

Market Hunt, Episode 14, Andrew Casey, BIOTECanada

Thierry Harris: 2020 has been a transformational year. We weren't ready for what so many had predicted would happen, and we've suffered a huge loss of life. We've also lost livelihoods in so many sectors from restoration, to tourism and culture and Aerospace. The probability of companies defaulting in these sectors has skyrocketed. We've social distanced, worn masks, experienced lockdown and mourned the loss of friends and family. Throughout this dark period, we've hung on to a glimmer of hope for better diagnostics, therapeutics and a vaccine that could help us get back to normal, whatever this would look like.

Andrew Casey: It's a little bit like Marvel comics set out a signal for biotech man. We're in a problem, we need the solutions and so you put up a signal in the sky, as you say, everybody said, where's the solution you like come and help us.

Thierry Harris: On this episode of Market Hunt, we chat with Andrew Casey, President and CEO of BIOTECanada. Stay tuned.

[intro song music]

Nick Quain: Entrepreneurship is hard, you need to have support there.

Andrew Casey: We fundamentally have to learn how to live our lives differently. We can't keep going the way we have.

Marie-Eve Ducharme: Actually we were wrong, [chuckles] that's an incredible market.

Thierry: This was a big hairy gorilla that, some people predicted it would happen, and it happened.

Rune Kongshaug: I fall in love, easily.

Thierry: We're coming up with some pretty interesting ideas here.

Andrew Casey: We've solved everything,

Thierry: [chuckles] We've solved it all.

[end intro song music]

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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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le-KnowledgeHub focuses on innovation ecosystems and firms who commercialize their technologies in international markets. Let's listen in to a [Video Case Study featuring Aeponyx](#).

François Menard: Aeponyx is focused on making chips that will deliver the best value for the operators and equipment manufacturers. The price per chip has to be very low.

Narrator: That's Francois Menard, CTO of Aeponyx. Aeponyx is a semiconductor startup that makes micro-optical switches. These switches can be used by telecoms companies to help transmit more data along their networks. So how does a small startup with a new technology reach people in a large organization?

Philippe Babin: It's really a matter of being good at understanding those large organizations, how they work. And the challenge is you are a startup, you are a young company. It's tough because you don't have that credibility. So the only way you could do it is if you are fixing a problem that hurts them so badly that you get their attention.

Narrator: You're listening to Philippe Babin, CEO of Aeponyx. Philippe and François knew that to get the attention of big industry players they had to target a need for which there was no solution yet on the market. François elaborates:

François Menard: If you put yourself in the shoes of a data center operators you quickly understand that in order to provide the services that people want, such as to retain videos in the quantity that people are uploading to Facebook services of the world, requires a lot of capacity.

Narrator: Listen to more on Aeponyx's journey at the end of the program. You can also check out the Aeponyx Video Case Study on le-KnowledgeHub by visiting [le-hyphen KnowledgeHub dot Ca](#). And now, back to the show.

[end of sponsor spot]

Thierry Harris: Hi folks, Thierry Harris here. Does Canada need a large multinational pharmaceutical? Andrew Casey think so. Andrew is President and CEO of BIOTECanada. Canada's biotech spokesperson in the sector. He is going to talk to us about something called the National Health Sciences Fund towards the end of the program. Andrew and I also talk about Canadian Biotech innovation in what he calls the bioeconomy, our Covid-10 response, our challenges towards retaining our IP and our opportunity to flourish Canadian Biotech knowledge and knowhow around the globe. The problems can't be urgent enough, from how we feed ourselves to mitigating climate change to tackling a pandemic. Companies that are part of the Canadian Biotech ecosystem exist to find solutions to these challenges. Let's listen in to the interview.

Andrew Casey welcome to Market Hunt.

Andrew Casey: Thank you. It's great to be back.

Thierry Harris: 2020 has been such a transformational year in the biotech ecosystem in Canada. Perhaps you can give us just a quick brief state of affairs and what's going on.

Andrew Casey: It might be helpful to divide it into two phases. We have the start of the year where everything seemed normal and it was looking like a normal year, and then you had COVID. There is a pre-COVID and a post-COVID. Let's talk about the pre-COVID. What we saw was fantastic advancements in a number of key companies. Some exits. We saw [Repair, signing a deal with BMS](#). We saw new companies grow. Companies like [Zymeworks](#) out in the West Coast reached new heights. A really good start to the new year. Things were looking very optimistic. Investment was flowing.

I think the industry was feeling very optimistic about not only the year ahead but the next many years ahead. Then we'll call a bump on road in the form of the COVID crisis. That had an immediate impact where the economy shut down early on in March and April. That included labs that a lot of the companies were using to advance their work. Some of the companies kept people on board because they knew that they needed to keep their scientists and their researchers on the team. They were forced to stretch their budgets a little bit. It was a trying period in the early days to be sure.

