Market Hunt S02 E05 / Digital Supercluster / Bill Tam episode transcript

[Begin intro music]

Thierry Harris: Canada is known for developing some of the world's leading technologies but when it comes to commercializing them we've got a bit of work to do.

Bill Tam: I would say that we have largely had, for the past couple of decades, a real Canadian problem where we don't recognize the talent that we have until it comes back at us because they were successful abroad. We need to change that equation by making them successful domestically, and then give them the launch pad to be successful abroad.

Thierry Harris: On this episode of Market Hunt we chat about innovation, support for startups, and how to grow the Canadian technology ecosystem. We speak with Bill Tam, Co-founder & COO of Canada's Digital Supercluster. Stay tuned.

[End intro music]

[Begin promo music]

Narrator: *And now a message from our sponsor, IE-KnowledgeHub. IE-KnowledgeHub is a website dedicated to promoting learning and exchanges on international entrepreneurship. Watch Video Case Studies, listen to podcasts and much more!*

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Ie-KnowledgeHub focuses on innovation ecosystems and firms who commercialize their technologies in international markets.

Let's listen in to a Video Case Study featuring C2MI.

Normand Bourbonnais: *The pace of innovation is very important. so, we needed to have an infrastructure and an ecosystem that would ease de development, accelerate the development in order to be successful in the marketplace.*

Narrator: *That's Normand Bourbonnais, CEO of C2MI. C2MI is a micro-electronics manufacturing innovation centre. The 300 million dollar facility was created with a mix of public and private investments. It's academic partner is the university of Sherbrooke. The two private founding partners are Teledyne Dalsa and IBM. Normand elaborates on C2MI's value proposition.*

Normand Bourbonnais: *The value proposition of C2MIis to a certain extent very simple. shortening the development cycle by bringing to the table, the skills, the competency needed; a full ecosystem where by doing links between their needs and the product offering that others are bringing to the table. they will be able to accelerate their product commercialization.*

Narrator: *C2MI's clients range from university researchers looking to prototype an invention for commercial applications, to multinationals who want to have a technology vetted before investing in it. The mix of industry, startups and academia provide fertile ground for new projects to get off their feet. One of the main objectives of C2MI is to bridge the gap between university research and industrial production.*

Normand Bourbonnais: *University of Sherbrooke, they are responsible to find the competencies, the skills that we need within the overall canadian academia network. Every time that I have a partner that is looking for some specific items, they go and get that skill being in Waterloo, being in Mcgill, and they are responsible as well to have these international links. so now we have links with Europe, CNRS, which is in Paris. CNR which is in italy. and we are building other links like that in the states with albany nanotech. looking at Georgia Tech. so we are working with all the largest players in the industry. Why? Because we are global. markets is global. Partners are located anywhere around the world. and our role is really to find and figure out a way to find the right partner for the right project.*

Narrator: *Find out more about C2MI's partnership model at the end of the show. To checkout the C2MI Video Case Study, visit ie hyphen knowledgehub.ca.*

[End Promo Music]

Thierry Harris: Innovation happens at the meeting point between problems to solve and ideas to provide solutions to these problems. We're full of good ideas. And we have no shortage of problems.

But to make an innovation, you have to be working on a problem that demands attention. We live in a world where market drivers dictate what problems get solved and which get relegated to a someday/maybe folder. In other words someone has to pay to help finance the cost of finding a solution to a problem. This goes for problems faced by an organization, a company, a hospital, or a government.

The types of questions we ask ourselves become tremendously important when tackling a problem. At issue here is that companies and people who have the ideas to solve their problems aren't mixing together.

Not enough scientists & researchers are speaking to finance and venture capital people. Why is this a problem you ask?

Because if the fundamental research people aren't speaking with the business people then we all lose out. Because a lot of good ideas get left on the shelf. And they never see the light of day.

On this episode of Market Hunt, we speak with Bill Tam. Tam is the co-founder and COO of Canada's Digital Supercluster. A lifelong entrepreneur, Tam has been actively involved with technology and start-ups as a founder, executive, investor, advisor and board member for the past 20 years.

Based out of Vancouver. He and his team are on a ten year journey to foster innovation in Canada. The projects they are financing are to solve some of the country's most pressing problems in healthcare, natural resources and the industrial sectors. To do this, there's a lot of matchmaking involved, bringing various groups together.

If the Digital Supercluster is able to succeed, it's going great news for Canada.

Let's listen in to how this all got started.

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Bill Tam: The Supercluster was something that we forged in 2017. It was in the backdrop of what I would call a lot of momentum that was carrying the tech industry through the mid-2010s. As we became one of the top global ecosystems around startups, I think we started to look at what we can do to connect, what innovators were doing with the larger companies and industries that would be the adopters of these technology solutions.

