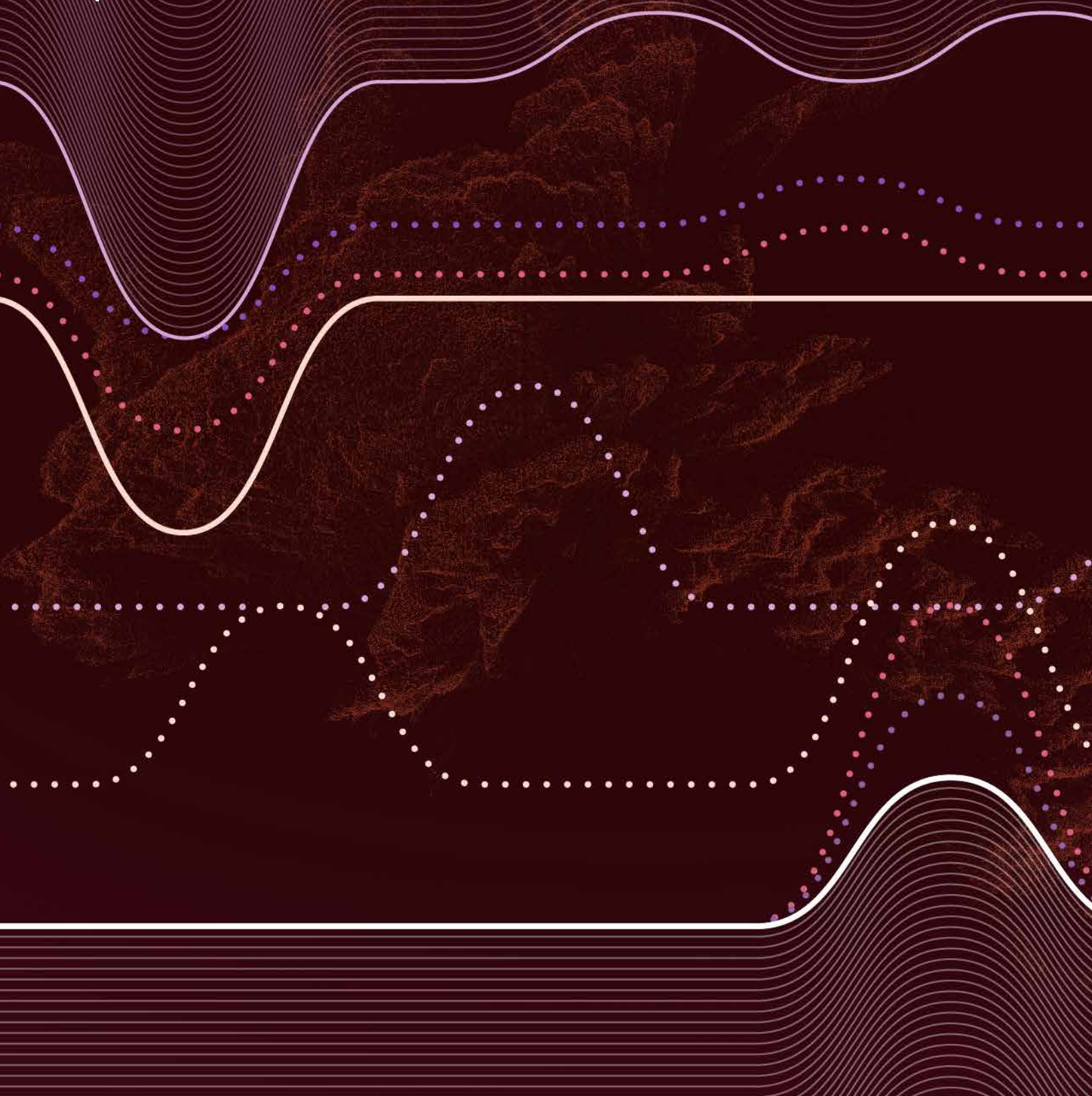


Atlantic Canadian Startup Community

# Data Report

## 2019





# Executive Summary

In the spring of 2007, one of the kings of private equity flew into Halifax to proclaim a golden age for his industry. Henry Kravis, Co-Founder of the powerful New York- private equity house Kohlberg Kravis Roberts, was the keynote speaker of the Canadian Venture Capital and Private Equity Association annual conference in Halifax that year. With interest rates low and the economy cooking, he told an enraptured audience that the global environment was perfect for investment funds like his. “Private equity is in its golden era right now,” he said. Of course, a little more than a year later, the rose-coloured glasses came off as that Goldilocks economy was ruined by the Great Recession.

A study of the Atlantic Canadian startup community in 2019 brings Kravis’ speech to mind. It’s not just the hubris. It’s that in 2019 the startup community saw the perfect environment for growth, just as Kravis saw it in 2007.

Atlantic Canada – so often ignored in national economic analysis – recorded the biggest growth capital funding round in Canadian history in 2019 when Verafin raised \$515 million in equity and debt. Introhive placed No. 10 in the Deloitte Fast50, the first Atlantic Canadian company to crack the top 10. Sequence Bio and CoLab Software became the first Atlantic Canadian companies accepted into the Y Combinator accelerator in Silicon Valley.

Entrevestor’s research, detailed in this report, shows what a stellar year 2019 was:

- Atlantic Canadian startups employed about 6,500 people, 1,000 more than a year earlier. Overall, companies grew their staffs by about 23 percent.
- The region’s startups raised \$651.5 million in capital (excluding money raised on the stock market), which was more than three times more than any previous year. The only weakness in fundraising was a lack of critical \$5 million to \$20 million deals.
- Companies sharing revenue data with Entrevestor reported revenue growth of about 70 percent – the third year in a row of 70 percent growth or higher.
- Atlantic Canada launched 164 new startups – the first time the figure exceeded 115.
- Appili Therapeutics listed publicly in mid-2019 and Meta-material Technologies followed suit in early 2020. Atlantic Canada now has an interesting portfolio of publicly listed innovation companies.

- The life sciences sector continued to grow, attracting \$80.3 million in funding – more than four times the 2018 figure.
- Rural innovation is increasing, especially in Nova Scotia, with more structured collaboration between rural entrepreneurs and urban support organizations.
- Springboard Atlantic and Lab2Market are enhancing entrepreneurial programing for applied researchers, which should improve the quality of new companies in the future.
- Some 14 percent of the companies are led by female CEOs or Co-CEOs, and these companies raised 12.5 percent of the funding in 2019 (excluding the Verafin deal). When we previously looked into female CEOs in 2014, we found they made up 8 percent of the community at the time and received 8 percent of the funding.

The greatest area of concern is that angel funding in 2019 fell more than 25 percent to \$21.9 million – its worst performance in three years.

This report was written in the depths of the pandemic, and it’s impossible to predict what the recovery will look like. But this report is a testament to the growth potential of innovation-driven companies, and is evidence that they will be critical to Atlantic Canada’s recovery in 2021 and 2022 and its long-term prospects.