I think one of the outstanding things we saw was a lot of the companies some of them were able to pivot. They were able to take whatever innovation they were working on and move to something that was COVID-related. Whether it was in the therapeutic space or in the vaccine space. That was very encouraging. For companies that were not able to pivot because their technology was just not pivotable for COVID, you saw them lending expertise, lab space, equipment supplies to those companies that were working on it. That cooperation between all the companies was really cool to see where the community truly came together.

Even some companies developing materials for protection for the first-line responders and all that. That was a neat early reaction.

Then as the economy opened up again you saw the companies get back to the work that they were doing and now they continue to grow. I think we've seen in the first nine months of the year, CVCA the [Venture Capital Association of Canada](#) just released a report where they recognized that \$1 have been invested in Canada's life science sector in the first nine months which is astounding when you think about it.

It is importantly shown that investors are and it could be a result of the COVID where they're recognizing the types of solutions that are coming out of biotechnology, that they are flocking to the sector. They're going to be looking for companies all over the world. In Canada obviously, we've got some proven science in research and innovation. We're getting our fair share of investment which is really encouraging. As you think about going forward and the need for Canada to rebuild its economy in a post-COVID world if the vaccines come that we're expecting, well, this sector has shown itself to be resilient through COVID.

Also, can now be something that they can create the foundation of the economic rebuild going forward if you think about the types of jobs that these companies create. It could be a very important part of the rebuild. Coming out of this and looking ahead it looks even more optimistic strangely enough than when we went into it.

Thierry Harris: It seems like there is-- I don't know if euphoria is the word, but there is certainly a lot of interest in biotech right now. Some of the buzzwords that are coming out are something like the bioeconomy and what that represents. Just for our listeners who aren't necessarily directly related to this field, what would be your definition of the bioeconomy?

Andrew Casey: It's a really tough label to try and define because it is all-encompassing. I think when look at the bioeconomy what you really got to be saying is what is the technology that's going to make us more competitive from an economic standpoint? Some of it is companies themselves that are going to be biotech companies like when you think about the life sciences space. Others are going to use biotechnology to create new companies. Others are going to take biotechnology and make existing companies more competitive.

If you think about existing companies you could go into the oil and gas sector, big industries that there are driving some of the economy. They need to get more competitive. They need to bring down their emissions. They need to be more environmentally sensitive. Biotechnology is the way to do that. They are inserting biotechnology into their manufacturing processes, into their outputs. That makes them more competitive. Then there's going to be companies that are really biotech-based and they're creating new companies out of their biotechnology.

I think of companies that are like [AquaBounty](#) out in East Coast and [Okanagan Specialty Fruits](#) on the West Coast and everything in between. We got [car parts being made out of soy products](#). [let fuel being made out of mustard seeds](#).

Okanagan Specialty Fruits is learning how to stop fruit from turning brown. AquaBounty is growing fish in containers on land so away from water-based and growing fish at a much more rapid level. All of them are using different forms of biotechnology. Not always in that world of how do we produce, manufacture, and grow more effectively and efficiently?

When we're looking at a population growth where we're going to 10 billion people, we have to live our lives differently. Biotechnology is going to let a lot of those sectors do that and be competitive in that space. On the health side biotechnology and the bioeconomy is really when you start to look at how you create new therapeutics, new vaccines, new medicines for populations globally from the new diseases but also from traditional diseases like cancers, but also ones that we're just discovering. That's again bringing new technologies in living organisms to address those challenges. All that combined creates your overall bio-economy umbrella.

Thierry Harris: It's interesting because it seems it's an ecosystem with the technology and the innovation that's taking place. There is different shoots that are spreading out throughout different sectors which make the bioeconomy something that's very fluid. It's not necessarily a static sector in the sense that if there is a new innovation that affects oil and gas, or that affects agriculture, or that affects the traditional life sciences which is what most people think of when they think of biotech. Now it's something that's enveloping many new sectors or these sectors are transforming because of the innovation that is the fundamental biotech technology that's driving them. That's very interesting.

Andrew Casey: I think interesting is a huge understatement. I came to the sector eight years ago looked at what the companies were and who they represented. Even at that time, I thought how exciting. These are the companies that are going to change our world. It's going to make the world habitable for a long time if some of these technologies are successful. Canada has got its massive array of companies that are in the space. It back then looked really exciting and interesting. It's only increased.

As you've seen through COVID the rapid need for new solutions that are going to come from this space to solve for these big problems, that if anything is demonstrating the value of the industry and the sector to our economy, to our society, the COVID crisis is doing that in spades. It is a really amazing industry. When you look at the technologies and where things are going it's only getting more exciting and more interesting.

Thierry Harris: That's absolutely true. The health of the bioeconomy is now more and more related to the health of the economy overall. I guess that's what we're

seeing as we are shaping our economies around addressing urgent solutions that we didn't even potentially think about 20 years ago. Being it climate change or response to outbreaks such as pandemics that are happening.

Now it seems that these companies are reacting to events that are happening, that are acknowledged by science, and by events that are happening in society such as the pandemic. It's refocusing everybody's drive towards solving these big hairy problems that have been around. We are doing it at a rapidly accelerating pace. That's something that's really interesting as well there.