Ultimately, a supercluster is this notion of trying to create density around multiple clusters in an area, because density is what creates nonlinear returns. By focusing in an area like digital technology, you can see the application of those kinds of capabilities and innovations across multiple industry sectors simultaneously.

In forging a supercluster, the intention was to link small and startup companies, midsize companies, large organizations, large adopting organizations, research organizations, both secondary and government agencies, all together in this framework, by which combination of ideation, new innovations, and ultimately the creation and development of new technologies could ensue.

By creating these things, the objective is really to create world-leading products and capabilities that not only cater to the needs of the domestic market but ultimately can be globally successful

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Thierry Harris : Canada's no newbie to innovative ideas. Things like the Canadarm, you can talk about health care, you can talk about organizations like Greenpeace, who were founded in Canada with more social missions. A lot of Canadian

superstars in the cultural industry, everybody from Justin Bieber to Drake to anybody you can think of. Canadians are really movers and shakers as well in places like Silicon Valley, the top Canada 100 expats that are out there.

Canada is a big believer in global trade. We have a small domestic market over here, but we do have top-level universities and probably some of the best access to federal and provincial funding for fundamental research, and then the commercialization of that research. That's where the opinions are varying. We'll get a little bit into that in terms of how well we're doing about the commercialization.

From what I'm understanding, the ideation was to bring these different research, industry, government folks together. You're talking about the concept of density where, when you apply enough resources to a specific sector, that becomes a cluster of clusters, and then you have some positive outputs that would come from that investment just due to the networking effects of that supercluster. Is that an accurate description?.

Bill Tam: Yes, that's absolutely right. I think one of the unique attributes of this, what makes it different, I think, from a Canadian context, is that it is a demand-driven program. When I talk about industry partnerships and the participation of the private sector, one of the often-cited things that's missing in the commercialization efforts that we've undertaken over the past 20-25 years in Canada is that it has largely focused on the supply side.

We've done a great job of funding fundamental research, we've done a great job of funding the creation companies and startups. I think from an ecosystem perspective, there's been a lot that's been done around the various programs, whether it's the government's funding of the NRC IRAP Program or whether it's foundations for research chairs. Many of the other research institutions that exist in Canada are evidence of the fact that we have always prided ourselves in investments in those areas.

What's been missing is the interconnection and the intersection between those innovations and the industries that would seek to adopt that. In the way the superclusters are created, it was really about having industry-driven innovation. In other words, at the end point of every program, every project, every funding mechanism is a customer. The customers will be the ones that tend to be the large organizations to begin with but hopefully will permeate the base of SMEs in Canada. Initially, it is the stuff that will create the competitive advantage that companies will need.

In our focus areas in the Digital Technology Supercluster, we really focus on three core areas of the economy. One was in the natural resources sector, where we have mining, forestry, agriculture companies in there. Secondly was in the area of health care, where we have health authorities and other public health agencies and other doctors of health technology in that mix. The third area was around the industrial sector.

The industrial sector really comprise of transportation, infrastructure and some of the logistics areas which are a big part of the Canadian economy. We have companies in there that are in the industrial manufacturing sector and in many of the transportation sectors or whatnot.

In each of those, you can see the digital transformation, which is the holistic theme by which we framed our supercluster, is really about taking these innovations created by research organizations, created by small startup organizations that we grow into certain scale through medium-sized companies and applying them directly to the industry needs of these sorts of industry leaders in our country.

It's the demand-driven portion of this which actually creates the net effect that we're looking for, which is the, I call it the virtuous cycle that had been missing in the past. We had a disconnected supply chain with respect to innovation in Canada. We had great innovators that were creating things on one side of the equation, and we had adopters on the other side that were, for the most part, adopting technologies from anywhere in the world.

You mentioned Justin Bieber, many of the Canadian startups that are there, Drake included. I would say that we have largely had, for the past couple of decades, a real Canadian problem where we don't recognize the talent that we have until it comes back at us because they were successful abroad. We need to change that equation by making them successful domestically, and then give them the launch pad to be successful abroad.

That's what the Supercluster entity and many other things in trying to drive a more thriving, vibrant ecosystems is about. It's to reconnect or establish the intersection point between those that would seek to adopt innovation and those that are creating world-leading innovations.

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Thierry Harris: How are you measuring your levels of success for the superclusters? Are you tracking that kind of network effect? Are you attempting to do that? What are some of your KPIs that you're looking at in terms of evaluating the effectiveness of the superclusters?

Bill Tam: With any program like this, there's a core set of fundamental KPIs that we operate on, much of it because our objectives are really to drive, first and foremost, globally successful products and platforms that arrive out of these collaboration efforts between these multiple organizations. We track the evidence drivers, private sector investments in this, the leverage that we get in terms of the co-investment model that we have.

We track participation in terms of the breadth of collaborations amongst the teams. We look at commercialization of new research that comes out of this. We look at the overall success in terms of how it's actually stimulating greater skills and jobs

and the creation of new opportunities for Canadians in this digital economy. I think more specific to your question is how are we doing so far?

