:02.860
<v SPEAKER_2>But the goal there is to create a pathway so that you don't end up as the 3 Canadian Space Division Commander without having spent multiple years doing different space jobs and doing different space things and built the expertise to get to where you are.

00:40:02.860 --> 00:40:04.200
<v SPEAKER_2>I'm not saying I'm unqualified.

00:40:04.200 --> 00:40:12.580
<v SPEAKER_2>I'm just saying it would have been better if I would have had maybe a couple other opportunities to do space things throughout my job, throughout my career.

00:40:14.640 --> 00:40:24.960
<v SPEAKER_1>In the future, we're going to have some sort of intentional space talent management initiative to try and grow a competency over time.

00:40:24.960 --> 00:40:27.580
<v SPEAKER_2>Yep, absolutely.

00:40:28.240 --> 00:40:39.640
<v SPEAKER_1>As a final, substantive question, I'm just kind of looking forward, in addition to this initiative when it comes to talent creation, talent management, and you talked about some of the other capability investments.

00:40:39.640 --> 00:40:48.520
<v SPEAKER_1>As you reflect on future opportunities for Canada in the space area, what do you think are some things that are worth further consideration?

00:40:48.520 --> 00:40:53.180
<v SPEAKER_1>I noticed the budget included language about Canadian Space Launch.

00:40:54.040 --> 00:41:00.480
<v SPEAKER_1>Maybe ask you for your thoughts on that, as well as some other potential opportunities for the country to reflect on.

00:41:00.480 --> 00:41:01.280
<v SPEAKER_2>Yeah.

00:41:01.280 --> 00:41:12.360
<v SPEAKER_2>Anything that increases our resilience in the face of threats, enables our speed and decision making, and ensures our strategic autonomy are the things that I would lean on.

00:41:12.360 --> 00:41:13.900
<v SPEAKER_2>Now, those are very broad.

00:41:13.900 --> 00:41:16.020
<v SPEAKER_2>You can probably put them in any domain.

00:41:16.020 --> 00:41:25.040
<v SPEAKER_2>But, you know, I look at space launch, and I'm a huge proponent of that from a assured access to space perspective.

00:41:25.040 --> 00:41:30.140
<v SPEAKER_2>There are countries out there who are fielding hundreds, if not thousands of satellites.

00:41:32.360 --> 00:41:43.440
<v SPEAKER_2>And Canada has to wait in line to launch capabilities based on, you know, the launch schedule of SpaceX or Blue Origin or Rocket Lab or something like that.

00:41:43.440 --> 00:41:51.420
<v SPEAKER_2>And that's fine, except when we, as a society and a globe, run out of schedule.

00:41:51.420 --> 00:41:52.460
<v SPEAKER_2>And we're seeing that.

00:41:52.580 --> 00:41:56.940
<v SPEAKER_2>We're seeing a backlog of ability to launch things into space.

00:41:57.800 --> 00:42:21.080
<v SPEAKER_2>And so, does that mean that we should spend more hard-earned Canadian dollars to give that money to some foreign entity to launch our capability, or worse, take a bespoke military capability that has incredible military value, secret, top secret, whatever you want to call it, and give it to another country to launch for us?

00:42:21.080 --> 00:42:24.180
<v SPEAKER_2>And I think the answer to that in today's environment is no.

00:42:25.060 --> 00:42:28.460
<v SPEAKER_2>Because we are beholden to whatever they want to do with it.

00:42:28.460 --> 00:42:37.300
<v SPEAKER_2>And that is one of the reasons I've been a proponent about creating a sovereign pathway to make Canada a truly space-faring nation.

00:42:37.520 --> 00:42:43.300
<v SPEAKER_2>We have incredible companies in this country building space capability.

00:42:43.300 --> 00:42:52.960
<v SPEAKER_2>You have MDA Space, you've got Telesat, you've got Kepler now, just launched 10 satellites for their integrated architecture about 3 weeks ago.

00:42:52.960 --> 00:43:00.920
<v SPEAKER_2>You've got North Star Earth and Space building space domain awareness capabilities, Honeywell building cameras, ABB.

00:43:01.480 --> 00:43:09.400
<v SPEAKER_2>I can probably keep going and there's probably not, I'm not getting paid for these, so I've missed somebody who will email, send me an angry email.

00:43:09.400 --> 00:43:19.160
<v SPEAKER_2>But the reality is we build a lot of really Gucci world-leading things and then we pay somebody else to launch them.

00:43:19.160 --> 00:43:23.040
<v SPEAKER_2>That does not give us strategic resilience.

00:43:23.040 --> 00:43:30.320
<v SPEAKER_2>So if I look at GPS as an example, so GPS, great, we've been using it for a long time.

00:43:30.320 --> 00:43:35.760
<v SPEAKER_2>Doesn't work super great way up north because it's just the way the orbits are architected.

00:43:35.760 --> 00:43:42.960
<v SPEAKER_2>Do we as a country need to look at a resilient form of what's called PNT or GNSS?

00:43:42.960 --> 00:44:02.660
<v SPEAKER_2>So for the lay person, a resilient form of Canadian GPS that is working more effectively in the Arctic than the constellation that currently is because it enables military advantage in the Arctic

because we have access to it and we can protect the Arctic from that.