Andrew Casey: Yes, and more to come. We know full well that there's going to be-- We're in COVID-19, there's going to be something like COVID-22, 26, you can pick your year, you can pick your virus, pick your healthcare challenge. There's going to be equally similar challenges in the industrial, agricultural, and environmental space. Climate change is going to bring about new challenges as well. So the increased demand for these types of solutions is only going to grow.

Which means that investors are going to come to it. More of our universities are going to be creating graduates that are going to go in the space.

The companies are going to continue to grow, spin up new companies, new ideas, it's phenomenal. But if you look at the vaccines that have emerged at the forefront, that's amazing technology and now quickly it's been developed. To see what it's going to do, it's truly remarkable, and you can see that across all the disciplines in biotechnology, and it's really exciting to see.

Thierry Harris: what are the standards we should be evaluating ourselves on to determine whether we have a healthy biotech ecosystem in Canada?

Andrew Casey: I think that's a great question because if you want to strive to build upon it and grow it and use it as part of your bedrock for the economy going forward, well, what's our benchmark right now. Where are we at? When do we know if we've achieved success? If you look at the [HBES, the health bio-sciences economic strategy table](#), which was set up a couple of years ago and had a report about a year ago, they identified what we need to do. They estimated that we have about 900 companies across the country. We should double that over the next six to seven years, make it 1,800. We have somewhere in the area of 40 or so, what they identified high-value companies. We should double that, make that 80.

Then I think the other key critical factor is one of the things we've done is we've really punched above our weight in terms of creating companies, creating really interesting companies and really fantastic innovations. But where I think we've really failed is the ability to scale those companies up and create what I would call foundational companies. Companies that would grow be commercially active in this country, but globally commercially active as well, because if you look at as an

example in the IT space where you had Blackberry a globally competitive, very successful company, Kitchener Waterloo was its base.

It's had its troubles, but when it was at its peak, it spun out a whole bunch of other companies that either they were supplying that company or other people that had worked for Blackberry said, "I want to do this myself," and they went off. The universities were geared to it. You created this fantastic vibrant hub in the Kitchener Waterloo area, all because you had one globally competitive company. I think if we create a couple of those in the biotech space, then that's going to just generate even more success. Then you make it a destination. You think about the hubs in the US of Cambridge and Boston and San Francisco, there's an energy there. Once you create that energy, more energy comes to it. Then the spinoffs that come out of that, and that's why they become those hubs. We need to do something similar in Canada. We know where we are as a benchmark at those 900 companies, doubling them, doubling the high value, and getting to those foundational anchor companies that would be really fantastic over the next couple of years.

Thierry Harris: In your opinion then, do you believe it's best that we're in line and we're doing the right things to achieve those targets?

Andrew Casey: Well, I think we have what we need. Now, that is an important question. How do you double the companies? There's a lot of work and there's two critical components that we need. One is always the investment dollars. We need investment capital to come here. As we've seen the first nine months, we've seen some significant capital come here, but some of that is for later-stage companies. I think what we need to do is create an investment pool that allows our venture capital community to really be in at the earlier stages of a lot of these companies to grow them, to get them out of universities and research centers, and really take them at an earlier stage and grow them there.

What would be great to see is some of the institutional investors. The [Teachers' pension plan](#), [Canadian pension plan](#), all those types of big deep-pocketed investors, they should be in the space as well. How do we bring them in? One of the things we've advocated for with the federal government is to set up a dedicated life sciences investment fund. Something that could support that growth, especially at the early stage, and get some more companies created and really generate classic more shots on that concept.

The other piece that I think is absolutely critical here, because even if you have all that investment capital and you're driving it towards the sector, do you have the people there to do it? The company has all the money it needs. It's got a great idea. It's got the investment capital. Does it have the people it needs to take that idea and grow it forward? I think that that's another really important part. We have an opportunity here to A); I think the borders are going to be closed for a little while yet. How do we keep our graduates here? How do we retain what we have the talent that we do have, but then are there expats that we can bring back?

Are there communities from an immigration standpoint, we should be reaching out to bring more people, more scientists, more researchers to? I think that's going to be critical going forward too. The investment piece is really important as is the talent. The one thing about our sector that I think it's become very apparent to me is if you look at other sectors of our economy, forestry, mining, oil, and gas, they all need investment. They need people, but if they're not able to attract those bits they can't take what they have and move it to where the people and where the investment is. You can't take a forest, pack it up and move it to the Southern United States because that's where your investor is.

They have to leave what they have where it is. They're forced to bring everything to Canada. Our industry, we're looking for investors, we're looking for the talent. If we can't attract it to Canada, the problem that we have is the idea, which is at the heart of every single one of these companies is very portable, and it will go to where the investment or where the talent is. If we're not doing a good enough job to bring it here, we're going to lose the idea. We're going to lose the innovation. We'll miss out on all the benefits of commercializing it here in this country.