The ultimate litmus test for superclusters is that density takes time to build. This idea of creating these nonlinear returns is not something that you would invest a dollar today and you're expecting returns tomorrow. This is a decades-long pursuit. In that regard, what we can measure really objectively here is how much investment and how much collaboration and how much cultural change there's been in what we witnessed so far.

We're about two and a half years into our mandate. To date, we have invested in totality, our project portfolio now is comprised of more than $200 million with the project investments, more than 60 projects that encompass close to 300 organizations across this collaborative stream. If we look at the density of collaborators in each of our projects, it's escalated from the cycle of projects that we did back in 2018 where we might have had on average about four, five collaborating organizations in each of those projects. Now, we're upwards of 6 to 10 organizations in these collaboration projects and seen the scale that that can have because what happens and what we had hoped would happen is that the learnings from a particular project and initiative that might encompass a range of different participants, now has the ability to be translated into another industry sector, another customer type, another use case.

The beauty of supercluster efforts is that the brain collaborators who wouldn't ordinarily seek to work together into a framework where they can actually exchange ideas. It's all about creating the additions for diversity of thinking and ideas and applications, which you often don't see when it comes to industries specific investments. You see that in a cross-sectoral manner when it comes to things like supercluster. We have evidence where healthcare organizations are looking at principles that have largely been established by maybe leading manufacturing companies and how they're looking at real-time optimization of workflows and processes and how that can be applied in hospital setting.

That kind of exchange of ideas and concepts wasn't something that would have been characteristic of how the Canadian economy was operating in the past. I think we're quite pleased to see that that's the impact that we're seeing on the ground as organizations who wouldn't have ordinarily worked together and now suddenly finding new inspiration out of doing these projects together.

[Short Music transition]

Thierry Harris: Very insightful stuff that you're speaking about. Talking about the network's effects of the superclusters and how you measuring them, the critical elements of applying this technology into markets driven applications, and a sense that there's a need and a problem out there for this technology. You're also operating within an ecosystem yourself, you're a member of this ecosystem. The

SMEs that you're funding are a member of this ecosystem, the industries that are purchasing these technologies are also members of the ecosystem.

How do you view your role? You mentioned $200 million, that is an impressive figure. VC funding coming from the United States, that number when you take it in a global context still can be augmented, I would say, very humbly,

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How are you evaluating this impact that you're having on the industry in terms of the networking effects? Are you hoping that when you're investing some funding into these technologies that private sector funding will then come and complement that? Is there a need for that, is there enough money that's being inputted in your personal reference? Would like to see more money coming in? Talk to us a little bit about those aspects, please.

Bill Tam: Sure, I'm happy to. Our model here is that we're co-investor in collaborative R&D projects and other innovation projects. What I mean by co-investor is that will put out somewhere around 40 to 43 cents on the dollar into these projects with the balance coming from industry. That's an important aspect because what we're able to do is apply dollars into projects to either augment them in creating more ambition all around them or perhaps de-risk some of the elements that would have made these projects otherwise unattainable. On both cases, the industry investments is actually what creates the conditions for the project to happen and what we're doing is putting dollars alongside that investment.

Into your earlier question, I think our role in this is if you examine the conditions of the Canadian landscape, we've got technology ecosystems across the country. They all tend to be localized and specialized in its various forms. For the most part, we've seen digital quite pervasive in just about every aspect of the economy in Canada but those touchpoints between the innovators and those industries that are resident in those areas and what I call the adopter forces haven't been as well established as I mentioned a little bit earlier.

We see our role as being a catalyst for convening the kind of conditions for these actors to come together which previously didn't happen. It could've but for whatever reason, I think people largely stay at their own lanes. I think the conservatism by which I think a lot of Canadian industries have operated, has defaulted to looking at perhaps tried in true solutions that have been adopted in the past by others, which more often than not leads to companies in Canada adopting technologies that may not be actually created in Canada. In many respects, it's about adopting the kind of technologies that you might see from very large multinational players. For the most part, not looking at what you can actually do in the context of your own homegrown, talent and technologies that here resident.

Our role is to create the conditions to be catalytic, not only in inspiring these connections between organizations but actually assembling the piece parts such

that solutions can be built around the spoke technologies. Such that in the way that we frame a collaboration, we have-- at the core of it is an industry adopter. Our collaboration framework, what we call our model consortium, as an industry adopter or one or more of those, we have lead technology partners that are creating the product in underlying platforms, we have co-development partners which often are small or startup organizations with very specific capabilities or expertise, we have typically technology service providers or some integration capability to make sure that these pieces all work in the context of a customer solution or architecture.

We have post-secondary researcher organizations, because that's important because that is what creates the pull-through of the commercialization opportunities or some of that fundamental research in the context of the industry drivers. That's a very important and a critical piece in our equation. We may be the only supercluster that has that requirement to have post-secondary and fundamental researchers as part of that social consortium mix. For us, we're alongside there as a co-investment partner, creating the conditions for this table to be all set up, ensuring that there's a balance.