Atlantic Canada Opportunities Agency President Francis McGuire alluded to the economic power of startups in a July 2019 interview with Entrevestor. He said his agency believes startups are a pillar of the region’s youth attraction strategy. He estimated 5,000 to 6,000 young people work at startups, earning \$50,000 or more within a few years. That means they are paying significant taxes, which helps the region’s governments provide services. “It’s the type of people they tend to employ,” said McGuire, referring to employees’ technical capabilities and also their entrepreneurial attitudes. The capacity of startups to generate well-paid jobs will be needed more than ever as the region’s economy recovers from COVID-19. ■

## About Entrevestor

Entrevestor was founded in 2011 by Nova Scotia-based writers Peter and Carol Moreira as a portal to unite and inform the startup community in Atlantic Canada. It posts daily news on Atlantic Canadian startups on its website, [www.entrevestor.com](http://www.entrevestor.com). ■

**This report would not have been possible without the support of numerous organizations, and we would like to thank the following for all their help:**

### Platinum Partners

Atlantic Canada Opportunities Agency  
Innovacorp

### Gold Partners

Build Ventures  
Charcoal Marketing  
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Halifax Innovation District  
Ignite Fredericton  
Island Capital Partners  
Memorial University of Newfoundland  
New Brunswick Innovation Foundation  
ONIDE  
Propel  
Springboard Atlantic





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## Part I – Background

One important note on our terminology: Entrevestor uses the term “startup” to refer to high-growth innovation-driven companies. The age of the company is irrelevant in considering what constitutes a startup. To us, the company must meet three criteria: It must be locally owned, commercializing technology, and producing a product for the global market. “High-growth innovation-driven company” is a clunky term, so for the sake of brevity we refer to them as “startups”. ■

### 1.1 Macro-Economic Background

Atlantic Canada has lagged the rest of the country in economic growth for a generation or more, but there were several bright spots in its economic performance in 2019. There was certainly nothing to suggest the region (much less the world) was on the cusp of the cataclysmic downturn we witnessed in the first half of 2020.

Data secured from Statistics Canada shows population increased and unemployment fell. Three of the four provinces showed fiscal surpluses. And most important for the startup community, there were indications that Atlantic Canada’s unenviable performance in research and development was improving.

The first thing to improve in Atlantic Canada was population growth. The region has been bleeding humans for a generation or two, but that seemed to have been reversed, at least in the Maritime provinces, as can be seen in this chart:

Chart 1.1 - Atlantic Canada’s Population, 2014-19 (,000)

Province	4Q’14	4Q’19	Growth
Nova Scotia	942	977	3.7%
New Brunswick	755	780	3.3%
Newfoundland and Labrador	528	522	-1.1%
Prince Edward Island	146	158	8.2%

Sources: Statistics Canada, found at <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901>

The increases in population had a direct impact on the labour force data in the region. Obviously, Newfoundland and Labrador still showed a decline in population, which impacted its overall economic performance. But the other three provinces showed healthy trends in falling unemployment. And throughout 2019, Nova Scotia and P.E.I. increased their labour forces.

Chart 1.2 - Atlantic Canada’s Labour Force Data, 2018-2019

	Labour Force (,000)		Unemployment Rate	
	Dec ‘18	Dec ‘19	Dec ‘18	Dec ‘19
NS	487.8	505.4	7.8%	7.9%
NB	389.0	385.1	8.0%	7.5%
NL	258.0	251.3	11.2%	11.8%
PEI	83.0	86.9	8.0%	7.9%

Sources: Statistics Canada, found at <https://www150.statcan.gc.ca/n1/daily-quotidien/200110/t003a-eng.htm>  
<https://www150.statcan.gc.ca/n1/daily-quotidien/150109/t150109a003-eng.htm>

Of particular interest to the innovation community is the region’s research and development performance, which has never been strong. To qualify that statement, the region is a powerhouse in institutional R&D, and almost invisible in private sector R&D. That was improving in 2019.

The R&D data – which is never timely and rarely good – is mixed for Atlantic Canada. There are indications that the region is spending more on R&D, though the best data we can get is a few years out of date. Mixed though it may be, there may be reasons for optimism. ➤

► Statistics Canada issues a few batches of data that shed light on R&D in Atlantic Canada, and we'd like to thank David Campbell of Jupia Consultants in Moncton for his help in finding and understanding it. The most recent data in overall spending only goes up to 2017, but it shows an improvement. Over five years, the region's gross domestic spending on R&D rose by about one-fifth, led by surges in Nova Scotia and New Brunswick. That almost doubles the roughly 10 percent growth rate in Canada overall (though it falls short of national leader British Columbia, whose R&D spending rose by more than one-third).

There are other stats that are more worrisome. For example, StatsCan data on people employed in R&D showed an actual decline in the region. ■

Chart 1.3 - Gross Domestic Spending on R&D (\$M)

	2012	2017
Canada	\$32,383	\$35,732
Newfoundland and Labrador	\$377	\$423
Prince Edward Island	\$78	\$81
Nova Scotia	\$511	\$650
New Brunswick	\$283	\$342
Atlantic Canada	\$1,249	\$1,496

Source: Statistics Canada

Chart 1.4 - People Employed in R&D

	2014	2018	%age change
Canada	60,620	53,360	-12.0%
NL	120	130	8.3%
PEI	60	85	41.7%
NS	455	385	-15.4%
NB	550	570	3.6%
Atlantic Canada	1,185	1,170	-1.3%

Source: Statistics Canada

To be fair, the decline in R&D employment is mild on the East Coast compared with the country overall, which was dragged down by reductions in Ontario and the Prairies.

Overall, the increase in spending is the more important number and suggests the region's R&D performance was improving in the middle of the last decade.

Critics might claim that the increase in R&D spending is simply due to more research at universities – a category Atlantic Canada has always done well in. But the money the East Coast universities received for R&D – known as research income – in the past few years has been pretty steady. Over the last few years, Dalhousie University has received about \$140 million to \$150 million annually to lead the region. The only university whose research budget has increased dramatically is Memorial University of Newfoundland. According to Re\$earch Infosource, research income at MUN has

increased 66 percent in the seven years to 2018, when it was \$116.8 million.

The trend in Atlantic Canadian R&D seems to be moving in the right direction, with more private sector activity taking place. But on an international level we still put up a poor performance. In 2017, the region accounted for just 4.2 percent of the R&D in Canada, a country that placed 23rd in R&D spending in a list of 44 countries listed by the Organization for Economic Cooperation and Development.

What all these metrics show is that Atlantic Canada has been on the upswing (though the global recession will certainly throw a spanner in the works). However, the population growth and other factors have yet to result in improvements in the most important metric – gross domestic product. Over the last two years, the Atlantic Provinces have generally shown economic growth rates that fall short of the overall figure for Canada. ■

Chart 1.5 - Atlantic Provinces' GDP Growth

Province	2018	2019(e)
Nova Scotia	1.5%	1.3%
New Brunswick	0.8%	0.7%
Newfoundland and Labrador	-3.5%	2.0%
Prince Edward Island	2.8%	2.8%
Canada	2.0%	1.7%

Source: RBC, found at <https://royal-bank-of-canada-2124.docs.contently.com/v/provincial-outlook-december-2019>

The standout in this category is Prince Edward Island, which also performed well in the population, labour force and R&D categories. What the above chart doesn't show is that P.E.I. reported economic growth of 2.2 percent in 2016 and 3.5 percent in 2017. All of which means the P.E.I. economy is expected to grow 14 percent between 2016 and the end of 2020, leading Canada in economic growth. The rest of the region is still turning in a sub-par performance in economic growth, but the P.E.I. experience gives some validation to optimists.