Thierry Harris: Absolutely. These are very important points that you're making here, Andrew. There is a global pandemic going on and we are all relying on these companies and trusting that these vaccines will be developed. Everybody from the hospitality industry to the tourism industry, to governments, to school boards, to anybody who's got to go out in the world to make a living is depending on this industry to respond and respond rapidly with some vaccines, some therapeutics' providing a holistic solution for the pandemic. So this was a big, hairy gorilla that happened. Some people predicted that it would happen and it happened.

The response from the Canadian biotech community, what was it-- you're on the front lines as the President of the Biotech Canada Association, what did you see in terms of the response with regards to the diagnostic therapeutic and vaccine development for COVID-19? Maybe we can break them up and go deeper into each of them.

Andrew Casey: It's a little bit like Marvel comics set out a signal for biotech man. We're in a problem, we need the solutions and so you put up a signal in the sky, as you say, everybody else said, come and help us. It's been really interesting. It could have been predicted. Yes, it was. In fact, if you listen to Bill Gates, who did a Ted Talk some five years or so ago said, the thing that keeps him up at night is not a traditional military war. It's exactly there's some super-virus that destroyed society, destroyed the economy.

I bet you if you went back and you took some smart economists and they did some modeling around the Spanish flu and took the Spanish flu-like you can say, this bicycle costs this much in 1950 dollaors it costs, this much in these dollars, you could have probably taken the economic impact of the Spanish flu and projected out using economic modeling and social modeling to figure out what the impact of

another pandemic like the Spanish flu would be on our economy today. It would have been really, really scary. Should we have been better prepared for this? Yes, probably we should've, but our most recent experiences were around [SARS](#) and [H1N1](#) and [MERS](#), which had very short shelf lives.

As we are prone to do, as people we say, "Well, that didn't really have that much of an impact," and we moved on to the next shiny object and we lost track in the fact that we should have prepared for the next one. Here we are in this mess and thankfully, if you think back to the early days of it in March or April everybody was focusing, well, we need a vaccine and people were realistically saying, "Look, the last time we had something like this was during the Ebola crisis. The vaccine, which was developed in the most rapid pace imaginable took four years." Everyone said, "Don't get too optimistic about a vaccine coming anytime soon."

It's probably four years out and then everybody turned their attention to therapeutics and that's where you got into the [Remdesivirs](#), other products that were out there to see if there was some way to lessen the impact. We got better at treating people in the hospitals. Then lo and behold, we started to hear about the emergence of these vaccines. It turns out now, strangely that it looks like the vaccines that are going to come out sooner and be more effective than the therapeutics. I'm still hoping there's going to be some good therapeutics, because the vaccines may not be effective for everybody, and they're still going to be people that get sick, but now the vaccine is still a great promise.

If you look at the vaccines, the technology of the two lead ones, the lead candidates from [Pfizer](#) and from [Moderna](#), they are messenger [mRNA vaccines](#), amazing technology. I've made the analogy. It's a little bit like you take the instructions from IKEA, you package them in an envelope and you put them into your body and the body then inside opens up the instruction, says, "I need to build this kind of virus." It builds the virus and then creates the antibodies to fight the virus.

Thierry Harris: That's amazing.

Andrew Casey: It's truly astounding technology. The fact that the industry was able to develop it in essentially under a year speaks volumes to the rapid pace of technology, the innovation, the industry's ability to come together to use artificial intelligence. There's data mining, shared data. I think that's why we are where we are. The vaccines remarkably are showing 90% to 95% effectiveness, which is about 40% to 50% more effective than most vaccines. Even for the 5% or so 6% that don't benefit from its protection, it looks like the case of COVID that they get is much milder. Huge promise.

I think what's even more encouraging is that the vaccine type looks like it's fairly flexible so that if it's COVID 22 or 28, it looks like you could probably adopt it very quickly to then take on another COVID-like incident. That's amazing promise. I think the next question though is, if we look back to that Spanish flu or the other viruses

that we are then hit by, what are we going to now do going forward to prepare for the next crisis like this? What do we need to do to get manufacturing in Canada, to get the innovations out there? The government puts in early bets on Canadian companies because they might still show promise. [AbCellera](#) out on the West Coast, [VIDO-InterVac](#) in Saskatchewan, you have [Medicago](#) in Quebec City, [ImmunoVaccine](#) out in Halifax, [VBI Vaccines](#).

They put some money on those companies and hopefully, they'll payout. The other interesting thing is if you look at the Pfizer vaccine in particular-- Again, mRNA technology, it was developed by a German biotech company, [Biointech](#). Pfizer saw that they partnered with them because they had the ability to manufacture at scale and produce and distribute. The other important piece of technology that is in there is a Canadian biotech company, [Acuitas](#), which is the envelope piece. If you recall my analogy of taking the instructions and you put it in an envelope and you put your envelope in the body.

Acuitas just developed a little lipid bubble that the vaccine instruction is going to go inside of. That's really cool to see. I think that that's what we're going to see more of. It's a combination of technologies and companies that are going to actually make for future vaccines. That's where Canada, I think can play a really strong role because we have those companies already there. We're really fortunate to have a lot of those companies out there. You look at [Precision Nanosystems](#), AbCellera, VIDO, as I said they are all showing up.