I think one of the key things that we established earlier on in the formation of our supercluster was the charter of values that establish the foundation of principles by which everyone operates. That actually ensures that we have a balance in terms of how people contribute, how they behave, the diversity and the respect that we expect in any of these operations, and also the governance framework by which these collaborations ensue. That's our role in creating this.

Over time, I think, as the learning principles of how supercluster consortiums come together, how projects are evolved, this is their multiplier effect. If you can teach people how to do this, you create a culture of innovation that is not just about a linear view, but it's a multiplicity and all sort of perspectives that you can bring into it. As you do that, you create the conditions for cross-industry collaborations, you create the conditions for research and industry collaborations, you create the opportunities for multiple startup and innovators to actually come together to build real solutions. That framework is what creates the non-linear effects that we're looking for over the next decade.

[Short Music transition]

Thierry Harris: Taking this again, from the ecosystem perspective, you're what in French we say [*plaque tournante*] you're like a platform that tilts between the different players, the knowledge networks, the industry sector people, the entrepreneurship startup community as well and you're topping up that funding. I think very wisely, humbly speaking here obviously, but including universities into that paradigm by having that fundamental science enhancement as part of that development of that knowledge network is tremendously important and that innovation.

If you take that within the context of what do big multinational corporations with arms and distribution, platforms across the globe do, they have all these network effects within one organization and they're able to concentrate that capital and find a specific mission and purpose. To solve that solution, oftentimes they will go out and they will buy companies that have one piece of the puzzle, and then they will go to another area and apply technology that was for one thing, and then all of sudden put it to something completely new that you might not have thought of, but that effect comes from a real collaboration between diverse groups coming together to work around the problem. Is your objective then with the Digital Supercluster to grow Canadian homegrown IP? Is it to grow future multinationals at the size of the Nortel or the research in motion? We haven't seen a big multinational in Canada. You can argue that Shopify, in terms of the digital world is one of the next ones.

Shopify could be bought up tomorrow. It isn't necessarily the biggest capitalized company that's out there. What's at stake here for us to develop this technology in house, and what is your vision of how you see Canada entering in this 10-year mind frame? Where would you like to see it? What would you like to see it grow into? What ecosystem is this going to foster that you're starting with a very young program here from 2017 with the Digital Supercluster?

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Bill Tam: Yes, you touched on some very good points there, Terry. I would say, maybe just to answer your last question, first is to say that if we had our gutters, we'd have a dozen Shopify in the next decade or more, I think for any digital champion like Shopify or before that Research in Motion, before that Nortel to carry the entirety of the Canadian expectation with it on its own, is I think, what leads us to these single points of failure, and the Canadian economy would be well served to have multiple, significantly large multinational presence across the digital domain, and I would argue across any industry sector, that we feel we have an opportunity to be a global leader in, and I think that's the world in which we operate now, and it's ever more important, as we see the changing landscape of multilateralism in terms of global trade, and the importance of having domestic champions that can actually carry the economic weight that's necessary in the upcoming decades.

I think, to your other point about the network effect of large multinational organizations, it's undeniable that we live in an era where the power of networks is really what catalyzes industrial strength and competitive advantage, it's quite different than what was in the past, the economist scale argument, which was long the 20th-century argument in terms of how companies were really successful and economies were built. Now, it's really about the strength of the network. I think in many respects, the supercluster is a proxy for building network strength, through what has traditionally been an SME dominated economy, to try to build the interlinkages such that we can actually harness the power and capabilities around that, where we don't have the half of large corporations in these domains to really carry the burden.

The proxy for that is to actually build collective strength around particular initiatives. Think of this as our moment to create a Team Canada function in some of these emerging technologies by creating the best framework for recruiting the best and the brightest, and changing the art from an individual sport into a team sport. That would be the analogy I would use from what we're really trying to do in the context of our supercluster.

I think, in your other comment about what does this mean in terms of where the economy could go or what our expectations around what the company does that, the supercluster is one of many steps that organizations will go through in order to get to the end result of being the next Shopify or the next dozen Shopifies.

It's not that the supercluster in and of itself is going to create that. What we believe is important is we're strengthening that network that may already be lines there. If you think of that network map, there may already be interconnections between organizations in a particular ecosystem across the country. What we're looking to do is to make those lines even stronger, bolder, thicker, and to create new webs of interconnections to create a more powerful network.

It's that more powerful network, whether it's our direct core investments into these projects, or it just happens as a result of what we've initiated, that creates the conditions for new Shopifies to emerge. As I said before, the idea is to be catalytic. We can't carry the full extent of the investments. As you said, venture capital and many other investment drivers are going to be part of the equation. We're going to need billions of dollars of capital to invest in these opportunities, and all we're doing is we're creating the conditions for the initial, I'll call it the initial seed investments into promising areas to commercialize and create the first set of products that we can feel really can set the mark on an international context, and give them life.