We wrote this report in April and May of 2020, so any predictions of economic performance in 2020 would be foolhardy. So we'll simply focus on what happened in 2019, which was an improvement in several areas of the economic landscape in the region. ■



## 1.2 Recap of our 2018 Report

We concluded last year that the prevailing attitude in the Atlantic Canadian startup community was that we were making good progress on an unfinished job. We noted at the time that there hadn't been a \$50-million-plus venture capital round, and none of the hundred largest Canadian tech companies were based in Atlantic Canada. Though there was a lot more work to be done, things were heading in the right direction, as shown by our key data for 2018:

- The number of startups (our word for high-growth innovation companies) based in Atlantic Canada grew to 550 as of the end of 2018, up from 263 when we did our first report in 2013. In 2018, 115 companies were launched and 65 failed.
- About 5,500 Atlantic Canadians worked at startups by the end of 2018, up 22 percent from about 4,500 a year earlier, the growth driven by both younger and more established companies.
- The companies that shared revenue data with us produced a weighted average growth of 75 percent in 2018. That may understate the real situation as several companies reported only percentage gains, and most of these companies doubled their sales or better. For the second year in a row, there was exceptional sales growth in Newfoundland and Labrador.
- Startups reported record funding in 2018, led by New Brunswick. In total, Atlantic Canadian startups raised \$166.6 million from private investors, venture capital funds and strategic partners. That's up 43 percent from \$116 million in 2017, which was also a record year for funding.
- There were 115 new companies, roughly the same as the previous year.
- The stock market began to play a more important role in the community in 2018. Publicly listed companies in the Atlantic Canadian startup community raised \$24.7 million in the stock markets.
- We learned of a record \$29.4 million in angel funding in 2018 – more than any year since we began these reports in 2013. The Creative Destruction Lab-Atlantic has done a superb job of bringing business leaders into the angel community, and the CDL fellows and angels invested \$7 million in its first two years. Island Capital Partners is also serving as a focal point for angels in P.E.I.

One thing that we noted in the last report is that for the first time Atlantic Canada could assess its standing against other startup ecosystems. Innovacorp in early 2019 signed the region up to be included in the Startup Genome report on global startup communities. In its 2019 report, Startup Genome ranks Atlantic Canada as No. 4 in its "Activation Phase" startup ecosystem, lagging behind Western Denmark, Belgrade and Novi Sad, and Taipei. Atlantic Canada is the top ecosystem in the category for early stage funding per startup, edging out Frankfurt and New Zealand. Other Canadian cities in the Activation Phase – which is the earliest stage of three categories -- are Calgary, Edmonton and Quebec City. ■

## Part 2 – The Atlantic Canadian Startup Community

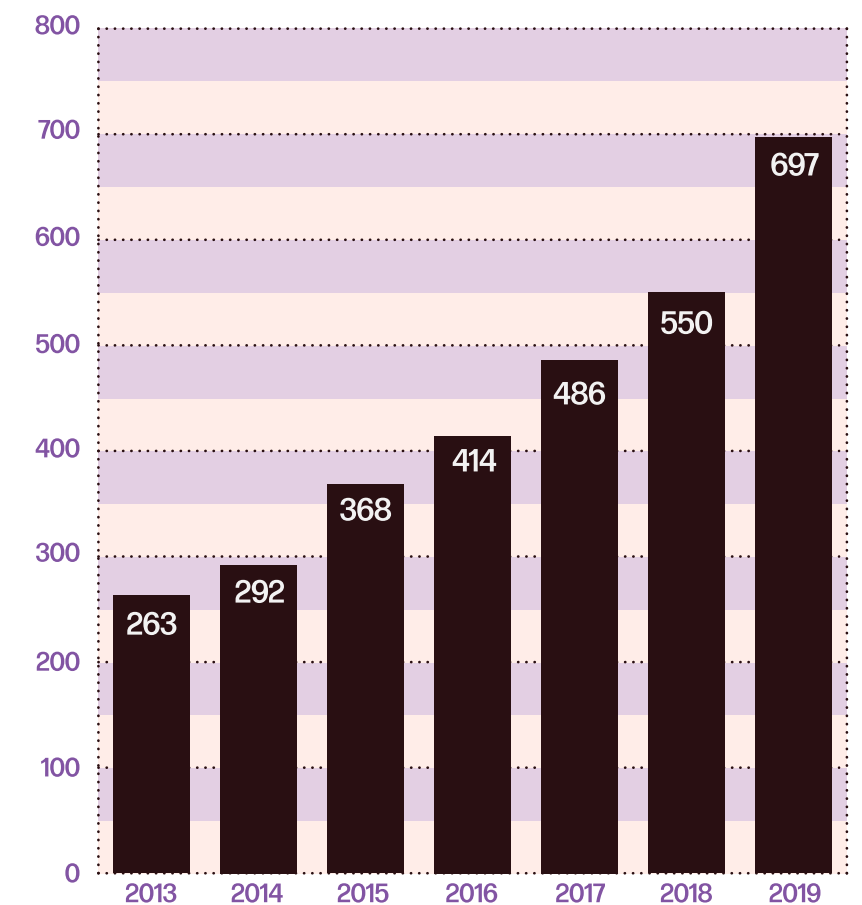
The Entrevestor Databank has grown to 697 companies as of Dec. 31, 2019, up 27 percent from a year earlier. Not only is this the largest group of companies that we've ever covered, it's also the highest annual increase we've witnessed in the seven years we've been writing this report. In each of the previous six years, the number of companies increased by roughly 15 percent each year. Why the strong increase in 2019?

As we recounted in previous reports, the ecosystem in Atlantic Canada is now geared to generating new companies. Most of the seven cities have at least one innovation hub, where people with an idea can come to discuss their plans and learn how to test them through customer discovery. As a result, Atlantic Canada produced 164 new companies in 2019 – another record.

Meanwhile, we witnessed a decline in failures in 2019, while the number of zombies increased by about 40 percent to 92. As we will discuss in Section 2.5, there is a fine line between a zombie and a failed company, and there were some companies that could belong in either camp. We remove failed companies from the databank, so overall the number of companies increased because we accepted that several should be deemed zombies rather than be removed because they had failed.

This report was written during the early days of the latest recession, and there is no doubt the number of failures will soar in 2020. Not only will many of these zombies be recast as failures, but several companies that appeared healthy in 2019 will likely fall to the economic chaos caused by the COVID-19 pandemic. ■