Look at the Medicago Quebec City, they're taking vaccines and growing them in tobacco leaves. That really shortens the timeline and they're building a \$250 million plant in Quebec City that's going to be up and running next year. This is all really encouraging stuff for the next wave.

Thierry Harris: I think that what you're saying here, Andrew, there's also a bit of Canadian, good old-fashioned collaborative spirit in the sense that Canada doesn't have those big behemoth multinational companies. But we do have that spirit of collaborating simply because we have many small and medium-sized companies that in order to survive, they have to have a partnership's first model as an integral part of their business plan. Have you seen those collaborations and do you think that that collaborative spirit is something that will continue?

Once we get out of this haze of urgency will the urgency become the norm, and why shouldn't we see vaccines being developed so quickly? Because COVID is one area, you can take other very deadly viruses that are out there that maybe aren't being addressed because they aren't first worldwide viruses necessarily. Do you think that that spirit of collaboration is going to continue post-pandemic, or whatever we say in the future waiting for the next pandemic to hit?

Andrew Casey: I have no doubt. I think globally everybody is going to come together recognizing that none of us want to be back in this situation again. I think

there's going to be global cooperation between companies, I think there's going to be global partnerships. There's also going to be, I think, a lot of scouting going on. Pfizer finding a German company. I think there's going to be a lot of that, where those companies are going to be looking across the world to find the Biotech types of companies. You even see ABCellera is part of the [Lilly platform](#). Who knows who the other companies are partnering with, but I think that that's going to be a really important part of it.

Then I think to your other part of your question, which is even in Canada, and it's been one of the remarkable things I've seen in the industry. The ability of this industry as a community to come together and really share data, information, expertise, experience, particularly if you think of the early-stage biotechs where people have successfully taken the company and grown it to a point where they've learned a lot of lessons in that process. that they're more than willing to impart back to the community on others who are just coming into the sector.

I've seen that over all the years. I think that's going to just accelerate because we can all recognize how important that cooperation was in delivering solutions sooner. I think we will see more of that. There's always going to be a proprietary element to this. There's IP and other things and you've got to get a return on your investment. I still think that there's going to be a lot of cooperation and particularly preparing for the next COVID-like crisis.

Thierry Harris: It's interesting to be in the Canadian field right now because in other countries that don't necessarily do business traditionally in that collaborative manner. If they're state-sponsored behemoths as they would be in China, or multinationals, they're their own ecosystems within their own multinationals in terms of developing things. It's important that we do study the Canadian system of getting drugs out, and that system has changed from all of the innovation coming within the multinationals.

Now, I was listening to your most recent bio nation webinar, and they were saying that a lot of the innovation and the risk is taken on from smaller firms, and then it's basically being picked up by multinationals to help put those drugs into the market.

Andrew Casey: Totally. Again, let's pick that Pfizer vaccine as a great example. They put money into an [mRNA facility in Michigan](#), they put 460 million or something like that into that facility, recognizing that mRNA vaccine technology is going to be a part of their future business model, but they didn't have any mRNA vaccines at the time. Biontech is the one that developed this particular mRNA vaccine candidate, but they had no way of manufacturing it so they got together. Then they needed to figure out a way to deliver it and that's where Acuitas came in. You see all those three things.

To your point is that's probably the model going forward where those big companies are not going to try and do everything in house like they used to. They're

going to go out there and find the smaller companies and say, "That's a fantastic innovation that fits into our pipeline," whether it's in the vaccine or other therapeutics for cancer, or for ALS, whatever it is. They're going to look at those potential companies out there. They're out there scouting the world, they're trying to find them, and they're going to invest in them and partner with them.

If you look at some of the successful companies across the country right now, whether it's Zymeworks at Vancouver and [Xenon](#) at Vancouver, other ones in Toronto, Montreal, you look at their websites, you'll see all these pharma companies are partnering. They're investing in them. They're saying, "This looks like it's very promising technology. We want to be part of it." We're going to see more of that.

Thierry Harris: It'll be interesting to see if there's any cross-pollination with those technologies and how they really steward those IP products that are being developed in Canada, and how they steward that out into the rest of the world. What are your thoughts on that? Do you think that that's something that potentially could happen with some of the technologies that are being developed?

Andrew Casey: Yes, I do. I think that's a perfectly viable business model and I think there's a lot of companies that would like that. I still think though, we need to strive to create Canadian foundational companies. I think it's too easy for us to say, let's sell-off and that's not a bad thing. If you look at some of the successes we've seen in the past couple years, there are companies that take their innovation to a certain phase, whether that's phase two or phase three in the clinic, it's showing itself to have great promise. A pharmaceutical company comes on and say, "I want to buy."

They spend \$1 billion or \$1.4 billion on it. The people that founded that company then take that money, reinvest it, start new companies. There's a huge benefit to that model. There's no question and then that drug or whatever it is, goes into the big pharmaceutical company, it becomes part of their platform, and it comes out to the Canadian patients and global patients. It's all very good. We should be able to also say, look, how do we create say a [Gilead](#) or an [Amgen](#) in Canada because the benefits of having one of those companies as a foundational company in this country would be so fantastic.