Then, from that, there's more that the private sector will do to carry that forward, there's more that the Canadian economy will do to adopt that stuff. What we're trying to do is lay the evidence that says, "We can be as good as anyone in the world in particular areas."

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Thierry Harris: Yes, and we are as good as anyone in the world. The ideas are here, the quality of life is here for attracting people capital, because when you're dealing, as you said, with digital technologies, these are not things where you're cutting down trees or digging up rocks out of the ground, which need to be location-specific based, these are elements in terms of health sciences, that could be anywhere in the world, an organization can set up shop.

Usually if there's a research facility there, that's the world cutting edge, then they'll set up their industrial manufacturing next to that research facility. You can take a look at Taiwan and the semiconductor industry that they've built. An island in the

Pacific controls vast amounts of heft with that technology that it's essentially championed by focusing fundamentally on R&D. Canada has a regulatory district. Again, takes R&D, takes the university ideas out, creates a lot of small SMEs, but the SMEs don't have a driver or a catalyst as you're saying, to not force them, but maybe gently nudge them to start thinking about interconnecting their technologies to create an even greater capacity to address global problems.

These problems that we're having, if they're in Singapore, or if they're in Calgary, or if they're in New Orleans. Homelessness is homelessness is homelessness, or healthcare is people get sick everywhere in the world, we've seen this with the COVID pandemic, and the different responses to it. The idea that Canadian platform technology with our, again, quality of life that we have here, good salary, good employment base, but still more needs to be done, because it's a competitive industry where people capital can move quite quicker than trees can or rocks can or anything else, that we're digging out of the ground and trying to transform that Canadian economy into what exactly.

What is the innovation economy going to look like in Canada? Do you hope again looking into the future?

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Bill Tam: Well, I think one of the areas that we can certainly look over the last 20 years and reflect on is, to what extent have we been able to scale those opportunities beyond a certain point? I think the reflection on it is that it's not just a function of capital, I think capital is certainly one of the components on it, but it's also how strong is the base of support that comes from the customers in your domestic market? How fast can you iterate on your solutions, so that you can actually use the Canadian landscape as the bench by which you can propel your success more broadly?

In those areas, that's what creates, what I'll call, the gravity and the deep root system that actually establishes foundational companies in the country. I think we'll often see that although we may be excellent at creating the initial innovations, and perhaps the inspiration that comes from initial research, that comes from universities or whatnot, it's about understanding whether we can play the long game. The long game actually requires many other actors that go well beyond inventorship and initial innovation, to create really that ecosystem that actually continues to build the base of more Shopify.

It's okay if we've got 100 companies that are all vying to be the Shopifies. Let's say 20% of them will ride through and continue to scale and grow, but if you're only working with a handful of them, and you're expecting them all to make it to that level, that's a very different scenario. I think that the ultimate goal is just creating good conditions by which I think Canadian organizations or Canadian industry sees themselves in the position where they can lead and will lead as opposed to just

celebrating, I think, our mentorship piece. It's really about looking at how we can build companies at scale.

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Thierry Harris: We've seen again, a lot of our companies are being bought once they hit the 100 million, half a billion-dollar mark, or even a couple of billion dollars. Certainly, we've seen some exits, as they say, with certain Canadian companies recently in the landscape, but they get bought up, and then what happens? Just to get your opinion over here, is this something that you're concerned about? Is it something that you're looking at or addressing or is this an important conversation to have, the nationalism based around growing those foundational companies?

Bill Tam: Well, as I was just mentioning, I think part of the foundation piece, we work in a capitalist environment here and it's important that investments can realize a return. Ultimately, what we're trying to do here is create the conditions where there's more seeds that are planted, that have the opportunity to go the distance. If you only have a handful of companies, then, of course, you're going to see the negative effects of them, one or two or a handful of them choosing a path that would maximize the returns to their investors and perhaps having an M&A transaction as a result of that.

I think that's just inevitable, but if you have a larger field of play, many, many more companies with more options in terms of what happens, then a few companies deciding that the best course of action for their investors is to go forward with an M&A transaction isn't necessarily a bad outcome. I would say further that part of the issue for us in terms of looking at well, how is it that we create these companies that ultimately are there that may get acquired by others, the fact is we don't have enough strength in our acquisition model to have domestic acquirers in the mix.

I think part of this framework, back in the early 2000s, late '90s, Nortel was one of the most voracious M&A players in the market. If we recall, large companies have the appetite and the capital and the balance sheet to do that. If we have more companies like that, then we're going to talk less about acquisition and the negative effects of that. When they actually see the network effects that we're hoping for actually get established by companies like Shopify and others.