Chart 2.1 - Number of Atlantic Canadian Startups

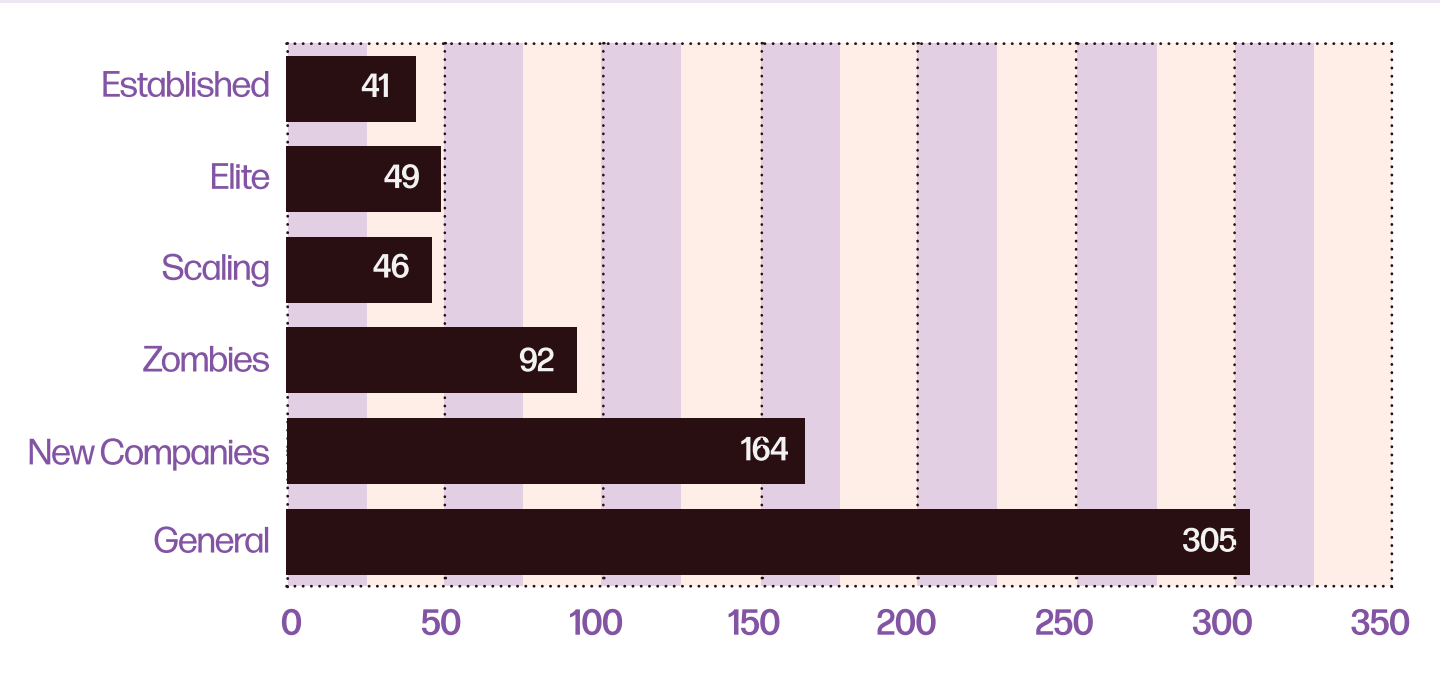


Source: Entrevestor Databank

For the past few years, we have broken down the community into six categories of companies – Established, Elite, Scaling, Zombies, New Companies and General. We are methodical about classifying companies, taking into account what we know about their revenue growth, employment growth and fundraising. We should note that most of these companies are private, so we don't know everything about their performance. Our judgment is based on the information that is available, and the fact that we're journalists conducting more than 200 interviews a year on Atlantic Canadian startups.

We have counted 41 established companies for 2019, unchanged from the year before. As we mentioned previously, the number of new companies has increased to 164, a 42 percent increase from the previous year. The number of both scaling and elite companies increased in 2019. We ranked 49 companies as elite, up from 40 the year before. The number of scaling companies increased from 36 to 46. In fact, the numbers in every category other than "Established" have grown in 2019. ■

Chart 2.2 - Categories of Companies in 2019



Source: Entrevestor Databank

One final reason that the Entrevestor Databank has grown is we're casting our net a bit wider. We've long said there are a million grey areas in listing companies like this. Now we're being a bit less stringent in including service companies (as long as they're innovating) or startups based elsewhere but with large operations in Atlantic Canada. There are also companies that we had not heard of though they have been going for a few years. We now have a somewhat broader view of the innovation community. ■

Chart 2.3 - Location of Startups

Halifax continues to be the dominant hub in the Atlantic Canadian startup community, accounting for 39 percent of the startups in the region, up from 36 percent in 2018. There was also strong growth in the other two big centres of St. John's and Fredericton. We recorded fewer companies than before in Sydney, unsurprising given the number of zombie companies we noticed in the city in the previous year. The "Other" category, which comprises companies in rural areas and smaller towns, again stands at more than 10 percent of the total. (See Part 6 for our analysis of rural entrepreneurship.) ■

	2018	2019
Halifax	199	271
Fredericton	75	96
St. John's	66	83
Other	57	73
Sydney	51	46
Charlottetown	43	55
Moncton	36	45
Saint John	23	28
Total	550	697

Source: Entrevestor Databank

2.1 Established Companies

We include established companies because there are companies that meet our three criteria (owned by Atlantic Canadians; commercializing technology; targeting a global market) but can hardly be called "startups". Some of these companies still show the dynamic growth that's associated with startups, but most are bona fide corporations, and do not generate the massive job growth that we see in their younger peers. They are companies like Mariner Partners in Saint John and LED Roadway Lighting in Halifax.

As we've noted, some established companies display growth metrics that would please almost any company. We include St. John's-based Verafin, which produces anti-fraud and anti-money-laundering software for financial institutions, among the established companies. It's certainly the most dynamic innovation-driven company in the region, as was shown when it announced a \$515 million round of equity and debt capital in October, 2019. The amount of money was off the charts - the biggest growth capital round in Canadian history, and more money than all Atlantic Canadian startups had raised in the previous four years. At first, we were unsure of how to account for this round, as we usually don't include debt components in tallying up a VC round, and Verafin did not break down the size of the debt portion. We ended up following the Canadian Venture Capital and Private Equity Association's lead and classified it all as "growth capital".

Verafin also showed a financial performance that demonstrates it is no lethargic "established" company:

- According to LinkedIn data, Verafin's staffing rose from about 350 employees to about 420 throughout 2019 - a growth rate of 20 percent. It is the largest single employer in our databank.
- When it announced its mammoth funding round, Verafin said it hit \$100 million in annual recurring revenue in the first quarter of 2019, representing 87 percent growth in annual recurring revenue since the beginning of 2017.
- The company achieved 108 percent growth in sales bookings between 2017 and 2019, and 102 percent growth in average deal size over this same period.
- Some 97 percent of Verafin's customers renew annually, showing that its solution continues to meet customers' needs.
- Between April 2018 and October 2019, Verafin signed up 25 financial institutions with more than US\$5 billion in assets. The company said in late 2019 it was experiencing increased growth and inbound interest from this market segment.
- Verafin said it has developed a unique customer-driven development process that provides rapid deployment of new product capabilities to meet and exceed customer demands.

One final note about Verafin is that the company embodies the community spirit common in the startup space. It's been a true champion of the startup movement in St. John's. ■



## 2.2 New Companies

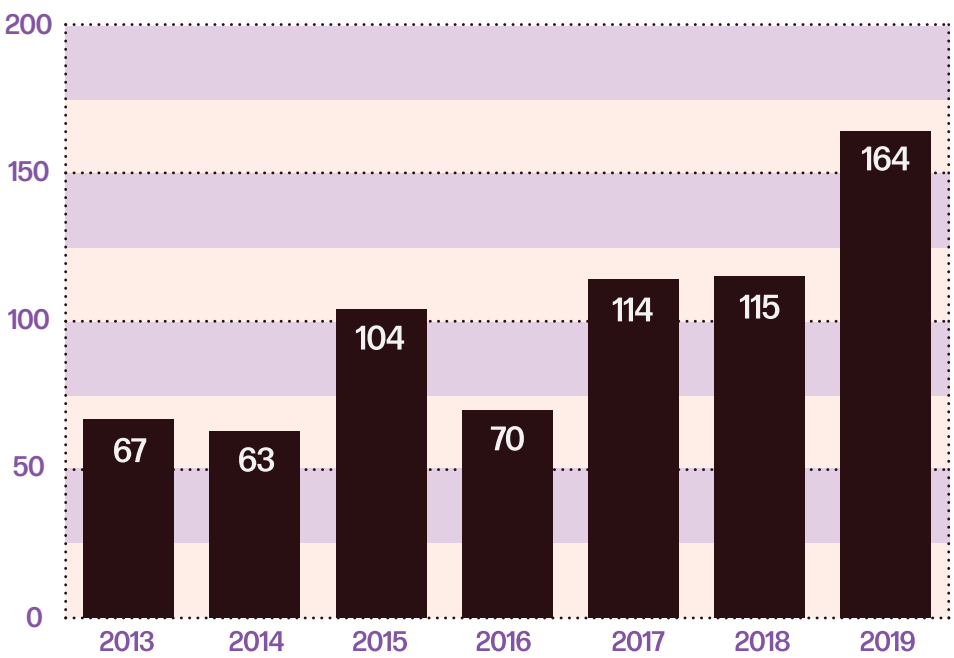
We can't assess the quality of the startups launched in 2019. We'll get a better understanding of that in a few years. What we can say is there have been a lot of them - 164 that we've identified. In the early years of this survey, we usually saw 60-70 companies launched per year, a level that jumped above 100 around 2015. In 2019, we witnessed another step change - up above 150. It's too soon to tell whether the pandemic will stymie this growth in the short-term, but the experience of 2019 shows that Atlantic Canada has developed an effective ecosystem for testing entrepreneurial ideas, and instructing teams on how to develop a product and get it to market.