Then you say, you've got something special because out of that will come more companies, more entrepreneurs, more investment, and you really could see then a jumpstart. I think taking what we have, which is a real gift. We've shown ourselves globally to be great scientists, great researchers. We've developed great companies. We've developed great ideas. Sometimes this is a very expensive business, so you get to a certain point and if you need another \$500 million, there's still some uncertain road ahead. Sometimes it's easier to take the payoff and get out and then start something else. I get that.

Then there's other times that you can say, "Well, if I just get a bit of extra capital, I can cross this next phase, and then I've got something and I can grow it here in Canada." It's going to take one of those companies that has not only one therapeutic, but usually, a platform of some sort that other therapeutics can be built on or use their platform for other things. I look at a company like Zymeworks in Vancouver as a good example. They've got a drug, but they've also got a drug discovery platform. It's going to be that company that's going to work. I think striving for those foundational companies would be absolutely paramount for us as an economy.

I think particularly in this post-COVID world because I think it's a sector that you can look to, to build upon. Think about the types of jobs that creates from coming out of universities and the technical expertise that come out of our colleges. Very well-paid technical, highly skilled jobs. It's the type of economy that you want to build. We should be able to grow it more, and I think one of the key ways to do that would be to create those foundational companies.

Thierry Harris: Interesting what you're saying here, Andrew in a sense that from an investment point of view if you're concentrating in the capital, which is essentially what a multinational is. It's a concentration of capital with a specific mission. Then all of a sudden magic happens in the sense that like you said, you're missing a \$500 million there or a \$500 million here to go ahead and to stem that off.

Then that's stewarded by this one company that has that vision to be that big platform company that can then take those microtechnologies and make them into a macro business that then they can then shift its weight around the world and have a Canadian flag on it. That's a tremendous dream, and I'm very excited to hear you speak about that because I think it's inspiring, frankly, for people and Canadians to talk that way, and to step up for the world stage and be a part of that conversation. What are the governments how are they now approaching their relationship with the biotechnology sector to enhance the biotech ecosystem in Canada?

Andrew Casey: Government plays such an important role in setting the environment for the industry. One of the challenges we have is that government, and this is federal and provincial governments, and it's not of any political stripe. It's just, generally speaking governments have tended to separate the biotech industry out. They separate the small, early-stage companies, the innovators out that are Canadian founded. I'll call them the cute cuddly puppies. Everybody wants to pick them up and hold them. They're fantastic. You listen to their stories, they're inspiring and government is more than happy to embrace that part.

Where they struggle is when they're dealing with the multinational companies that are in Canada as to our earlier conversation about pricing and reimbursement and all the rest of it. They tend to in a rather facile way, separate the two out. We're really excited about the small ones. We'll invest in Medicago because that's Canadian technology and that's cool and great. That's fantastic. I think that's a really

smart thing to do. Jobs in Quebec City, jobs in Vancouver, whatever it is. But we can't lose sight of the fact that the multinational companies are an integral part of the biotech ecosystem. If you want a healthy coral reef, you can't remove the plankton. It needs all parts of the reef to be a healthy reef.

Likewise, with our biotech ecosystem, you cannot just say, "We don't need multinational pharma. We're going to do it ourselves." We cannot do it. We don't want to do it ourselves. They are such an important part. If we want them here active investing in the community, partnering with our companies, we have to create a policy environment in this country that really, it's like a welcome mat says, we want you here. Again, this is going to require both industry and government to sit down and figure out what that environment looks like, and everybody's going to have to do water into wine.

We should be able to come to some sort of common agreement on what it is we want to get to. If we can get there with some constructive dialogue, I think a), is better for Canadian patients because they'll have access to the latest and greatest therapies and medicines and vaccines. It'll also make for a healthier ecosystem. I think we have to do public policy that recognizes how all of that is connected, and to try and slice and dice it and ignore parts of it. Then I think everything else falls apart and it's not as healthy as it could be.

Thierry Harris: Again, as Biotech Canada, you guys are right in the line over there because you are a bridge between policy and industry. Are you seeing those conversations happen, Andrew, are you seeing enough conversations happening?

Andrew Casey: No, absolutely. Your point is right. When you look at our membership, it's 250 member companies. It is a reflection of the ecosystem. It's investors, it's companies, small companies, early-stage ones, but also the large multinational and of course of the agricultural industrial and environmental companies. It's a real cross-section of the entire ecosystem. Yes, we've been in conversations with governments. I think the reality is that in some cases there's a fixation on the healthcare budgets and drugs as part of the healthcare budget. They want to get the prices down and that's a bit unfortunate because it's pretty narrowly focused, and I think it's too easy to ignore the other parts of the sector.

Our conversations have been about, "Hey, you need to look at it more holistically." We've had some progress. I think there should be more. I'd like to have a more constructive dialogue, and maybe coming out of this COVID crisis, that's the table that we're setting. That they'll recognize, "Yes, you're right. This is an important part strategically of our healthcare system, but also of our economy. How do we make this happen?" They'll turn to the industry and say, "Let's sit down and figure this out together." That's my hope.