M&A is not a negative thing. It's a natural outcome of what investors are expecting as one of many exit opportunities for their investments. Having said, that rather than cast a negative light on whether that's a thing that we should be focused on, instead, what we need to do is make sure that we're helping to build a more robust playing field of players that have capital options in the mix. This leads to the same discussion that you alluded to. Well, what is the net impact in terms of IP and national champions? Let me address that for a moment.

Thierry Harris: Please.

Bill Tam: The intention of this program is to create new innovations that are developed and forced in Canada, that the intellectual property that's created of this has the benefit for the companies that are creating it to not only establish a domestic position, but ultimately, one that can go further into an international global leadership position. At the same time because we're co-investors in this, we want to see where the leverage might be for some of this IP in the context of maybe others that might have accessibility to it through a licensing arrangement or what I'll call fair, reasonable, and non-discriminatory terms such that by developing this in this collaboration framework, there may be opportunities to extend that IP into other domains. What we do is we provide a level of transparency and we provide a level of encouragement so that small companies and mid-sized companies can work together on things.

We've established guidelines around how they can delineate between background IP that they're bringing into the equation, the terms under which they're operating with that background IP, clear ownership stake that is retained by those contributing to that, but also create the conditions where people can intermix that effort in order to create a better and new outcome. It's in that new area that I think we're demonstrating that people can collaborate on stuff and still have a positive view on what the IP results could be.

Rather than looking at it strictly from a self-serving perspective, is what can be done that can actually be creative to the goals and objectives of building a stronger ecosystem. You look at efforts like what the IP Collective has been doing that was announced back in December of last year, and they're doing some excellent work to ensure that the education of small mid-sized companies is there, the support for them to be able to look at their IP strategies is there.

We have a partnership to try to work with them on a number of different areas, but we see the supercluster model as an implementation framework for how these new models of IP collaborations can actually operate. It's not just IP, for us also data is a fundamental aspect of this, and it gets into areas like data collectives and the ability to actually pull data, provide accessibility across domains, and that's what leads to new innovations.

Increasingly as we move into the area of artificial intelligence, where data becomes the most essential asset to actually create the algorithms necessary in that, creating these new pathways and data trust and charters is part and parcel of what we're trying to do with these collaborations.

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Thierry Harris: Access to data can be a beacon or a curse. Data is useless unless we know what to do with it. These days to tackle a problem you have to :

A) Ask the right questions on how to approach a problem
B) Have access to the right data
C) Have the capacity to process that data and turn it into something meaningful
D) Have the audacity, once you have analyzed that data to do something about it

I asked Tam to outline some examples of where this network strength was being applied within the Supercluster.

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Bill Tam: I think the answer to the question is if you look at the broad themes we've invested, and I talked about our portfolio, more than 60 projects, they do center around a few thematic areas. One, of course, without any doubt is the whole area of digital health. There are so many different actors within the health ecosystem. It's evidenced as we went through our COVID program investments that much of the framework in the Canadian landscape is not as it needs to be, not as it should be.

Hopefully, some of the projects that we've seen bring different actors together will help to ease some of our response efforts going forward in the COVID pandemic, but also set the conditions for a more successful and more robust and more resilient healthcare system going forward. The second area, I'd say, is in the environment space. Many of our natural resources' projects have actually focused on how you can use digital technologies to better manage the sustainability of the natural resources piece, as well as how that actually gets into where Canada wants to be in terms of being an environmental leader. We've got projects in there where we brought together different organizations from, let's say, in the mining sector combined with people that do environmental measurement, we have folks that are in the indigenous communities and regional municipalities that are part of projects.

It's not that there weren't conditions for them to collaborate in the past, but if you dissect how collaborations have operated for decades in that area, it is really a series of bilateral exchanges of information, usually big, thick file folders of information, maybe spreadsheets or whatnot, but at no point is there this attempt to try to build something that new, it's about reporting in the past. If you actually want to create conditions for new innovations, you actually have people who have the opportunity to co-create something that didn't exist before.

It's a very different role you play when you're not just going into a discussion to defend a position, but actually creation in and of itself is something that says, “How can we find the art of the possible around creating, let's say, I want to create a visualization opportunity for all stakeholders to actually envision the environmental impacts of this project?” Yes, data comes into it, we have technology in the form of, say, augmented reality capabilities to say can you build a visualization method that doesn't look like flat two-dimensional spreadsheets?

Can you look at it in a time series of information historically and projecting into the future? Can you do this in a way that actually then streamlines the environment, approval or regulatory processes so that people can, not only adjudicate, but actually continue to monitor this. If you were to actually envision a scenario like that, you'd say, “Canada has the opportunity, because of the wealth and natural resources that we actually develop, we have the opportunity to be environmental technology leaders in the digital space, if we can actually combine the forces of what we do in the natural resources sector with the technologies that would underpin how you build sustainable methods in these areas.