These are the components:

- There are innovation hubs in most cities and several towns (For example, Ignite in Yarmouth and Stellarton in Nova Scotia), which offer not just meeting space but also curriculum.
- Most universities have entrepreneurship programs, centres or sandboxes. Most post-secondary students in the region have easy access to people with whom they can discuss entrepreneurial ideas. Many programs, like the Genesis Evolution program, are open to entrepreneurs from outside the university.
- Government and quasi-government bodies like Innovacorp and New Brunswick Innovation Foundation offer a range of programs offering instruction (and sometimes non-dilutive funding) to new companies.
- Propel's Incite I program, which helps young companies assess product-market fit, is virtual and open to about 30 companies each year. For context, many of us can remember when Propel sounded foolishly ambitious in 2012 for saying its Launch36 program would nurture 36 companies in three years.
- Life Sciences groups in all four provinces are nurturing young companies, including the newest, the Bounce Health Initiative in St. John's. The BioInnovation Challenge has been attracting entrepreneurs with new ideas and training them to pitch.
- The oceantech community is concerned about not generating enough new companies, and several players have been holding meetups (more recently, these have been virtual due to COVID-19) to encourage more new companies. They could feed into programs at such institutions as Start-Up Yard at COVE or Ignite.
- The next phase of research-based entrepreneurship will unfold in 2020 and 2021 as Memorial and Dalhousie universities hold pilot programs in Lab2Market, a pan-Canadian initiative to encourage entrepreneurship among advanced researchers. University of New Brunswick has also been working on an I-Stem program, which has a similar focus on researchers.

An interconnected network of groups producing new companies has developed in the last decade, and that network will no doubt survive the pandemic and ensuing recession. Even if the number of new startups retreats in 2020, there's reason to be optimistic about the ecosystem's capacity to produce well over 100 new companies each year in 2021 and beyond. ■

Chart 2.4 -  
New Companies, 2013 - 2019



Source: Entrevestor Databank

Though it's too soon to assess the overall quality of the new crop of companies, we do know a lot about them already. According to our data, these companies employed 158 people as of December 2019, or almost one paid employee per company. They raised a total of \$3.3 million, of which \$636,000 came from the founders themselves. Ten companies told us they had sales last year, one exceeding \$1 million. In total, these companies had sales of \$2.4 million. A further 20 new companies told us they were still pre-revenue. ■

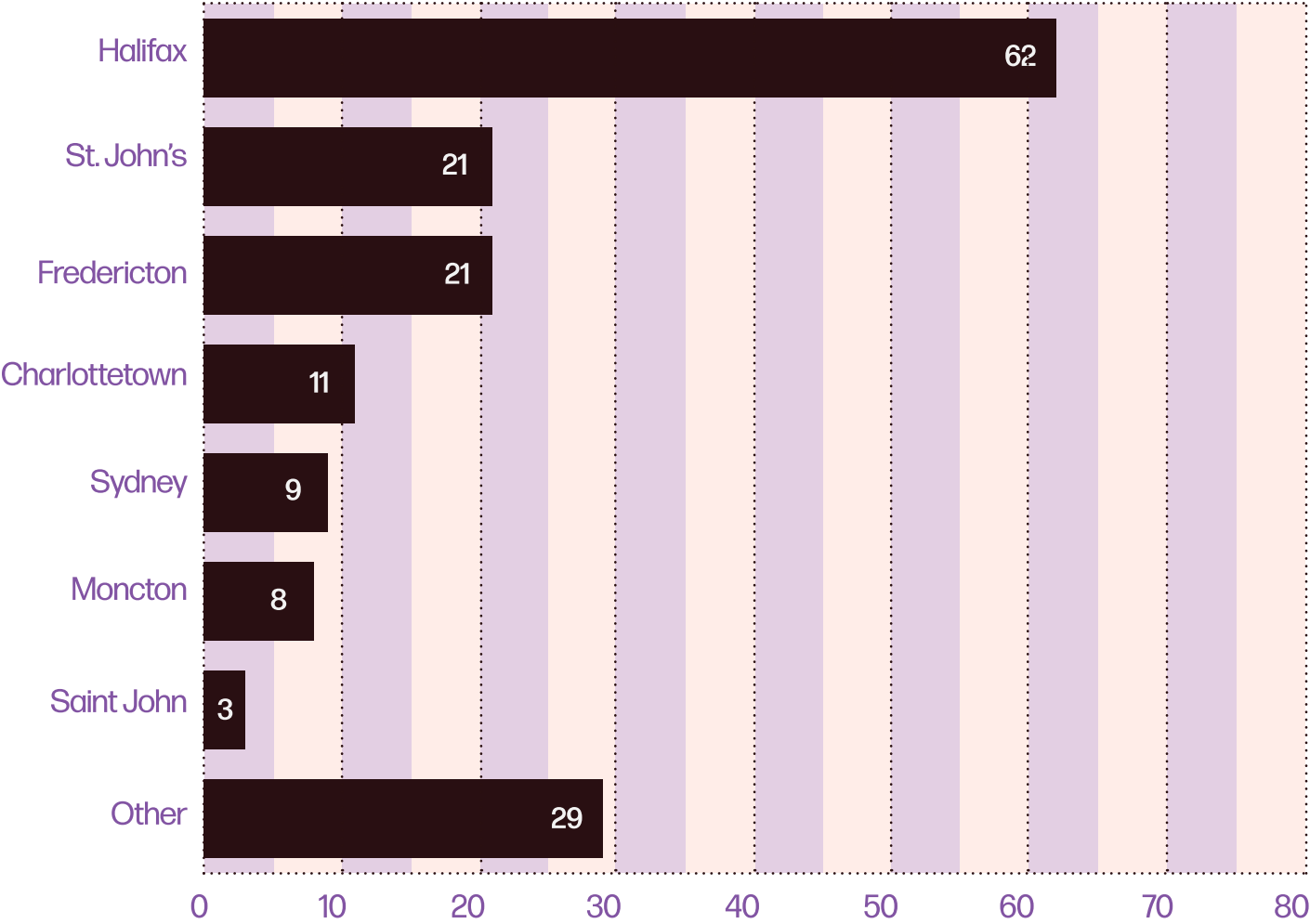
Chart 2.5 - Sectors of New Companies

	2019
Cleantech	19
IT	110
Life Sciences	27
Manufacturing	8
Ocean	15
Total	164

Source: Entrevestor Databank

We've mentioned that the oceantech community is concerned about the small funnel of new companies. We counted 15 new ocean companies in 2019, some 13 of which were based in Nova Scotia. Another sector that has had problems generating new companies in recent years is cleantech, but it is also a sector that generated the most new companies ever in 2019. There were 19 new cleantech companies last year, accounting for 38 percent of the 50 cleantech companies in the Entrevestor Databank. ■

Chart 2.6 - Location of New Companies, 2019



Source: Entrevestor Databank

There is no surprise that Halifax has once again accounted for more than one-third of the new startups in Atlantic Canada, nor that it is followed by Fredericton and St. John's. But there are a few things worth noting in the data on new company locations. The "other" category represents rural areas and small towns, and the number of companies in these communities has more than quadrupled, from seven in 2018 to 29 in 2019. One reason is the success of rural innovation groups like Mashup Labs and Ignite, and their ability to work with larger groups.