00:44:02.660 --> 00:44:15.120
<v SPEAKER_2>But let's just hypothetically say, so we put that up there or put a communications satellite up there or we put a bunch of things that allow us sovereign secure access to our north and to the Arctic.

00:44:15.120 --> 00:44:23.320
<v SPEAKER_2>And what if the adversary knocks one of those out of orbit or disables it temporarily or disables a couple of them temporarily?

00:44:23.320 --> 00:44:33.280
<v SPEAKER_2>It's a lot better to have speed and resilience in which we can just launch something from Canada, replace that broken satellite and allow us to continue.

00:44:33.280 --> 00:44:45.900
<v SPEAKER_2>And so for me, it's about this responsive launch and resilience as a country which gives us truly strategic autonomy, regardless of what mission we're supporting from a space domain perspective.

00:44:45.900 --> 00:44:48.040
<v SPEAKER_2>And that's why I've been a proponent for launch.

00:44:48.040 --> 00:45:04.800
<v SPEAKER_2>I think that's why you saw 183 million in the budget, which would go split between helping Canadian companies build rockets or launch vehicles and establishing sovereign spaceports in this country.

00:45:04.800 --> 00:45:09.000
<v SPEAKER_2>And that's barely enough money to even get that started.

00:45:09.000 --> 00:45:36.540
<v SPEAKER_2>But it needs to get started and it needs to be looked at through that lens of resiliency as a country, sovereignty, security, economic prosperity, but also, hey, this is a North American launch site from a trusted partner that NATO or our other global partners can come and have their things launched from Canada as well as an alternative economically to other places in North America you could launch.

00:45:36.540 --> 00:45:44.040
<v SPEAKER_2>And so there's a whole economics argument to that and we're not going to go down that road, but I look at it from that interoperability perspective.

00:45:44.040 --> 00:46:01.920
<v SPEAKER_2>So to answer your question super simply, sovereign launch and other sovereign capabilities give us that ability to protect, deter, to give us decisional advantage and it's about to me, resilience and our speed to action and creating that strategic autonomy.

00:46:03.060 --> 00:46:06.900
<v SPEAKER_1>Well, generally, that's a great place to end the conversation.

00:46:07.120 --> 00:46:11.140
<v SPEAKER_1>The more you control yourself, the more control you have.

00:46:11.180 --> 00:46:13.020
<v SPEAKER_1>Last question to you.

00:46:13.020 --> 00:46:13.920
<v SPEAKER_1>What are you reading these days?

00:46:13.920 --> 00:46:17.600
<v SPEAKER_1>Is you're waiting to watch Artemis go up into the sky?

00:46:17.600 --> 00:46:28.480
<v SPEAKER_2>So Chris Hadfield would be mad that I haven't finished his book, but Final Orbit is, I'm desperately trying to find time to finish that.

00:46:28.480 --> 00:46:34.060
<v SPEAKER_2>You know, it's the third book in his series of the Apollo series.

00:46:34.060 --> 00:46:36.460
<v SPEAKER_2>You know, I'm super fanboy moment.

00:46:36.460 --> 00:46:37.840
<v SPEAKER_2>I have a signed copy.

00:46:37.840 --> 00:46:38.800
<v SPEAKER_2>It's pretty exciting.

00:46:39.740 --> 00:46:49.600
<v SPEAKER_2>And I really want to get it finished before we send Artemis to space here in about a week, hopefully in a week, because it's just, it's such a time for Canada.

00:46:49.820 --> 00:47:06.000
<v SPEAKER_2>It's, if we thought space was neat now, we send Jeremy Hansen around the moon and back, you know, we're going to, we're going to see an entire couple of generations of kids be reinvigorated about

space.

00:47:07.180 --> 00:47:10.280
<v SPEAKER_2>And I think that that is something for this nation to capitalize on.

00:47:10.280 --> 00:47:17.480
<v SPEAKER_2>So, you know, the, the Final Orbit book, a little darker side of space, but still pretty great.

00:47:19.140 --> 00:47:31.260
<v SPEAKER_2>Invigorating, you know, tying that to the invigoration of STEM and a nation and seeing what Colonel Hansen can do here, it is a really cool time to be in this business.

00:47:31.260 --> 00:47:32.820
<v SPEAKER_1>Agreed on that.

00:47:32.820 --> 00:47:34.780
<v SPEAKER_1>General, thanks for joining us on Defence Deconstructed.

00:47:35.400 --> 00:47:36.020
<v SPEAKER_2>Hey, thanks, David.

00:47:36.020 --> 00:47:36.580
<v SPEAKER_2>Anytime.

00:47:36.580 --> 00:47:39.160
<v SPEAKER_2>Cheers.

00:47:39.160 --> 00:47:41.360
<v SPEAKER_1>Thanks for listening to Defence Deconstructed.

00:47:41.360 --> 00:47:46.820
<v SPEAKER_1>For more of our work, go to cgai.ca or follow us on LinkedIn, Twitter, Instagram or Facebook.

00:47:46.820 --> 00:47:53.400
<v SPEAKER_1>If you like what we do and want to keep us going, think of donating to us at cgai.ca slash support.

00:47:53.400 --> 00:47:56.020
<v SPEAKER_1>Defence Deconstructed is brought to you by our team in Ottawa.

00:47:56.020 --> 00:47:59.660
<v SPEAKER_1>Music credits go to Drew Phillips, and this episode was produced by Jordyn Carroll.