Thierry Harris: That would be amazing because it really does take that collaboration and that vision that the government has to have in terms of how these

things are going to be implemented. That's their role, is to bring all different actors to the table and not necessarily to play favorites, but to have that constructive dialogue there and enable that. Biotech Canada has come up with some really phenomenal ideas. One of them is this National Health Science Fund. Talk to me a bit about that and the vision behind it, and what numbers you're looking at, and what the mission is or would be behind this fund.

Andrew Casey: Yes, I think it's critical because as I said earlier, one of the key things we want to do is to be able to support the Canadian venture capital community, grow the capital pool, allow them to invest in more Canadian companies. I think that they've done a phenomenal job to date with the limited resources that they have available. I think this would accelerate their ability to invest in early-stage companies, not have to be partnering with other organizations to make their investments effective. That's a big part of what this fund would do.

We're looking in a 500 million range as an ask, and we think we could actually create a multiplier because the other part of what we're trying to do here is bringing other investors. The other investors would come from primarily the the institutional investors, the [Teachers' Fund](#), the [Canada Pension Plan](#), [OMERS](#), those types of large institutional investors that are not presently investing in the space, so how can we get them in? That would be one way. Also bringing some of the big investors from the US. I think that would be key. That would attract the [OrbiMeds](#) and others of that nature. I think that'll be critical. That's what the ask is.

They've done it in different formats before. You had the [Venture Capital Initiative](#) and the VCAP, the [Venture Capital Action Plan](#) earlier to that. It would be modeled after that where the government would be first in, last out. It would send other investors to come into the space. I think that that would all be really, really important. That's what it's designed to do. Then those funds would grow the capital pool, which would then in turn, of course, increase the number of companies and accelerate their growth in the country.

Thierry Harris: That's really to do the commercialization for those companies. Just tell me a little bit more about where that capital would be going...

Andrew Casey: Absolutely. We have early-stage funding, so you're getting a good seed company off the ground with some early-stage capital, and then it would carry through to later stage as well. There'll be just different components to it. I think there would also be a component in there to support some of the accelerator organizations. I think about [adMare](#) in Vancouver, would be a good example. The programs that they're doing to not only identify new companies and really start them but then also the talent pool that they're growing, so support in the work that they're doing.

I think it has a number of different facets to it that would be used to grow the capital pool to augment what the venture capital community has here. Then that

would go into the companies, and also into some of those other ones, organizations that are in the drug discovery and development, and talent area.

Thierry Harris: That's exactly it. I guess that that's this pool of money, by having the federal government put their hat into the ring, well, it might encourage other investments, as you're saying to also join in. Then, that all of a sudden Canada becomes an R & D hub. It becomes a place where we can attract the human capital that's needed to produce all of these technologies and innovations, and it's all done here within our borders. All of the well-paid jobs, highly qualified jobs and the partnership with academia as well.

Essentially, what you're doing is taking an idea, you're manufacturing it, and then you're manufacturing it in a sense that it can be produced in the millions of samples to get out there. A fund like this by its creation is enabling that entire ecosystem to get moving.

Andrew Casey: That's it. You just jumped started, you put it on steroids, especially at the earlier stages, and then you create this pool of companies. It's more shots on that concept. From that pool, there are going to be a greater array of larger-scale companies that show greater promise for success and ability to become the foundational type of company.

Thierry Harris: Really that technology transfer from the early-stage companies, and then they're able to talk with the multinationals who are looking at this very closely, and potentially investing some of their R&D facilities here, or in collaboration with the outsourcing their R&D facilities to help take those technologies and get them out faster. That's a really great thing there that you're talking about. Where do you think we're at with the evolution of this? Are these conversations that other organizations or departments are having outside of Biotech Canada as well?

Andrew Casey: Well, we're working closely with the venture capital community, for sure and so the CVCA but it's interesting. Again, and this is a pre and post-COVID conversation. We'd started this conversation before the COVID hit. There was some interest but in the post-COVID world I think as the government starts to recognize it needs to do some things to jumpstart the economy, and what sectors could it put some money into. Maybe there's even a return on this investment because the biotech sector has proven itself to be a pretty good investment.

I think that the conversations actually have accelerated a little bit and it looks a bit more fertile because I think the government is definitely looking in this direction. I'm hoping that as we start to see some light at the end of the tunnel, there's going to be an opportunity to really re-engage and say, "Okay, if this is what you want to do, we're telling you here's the prescription, here's how we can do it." We think it's going to pay huge dividends for the country and its economy.

Thierry Harris: Amazing. Well, that's really fantastic stuff. What else should we be focusing on in the future outlook, in the short term, over here in the biotech space? What are things that you're taking a look at in the next 12 months in terms of what's on the calendar and what's going to happen? I imagine vaccines are a big one, investment, and monitoring that, getting the venture capital in, talking about the the National Health Sciences Fund as well. What are some things that you're looking at and that we should as an audience be paying attention to?