Once again, Saint John has been struggling to create new companies. The Port City produced only six new companies in 2018, and last year the total fell to three. Truro (with four new companies) produced more new companes than Saint John. With the strength of its IT community and the braintrust of East Valley Ventures, Saint John should be able to generate more companies than it does. Its not a coincidence that it is the only city in the region that lacks an innovation hub, providing both meeting space and curriculum. ➡

► Rookie All-Stars

In the last few years, we've tried to identify the most promising new companies – a difficult task as there is so little data on which to base such an opinion. We judge them on what we know about their funding and early revenues, about awards they've won and the general buzz about the companies. This year, we've named the following 11 companies to our Rookie All-Star list:

**Meaghan Seagrave**  
**1812 Hemp, Fredericton** – Seagrave, the former head of BioNB, left the organization in 2019 to head Fredericton-based 1812 Hemp, which grows strains of hemp high in CBD, one of the most active ingredients in cannabis. The company calls itself a single-desk solution for purchasing high-CBD hemp flower, ensuring full traceability and compliance with Health Canada. ■

**Jonathan Zuccolo**  
**AffinityImmuno, Charlottetown** – AffinityImmuno has developed a platform for rapid drug lead discovery using the chicken immune system. The company in April 2020 joined a consortium of companies working on a rapid-response test for COVID-19. The other members of the group included: Sona Nanotech of Halifax; GE Healthcare Life Sciences; The Native Antigen Company of Great Britain; and Bond Digital Health, also of Britain. ■

**John MacLellan**  
**Cove Kombucha, Halifax** – Cove Kombucha closed a \$1.2 million equity funding round from Vancouver-based Canaccord Genuity Wealth Management in October 2019. The company has been selling its kombucha – a fermented tea drink that boasts various health benefits – at the Eastern Canadian outlets of chains like Costco, Sobey's and Whole Foods Markets, as well as in numerous convenience and health food stores. ■

**Arnold Furlong**  
**Dartmouth Ocean Technology, Dartmouth** - DOT offers various sensor platforms for use in oceans and can integrate the required sensors to meet many requirements. The company manufactures towed platforms, vertically profiling platforms, moored platforms, and a variety of lab-on-a-chip sensors. ■

**Margaret Dron**  
**Electric Owl, Halifax** - Electric Owl was preparing to launch its digital garden management platform called Garden Manager in the spring of 2020. Using artificial intelligence, Garden Manager will advise users on how to grow fresh and nutritious food, helping them to avoid mistakes and understanding their specific crop. The aim is to improve food supply and reduce the environmental impacts of food transportation. ■

**Christine Goudie, Crystal Northcott**  
**Granville Biomedical, St. John's** - Granville Biomedical is improving women's health by 3D printing vaginal simulation products that allow healthcare workers to learn about injuries caused by childbirth, disease and genital mutilation. The company has already raised funds and gained clients. The venture is offering a modern, cost-effective solution for teaching hospitals and institutions that currently use either expensive silicone and plastic models or cheap items. ■

**Dhirendra Shukla**  
**Gray Wolf Analytics, Fredericton** - Best known as the head of UNB's TME program, Shukla heads a six-member team whose core focus is a cybersecurity product that helps agencies monitor blockchains to ensure cryptocurrencies aren't being used for criminal purposes. The COVID-19 crisis has prompted them to turn their attention to a solution to help society get back to normal. SafeContact is a GPS-driven app that allows users to record and track their own movements. ■

**Sid Eskand**  
**Hyke, St. John's** - Hyke Technologies is developing a customer acquisition, retention, and expansion platform to revamp B2C's engagement with millennials. It has developed an electronic engagement tool to replace outdated loyalty programs. After interviewing

more than 700 people during its customer discovery, the company began beta testing in the fall of 2019. ■

**Mihir Shah, Nick Warren**  
**InspectAR Augmented Interfaces, St. John's** - InspectAR, which grew out of the engineering program at Memorial University of Newfoundland, uses augmented reality to help electrical engineers and electronics technicians to quickly assess and improve the state of the printed circuit board, or PCB, that they're working on. Its software can inspect, debug and rework a PCB, while assisting with assembly and collaboration. In late 2019, it received an \$850,000 equity investment from Royal Circuit Solutions and Advanced Assembly, two PCB manufacturers that are based in the western U.S. and have a family connection with InspectAR. ■

**Brad Park, Sabrena MacKenzie, Chris Rafuse**  
**SeaChange BioChemistry, Halifax** - SeaChange produces chemicals for industry from brown seaweed, which is growing so fast in the oceans that it is posing huge ecological and economic problems. SeaChange has produced three chemicals from this seaweed: polyphenols, which are used in pharmaceutical industries to help with obesity and Type 2 diabetes; lactic acid, which can be used in 3D printing, plastics and other industrial uses; and another compound that it declined to name. The company said in March 2020 that it planned to have products for sale by June. ■

**Jason Pearson**  
**Stemble Learning, Charlottetown** - Pearson, a serial entrepreneur and chemistry professor, devised a web-based homework tool for university chemistry classes that can replace expensive textbooks while making learning more engaging. The company was asked by the UPEI Department of Chemistry to use its technology to administer all of the exams for their students remotely. The company also offered free access to Stemble for students for the rest of the spring 2020 semester. ■



2.3 Elite Companies

In our 2017 and 2018 reports, we began to identify elite start-ups – that is, those that raised a lot of money and/or had established a strong history of sales and were growing rapidly. It’s difficult to come up with such a list because many companies are secretive, and some of the larger companies are prevented by their venture capital backers from saying much to outside parties. We considered four factors:

- Has the company raised more than \$2 million in equity funding?
- Does the company have revenue of more than \$1 million and is it increasing that figure more than 50 percent annually?
- Does the company have a staff of more than 10?
- Is there a buzz about the company?

We haven’t changed our parameters for what makes an elite company, though we may have to in a year or two. If the COVID-19 crisis doesn’t impact operations too badly, we may have to increase the baseline of \$1 million in revenue. But with the same rules in place as over the last two years, the number of elite companies has swollen from 40 in 2018 to 49 in 2019.

As you may expect, they have performed strongly in the last year. They employed 1,750 people, and increased their staffing by more than 22 percent. Fourteen of these companies gave us full revenue data. All these companies reported more than \$1 million in revenue, except one whose revenues came in at \$850,000. Their collective revenues increased 59 percent. Aside from these 14 companies, four other companies told us their revenues rose 100 percent or more.

Here are our elite companies:

ABK Biomedical	Gemba Software Solutions	Resson
Adaptiiv	HeyOrca	ScreenScape Networks
Affinio	Introhive	Sequence Bioinformatics
Alongside	Kinduct	SimplyCast
Analytic Edge	Kognitiv Spark	Site2020
Appili Therapeutics	Kraken Robotic Systems	Skinfix
Avalon Holographics	LeeWay Marine	Skyhawks Telematics
B4Checkin	LifeRaft	Solace Power
BlueLight Analytics	Manifold	Solid State Pharma
CarbonCure	Mara Renewables	SomaDetect
Celtx	Metamaterial Technologies	Sonrai Security
Dash Hudson	MicroSintesis	Swarmio
Datolite Solutions	Modest Tree Media	Swept
DiscoveryGarden	Outcast Foods	Truleaf
Eigen Innovations	Proposify	Vidcruiter
Empowered Homes	QRA Corp	Vineview
FinLeaf Technologies		

One standout in this list is Introhive, which has been growing both sales and staff rapidly in recent years. It was not only named to the Deloitte Tech Fast50, but it achieved the highest ranking ever for an Atlantic Canadian company, reaching No. 10. It placed so highly because it had increased revenue 1,700 percent over the previous four years.