That's what I mean by going beyond the desires of an SME to be the best in a particular product area, is actually the combination of understanding the industry needs, with aligning your technology to solve that problem and to ensure that the stakeholder base and the benefits to Canada from a societal perspective are there, because obviously, I think one of the big issues in the environment space and in the natural resources space has been the lack of clarity and how we apply these rules, especially understanding the importance of indigenous voices in this, and many other stakeholder groups that are now part of the equation, and ensuring that we have a method by which we can alleviate those concerns by having a common language.

Common language can take the form of certain technology types and that's the kind of stuff that can actually set us apart.

Thierry Harris: Common language means agreeing on basic facts and that means collecting the data. That means bringing a diversity of players, including indigenous communities and thank you for mentioning that. Indigenous communities have been here for thousands of years stewarding the land. We all know the story of colonization and what its impact has been on the environment.

It sounds like a big piece that we haven't talked about here yet, and I just want to get into it a little bit, is with regards to procurement, because these are, like you said, SMEs and multinationals have the same goal-driven, often financial baseline-driven, if they're public companies, they need to show quarterly improvement and results. You're looking at technology companies, people invest in it for growth. That's why you see all these kind of scattered investments from the big Facebook companies, the Apples and everything else trying to find the next big thing and invest their money wisely, so they can keep that kind of growth brand on these companies.

Companies go through life cycles and they could become big, and then they sunset after a while, but what is the role of procurements from the provincial government, from municipal governments, how are we doing on that front? Could we be doing more on that front? Let's talk about the life sciences or the health sector, the health tech sector, the natural resource sector, you're mentioning again, this is trees and rocks and rivers and stewardship of a lot of that land is under federal oversight. A lot of that land is, hopefully, in collaboration with indigenous oversight who had been on this land for thousands of years.

Are we seeing the right procurement policies to enable these SMEs to de-risk their technologies in the Canadian experiments, in the Canadian landscape, are we seeing enough of that?

[Short Music transition]

Bill Tam: I think it's undeniable that that procurement piece is a very complicated aspect of the scenario. If I comment for a moment about the private sector procurement processes, which tend to be a bit more straightforward, I think for a lot of larger companies their procurement piece would certainly encapsulate having multiple vendors, you go through the process of determining the basically requirements, however many iterations you have for your requirements in order to come up with the final decision matrix that you're going to choose under procurement.

I think what makes the supercluster effort a little bit different for these private sector industry adopters, is that at the very beginning of this exercise, it may not be a scenario where they understand all their requirements. Any sort of innovation, where you don't know what all the answers are, necessarily means that people are taking a risk-based view on things. They understand roughly where they're trying to get to, but they don't understand at the very beginning exactly how they're going to get there.

This idea of creating these innovations, these collaboration teams is that's a discovery effort. That's why you bring different actors together in order to figure out the path to get from A to B. That's really important. In our model of the industry participants, although there are adopters, they're also co-investors in the R&D effort. It gives them a leg up on a few dimensions. One is, they get to specify the direction of where things are going, catering to what they're looking for from an industry or from a company standpoint, but secondarily, is that the outcomes of that actually create the basis for some competitive advantage.

They get the leadership position to be able to do something that perhaps others in their peer group aren't able to do. Thirdly, I think, to the extent that there's benefits that accrue from being early customers in it, however, it's negotiated in terms of the foreground IP, they may be benefactors of that in some financial or monetary way. That is all dependent on the nature of the deal structure and how we negotiate,

these project agreements across the consortium, but those are the real benefits for the procurement side of the industry partners that are part of this equation.

Now, if you translate that into the public sector, and you look at the procurement rules that exist at all levels of government, and there are different thresholds today for what they can do in terms of purchasing limits and authorities without having to go to full RFP or a full open bid exercise, the reality is that we have a tale of two worlds. The procurement scenario for all governments is founded on the notion that they understand exactly what it is that they're looking for and they can specify with a high degree of clarity, all of the requirements that would enter into that solution.

Now, in many of the things that we're talking about, those are not known. What government needs to do, and which hasn't been the case, I think in the past, is create sandbox environments where they can actually look at new opportunities that don't have the specifications there at the very beginning. I think there's a secondary step, which is that, today the procurement process works in a manner that ensures that there's a level playing field. I think as an unintended consequence of creating a level playing field, it will unfairly position those organizations that were part of helping the government to assess or look at something and disqualify them in some way for having an unfair advantage.

There needs to be a mitigation against that. If you are co-investing in a project, in order to be able to achieve something that you couldn't have otherwise achieved, and you have a stake in that outcome. There should be a progression of that capability into a full procurement. That's the missing piece right now and it's something that I think, from a policy perspective needs to be worked on at all levels. This is certainly not an area that I'm an expert on.

I think there are ways that that can be done while respecting all of the key principles that are necessary in terms of having public procurements that are open and transparent, and adhere to all of the trade relationships that we have, internationally, and even for domestic suppliers, or international multinational suppliers, that ensure that people understand the rules of the game. I do believe that that's important policy effort that has yet to take place.