Andrew Casey: Well, I think the audience is clearly paying attention to what is the light at the end of this tunnel? When are we going to get out of this mess? It's pretty clear to me that the industry is going to be delivering at least two fronts. One is on the vaccines and the other one on the therapeutics. You could make the case that they're going to be instrumental even in the testing and tracing. Biotechnology sector's going to deliver there. Then, as we think about how do we start the rebuild? Again, this sector can be hugely important, both in part of an economic standpoint, but also from the health protection standpoint.

Then there's the other parts of the industry like the industrial, agriculture environmental biotech. Those are going to be critical to getting some of those other parts of the economy jump-started as well.

It's an exciting space. I think, if anything, the spotlight's been put on it through COVID, which is a welcome spotlight because you're always trying to get people to recognize the value of the industry. If anything, COVID has really said, "There's a huge value here and you all need to understand it." If you think about the economic impact, if you could avoid that, that would be much more enjoyable than having to go through this again.

What are we doing going forward? That's where the biotechnology sector's going to play a role. I think so, if I'm watching the space, I'm saying, what's going to happen with the investment? Are we doing enough on the talent poolside of things? Are our universities, are they generating the people, the skilled people for the industry that is going to enable this? Then what are we going to do going forward to really embrace the technologies in Canada, but also globally? I think this is going to be exciting to watch. I'm feeling really optimistic, not only about the solutions that are coming from a vaccine standpoint or a therapeutic standpoint. I'm feeling really optimistic about the sector on the whole, as it goes forward and what an important role is going to play in Canada's, not only society but economy as well.

Thierry Harris: Well, it's definitely obvious that the critical mission that was set out for everyone in March, has honed our minds and sharpened our focus. The biotechnologies sector has responded so far with flying colors. It's only going to build upon that experience and hopefully keep pursuing in that area, for the good of everyone, really. Thank you so much, Andrew.

Andrew Casey: Thank you for the time. It's always great to talk to you. I really enjoy these conversations. It's important to get the message out there. This is a fantastic format. I like to listen to them, on my dog walks. I hope others are doing it as well. It's a classic watch this space because it's going to be exciting over the next year. I think there's going to be a lot more innovation coming out of Canada's biotech sector. We should all be very proud of it.

Thierry Harris: On this Episode we've explored the inner workings of the Pfizer vaccine, reviewed the bioeconomy and explored the Biotech ecosystem. You should check out [Bionation's Webinars](#) featuring some of the most dynamic Biotech companies in the country. Links are included on our website. We also discussed the Possibility of a National Health Sciences fund, to help commercialise Canada's most promising technologies. This fund would benefit not only Canadians but all stakeholders in the Biotech ecosystem, including foreign investors looking to invest in Canadian Innovation. We are looking for partners to help make this idea a reality. If you want to be a part of this story, and find out more about the problems Biotech companies are facing, and some opportunities for investment, get in touch with us. You can write us at solutions@ie-knowledgehub.ca. For Market Hunt, I'm Thierry Harris.

Sponsor Slot

Narrator: And now a final word from our sponsor, [IE-KnowledgeHub](#). IE-Knowledge Hub is a website dedicated to promoting learning and exchanges on international entrepreneurship. Let's pickup where we left off for [Aeponyx](#), a semiconductor startup based in Montreal.

Philippe Babin: We've looked at everything available on the market. We also spoke to major universities, looked at r&d projects. Other solutions were so pricey, price point were like ten times and more what the operators were willing to invest.

Narrator: That's Philippe Babin, CEO of Aeponyx. Philippe knew he had a breakthrough technology which could become a game changer in making the internet run faster. But they also knew that all of their clients would be outside of Canada.

Philippe Babin: In terms of telecommunications the most advanced countries in the world are countries like Japan, Korea, the United States. if you look at the number of gigabyte initiatives. if you look at the number of service providers offering fiber to home, fiber to the curb, fiber to the building. there is a huge difference between Canada and United States. so this is why when we are talking to the service providers in the United States they are more eager to get that type of technology.

Narrator: Being a startup, Aeponyx had to bring the idea from the lab all the way to industrial manufacturing of potentially millions of units. To get there, they had to build their first prototype.

Philippe Babin: We are at the stage of porting the processes. So we transfer some information until you get to the point of having a fully stamped process of “ok, this is your process flow to build your product.” You know all the steps. You know all the development, you know if they are any risks and then you build your first prototype.

Narrator: You’ve been listening to segments of the [Aeponyx Video Case Study](#), available on the Ie-KnowledgeHub website. To learn more about building a semiconductor startup from scratch, watch their full case for free at [ie hyphen knowledge hub dot ca](http://ie-hyphen-knowledge-hub-dot-ca).

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. Sponsor narration: [Katie Harrington](#). You can check out the ie-Knowledge Hub Case studies on BIOTECanada as well as other cases at [ie hyphen knowledgehub.ca](http://ie-hyphen-knowledgehub.ca). For Market Hunt, I’m Thierry Harris, thanks for listening.