Here are the companies we added to the list for 2019:

Adaptiiv Medical Technologies, Halifax

Led by former IT entrepreneur Peter Hickey, Adaptiiv uses 3D printing to produce customized boluses, or fitted sheets of plastic that are placed over the place where cancer patients receive radiation treatment. In 2018, Adaptiiv became the first company in the world to receive 510(k) clearance from the Food and Drug Administration in the U.S. for software that is intended to 3D print patient-specific medical devices for use in radiation oncology. As of March 2020, the company’s solutions were being used in clinical settings by clients in 13 countries. ■

Alongside, Moncton

Alongside operates a hiring platform that humanizes the online hiring experience by bridging the communication gaps between employers and candidates. Founded in 2014 by CEO Yves Boudreau and others, Alongside was the first Atlantic Canadian startup to be accepted into 500 Startups, then one of the world’s top startup accelerators. The company has been working closely with CareerBeacon, Atlantic Canada’s leading job board. ■

Datolite Solutions, Sackville

Datolite Solutions provides some of the world’s leading law firms with software that helps with their billing and reporting. Founded in 2014, Datolite has become the world’s largest team working with 3E templates, a powerful document automation solution. Since April 2017, the company has been the official services partners of Thomson Elite. ■

FinLeaf Technologies, Brooklyn, N.S.

FinLeaf Technologies Inc. develops aquaponic growing platforms and technology, and has developed proprietary nutrient recipes and processes unique to flowering plants. With its aquaponic solutions, it aims for the perfect combination of vigorous plant growth, natural nutrients, reduced environmental footprint, and fish health. FinLeaf Technologies Inc. is the research partner of licensed cannabis producer Aqualitas Inc., both of which were founded by Myrna Gillis. ■

MicroSintesis, Charlottetown

MicroSintesis has developed a product to ensure gut health in animals. It works in a new area of research called proteobiotic, which aims to rebalance the good and bad bacteria in an animal’s or person’s gut. The company has two products, which as of mid-2019 had been consumed by about 2 million animals. In June 2019, CEO Hannah McIver sold a minority stake to John Risley’s Northern Private Capital for \$16.4 million. ■

Modest Tree Media, Halifax

Saman Sannandéji and Emily Smits founded Modest Tree in 2012 to develop a drag-and-drop framework that could be used to create online training manuals and educational content. The simple framework reduced the cost and time involved in making 3D training programs by as much as 85 percent. It now calls itself a leader in developing extended reality applications and software to create immersive training solutions without coding. Sales have grown steadily and in 2019 the company sold a stake to Augsburg, Germany-based Renk, a member of the Volkswagen group. ■

Outcast Foods, Halifax

The company’s mission is to reduce food wastage, a \$49.5-billion-a-year problem in Canada alone, by finding supermarket produce that is about to be tossed out and converting it into nutritional powders. Co-Founded by Darren Burke and TJ Galiardi, the company is already selling its products to food companies in several countries. In 2019, it closed two funding rounds worth a total of \$4 million. ■

Site2020, Dartmouth

Site2020 is a manufacturer of a traffic-control product called the Guardian SmartFlagger. It’s designed to replace human “flaggers”—construction employees paid to direct traffic. It includes a portable stoplight and a barrier that can be lowered to block traffic flow. The Guardian was used on more than 200 construction sites in 2019, and CEO Mitch Hollohan expects to increase sales in the next two years. ■

Skinfix, Halifax

The company’s hashtag #TotalSkinNerds sums up the company’s ethos. The company, led by CEO Amy Risley, has developed a range of products to cleanse and moisturize skin. It got a big boost in the summer of 2019 when the retail chain Sephora agreed to carry Skinfix products. ■

Solid State Pharma, Halifax

Founded by CEO Mahmoud Mirmehrabi, Solid State has developed expertise at converting liquid medicines into solids – the pharmaceutical industry’s preferred state to transport and dispense drugs. About 30 percent of medical compounds are liquids in their natural state, and it is essential to ensure they retain certain properties when converting them to solids. The team grew to 15 people in 2019, leading to a move to the Halifax waterfront and a plan to increase staff to 40 people. ■

2.4 Scaling Companies

The “Scaling Companies” category is like a farm team for the “Elite” category. It’s a smaller group but its members showed superb growth metrics in 2019. The COVID-19 crisis may decelerate their growth, but most of the companies were approaching the threshold for elite companies in late 2019. One more thing about this group: two-thirds of them completed our survey and provided some revenue data, so we have really good information on scaling companies.

Our target for the scaling category is companies that have raised at least \$1 million, have revenues of more than \$500,000, and at least five employees. As is the case with the elite companies, we prefer scaling companies to be doubling revenues each year. And of course, there should be buzz about the company. Our list is not perfect. Some omitted companies will be angry that they’re not named, just as some scaling companies will be upset they’re not in the elite category. Several of these companies were simply too early to be considered elite, and will no doubt be elevated in the next year or two.

These 46 companies employed 701 people at the end of 2019, up 78 percent from a year earlier. We got complete revenue data from 19 of these scaling companies, and collectively they reported revenues of \$10.7 million, representing an increase of 151 percent. A further six companies told us their revenues doubled or better last year. The 46 scaling companies raised a total of \$18.5 million in 2019.

These are the 46 startups we rate as scaling companies:

1812 Hemp	Densitas	Mesh/Diversity	Securicy Data Solutions
Alentic Microscience	Eli Technologies	Oliver POS	Sedna Technologies
Anessa	Eyesover	Onset Communications	Simptek
Beauceron Security	Fiddlehead Technology	Orenda Software	Smartpods
BYOS Cybersecurity	Forestry.io	Peer Ledger	SnapAp
Chinova Bioworks	FundMetric	Picomole	Somru Bioscience
Clockwork Fox Studios	Global Spatial Technology	Proof	Squiggle Park
CoLab Software	HomeExcept	Rimot.io	Stash Energy
Cove Kombucha	Hotspot Merchant	Rise	StepsCan
Covina Biomedical	Jaza Energy	The Rounds	Tenera
Cribcut	Leadsift	Seaformatics Systems	Watzan
Curv			Whitecap Scientific

Eighteen companies are on this list for the first time. Here’s a quick look at them:

**1812 Hemp, Fredericton, Meaghan Seagrave** – 1812 Hemp grows strains of hemp high in CBD, one of the most active ingredients in cannabis. ■

**Anessa, Fredericton, Amir Akbari and Farough Motasemi** – Previously known as Wentech Solutions, Anessa has developed decision-making tools for the waste-to-energy sector. Its software supports decisions on complex project design and optimal operating conditions for anaerobic digestion facilities. ■

**BYOS Cybersecurity, Halifax, Matias Katz** – Byos’s SaaS platform allows IT/Security managers to control their remote employees’ activities and filter out any potential attack or infection from spreading into the main corporate network. ■

**Curv, Halifax/Toronto, Shea Balish** – Curv uses machine-learning tools to analyze video of people in motion, then uses that information to develop fitness routines to prevent or cure injuries. It closed a \$1.5 million round of funding led by Toronto-based Globalive Capital in 2019. ■

**Fiddlehead Technology, Moncton, Shawn Carver** – The company’s software uses predictive analytics to help food producers and retailers understand the coming demand for their food products. ■

**Fundmetric, Halifax, Mark Hobbs** – FundMetric offers a digital platform that helps charities enhance their engagement with donors. It uses machine learning to maximize fundraising campaigns. ■

**HomeExcept, Halifax, John Robertson** – The company has developed technology that provides non-intrusive monitoring of seniors for families and caregivers. ■

**Hotspot Merchant Solutions, Fredericton, Phillip Curley** – HotSpot is best known for its mobile app that lets drivers remotely feed parking meters. The company’s tech has evolved and now offers real-time parking maps and integrates its services with public transit systems. ■

**Mesh/Diversity, Fredericton, Mike Wright and Leeno Karumanchery** – MESH/diversity’s software helps organizations build a more diverse and inclusive workforce. Using predictive algorithms, its Diversity Intelligence platform measures an organization’s inclusiveness, and helps to implement improvements. ■