[Beginning End Music]

Thierry Harris: Bill, thank you much. This is a case study podcasts in a sense that our nature is to look at ecosystems, to look at entrepreneurial firms.

If you had a question that you would like some students to be working on in terms of analyzing an ecosystem and its health, what kind of question would you to be if you had some extra time and some extra dollars? What kind of questions would you to be solving for in terms of analyzing the impact or effectiveness of the superclusters if you had a chance to go ahead and do that?

I'm assuming that you're already doing that quite a bit. If there's something out there that you just didn't quite get the time for and you would like to put it out to the general public and the academic community in terms of analyzing what you're doing, what questions do you think that people should be focusing on when attempting to examine and explore the supercluster concept and then what you're doing?

Bill: That's a great question, Thierry. I would say the proxy I would use is if you look at LinkedIn as a proxy for measuring network effects with the individuals you can roughly draw the popularity of an individual and the reach of an individual, extensiveness of their network on the base of their connections at the first level. What would be really an interesting exercise is to see if we could do it approximate of that in an organizational view. As opposed to an individual, to what extent is it ecosystem interconnected today? To what other ecosystems is interconnected to?

I'm not sure I would be able to define it. This would be a great research project for any student to do, is to define the characteristics of what would constitute a connection. What is a connection between two organizations? If you could ascertain one or two baseline characteristics of what that is, let's actually try to measure the intensity of the interconnection in any ecosystem by a locale and then try to do that across different locales, both in the country and across the world.

Interviewer: Fantastic. That's a great question for our audience. Thank you so much for your time, Bill.

Bill: Great speaking with you.

[End music]

[Begin promo music]

Narrator: *And now a final word from our sponsor, the IE-KnowledgeHub.*
IE-Knowledge Hub is a website dedicated to promoting learning and exchanges on international entrepreneurship.

If you are an education professional looking for course content, an academic researcher seeking research material , or someone interested in business innovation check out IE-Knowledge Hub.

Let's pickup where we left off with our profile on C2MI, a microelectronics research facility located in Bromont, Quebec.

Normand Bourbonnais: *We have members that are coming to C2MI with that great idea. But what they need in order to be successful in the marketplace is a lot more than only an idea.*
And when we take a look at these brand new companies, that are bringing these new ideas to the market, the first question we always ask is, do you have a market study? Do you have a business plan?

And if they don't we will be supporting these studies for them, in order for them to be successful, you just cannot enter a market without knowing what the market is all about and if there is a chance for your product to be successful.

Narrator: *That's Normand Bourbonnais, CEO of C2MI. C2MI's founding partners are Teledyne Dalsa and IBM. Teledyne Dalsa, General Manager Claude Jean explains their logic in investing in the facility.*

Claude Jean: *The reason why Teledyne Dalsa decided to engage in the C2MIis that in our industry it's very capital intensive. So the equipment that we use costs millions and millions of dollars each. So in order to be competitive, we have to have access to those environments where you can do advanced R&D, and very often in collaboration.*
So that was what was lacking here in Canada. Of course you know there is always a way for us to go do our r&d somewhere else in the world, but very often what happens is that production will follow very closely. So chances are that eventually you will lose your manufacturing industry because if you do R&D in Taiwan it's very likely that you will do manufacturing in Taiwan.

Narrator: *Many international companies are now using C2MI to do their own research. The effects of fostering the micro-electronics manufacturing ecosystem are positive.*

Claudea Jean: *Having a centre that is really focused on pre-competitive, next round of development before volume manufacturing and market penetration is quite unique.*

Normand Bourbonnais: *We have many outsiders that do their own development work now in Canada. They were doing it in France before, in the U.S.A. we were the hunters before, we are now being hunted. What we have to do now is to maintain the leadership that we have.*

Narrator: *You've been listening to segments of C2MI's video case study. To learn more about how to foster an innovation ecosystem, watch their full case for free at ie hyphen knowledge hub dot ca.*

[End Promo Music]

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Thierry Harris: Market Hunt is produced by Cartouche Media in collaboration with Seratone Studios in Montreal and Pop Up Podcasting in Ottawa. Market Hunt is part of the IE Knowledge Hub network. Funding for this program comes from the Social Sciences and Humanities Resource Council of Canada. Executive producers Hamid Etemad, McGill University, Desautels Faculty of Management and Hamed Motaghi, Université du Québec en Outaouais. Associate producer Jose Orlando Montes, Université du Québec à Montréal. Technical producers Simon Petraki, Seratone Studio and Lisa Querido, Pop up Podcasting. Show consultant JP

Davidson. Artwork by Melissa Gendron. Voiceover: Katie Harrington. For Market Hunt, I'm Thierry Harris, thanks for listening.

[End Credits Music]