**Oliver POS, St. John’s, Mathias K. Nielsen** – Oliver POS has developed a plug-in point-of-sale solution for WooCommerce, which is e-commerce for websites that run off WordPress. Oliver POS makes WooCommerce more efficient. It can be installed with a single click, and can help retailers control their inventory and conduct other tasks from a single platform. ■

**Onset Communications, Charlottetown, Brian Sharp** – Onset has developed The Visual Assistant, a visual communication tool that reduces miscommunication, delays and mistakes on film production sets. ■

**Proof, Halifax/Yukon, Luke DeCoste, Ben Sanders and Wes George** – Proof digitizes the decision-making process for governments. The company has developed a Software-as-a-Service platform that helps government officials track and route documents digitally. ■

**Rise, Fredericton, Matt Daigle** – Rise helps homeowners and tradespeople with sustainable home improvement. It provides homeowners with know-how and connections to build in ways that help the environment and gives professionals a new way to connect with educated customers. ■

**The Rounds, Halifax, Tim Rice** –The Rounds (whose corporate name is Boondoc Technologies Inc.) is a closed social network for Canadian doctors, a place where they can discuss medical issues among themselves to improve the treatment of patients. A few years ago, the team launched QID, a similar network for pharmacists, which has a global following. ■

**Sedna Technologies, Dartmouth, Sheamus MacDonald** – Sedna has a suite of tools to help the commercial fishing and aquaculture industries streamline quality control of products. The company now plans to develop a proprietary micro water quality sensor to better monitor and manage commercial seafood and aquaculture chains. ■

**SnapAp, Moncton, J.D. Drapeau and Sionne Roberts** – SnapAP has developed a solution that automates the accounts payable process – the process a company uses to pay the money it owes to customers and lenders. SnapAp helps businesses pay their bills electronically in a paperless manner. ■

**Tenera, Halifax, Stewart Hardie** – Tenera has developed hardware and software that can assess the positioning of residents and staff, even visitors, in retirement or nursing homes. It’s accurate within six inches, and can produce 86,000 data points per person per day, showing exactly who came in contact with whom and where they met. ■

**Watzan, Halifax/New York, Charles Benaiah** – Watzan is a content-curation site for medical journals. There are about 1 million peer-reviewed medical articles published each year and Watzan uses artificial intelligence to figure out what each doctor would be interested in. ■



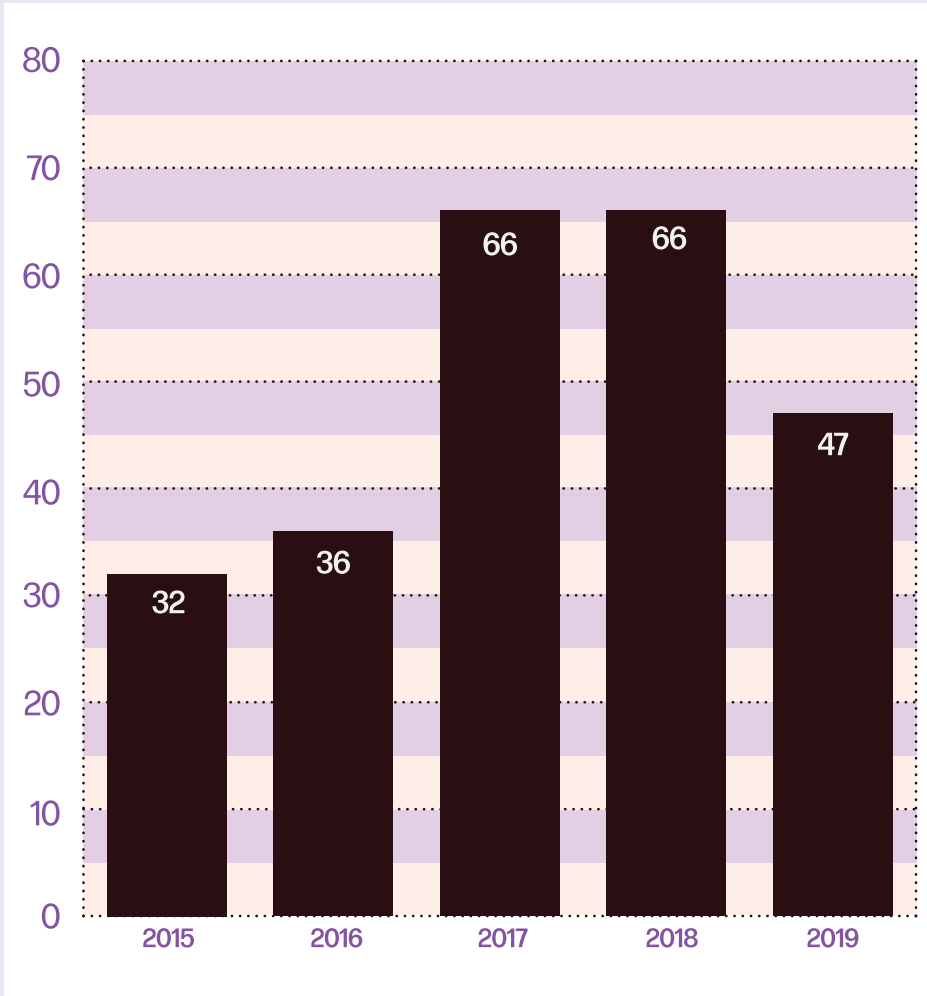
2.5 Zombies and Failures

Failures are part of the startup experience, and sadly so are zombies – the companies that don't progress but never really die. The community overall tends to embrace young entrepreneurs who fail, admiring them for having taken a shot and gained experience. There's general disdain for zombies, which can tie up resources that could be given to more dynamic companies.

It's difficult to get solid data on these two categories because troubled founders tend to keep low profiles. It's also hard to determine which companies are dead or undead, and there are several companies that could be placed in either category. In many cases, we placed questionable companies in the zombie category simply because support groups said they were still alive.

We've found 47 failures in 2019, the lowest level in three years. More than half of the failures were in Nova Scotia. We had recorded 66 failures in each of the last two years, including some larger companies like AIOTv of Halifax. There were no large failures in 2019, though the carnage included some companies that had previously had a lot of buzz, like Bereda Training of Halifax or FoodTender of Moncton. ■

Chart 2.7 - Startup Failures, 2015 - 2019



Source: Entrevestor Databank

We anticipate more failures in 2020, though it's difficult at the time of writing to predict which companies will fail. The answer most frequently heard in the spring of 2020 is the most vulnerable companies are those working in hard-hit sectors like travel, hospitality and automobiles. But many of these companies are receiving financial or operational support from government, funders or other businesses. When we surveyed businesses about their prospects in April 2020, some 95 percent of the 64 responses indicated they expected to survive the year.

The number of zombies increased strongly in 2019. We found 92 zombies, an increase of almost 40 percent from 66 in 2018. We have three criteria for zombies:

- 1. The company has to be at least two years old. It would be unfair to call a company a zombie when it may simply be in stealth mode.
- 2. It hasn't made any public announcement in at least two years. There is a chance some companies are simply working quietly on their product, may be even booking sales on the QT. But prolonged silence is usually a sign of problems.
- 3. It hasn't raised capital in at least three years. Again, if a company has no visible sales and hasn't raised capital, there's a good chance it isn't moving forward. ■

Chart 2.7 - Where Zombies and Failures are based

Province	Zombies	Failures	Total Start-ups in 2018	Portion in Trouble
NS	50	29	290	27%
NB	23	8	144	22%
NL	8	9	69	24%
PEI	11	1	47	26%
Total	92	47	550	25%

Source: Entrevestor Databank.

The zombies and failures are lagging indicators on the health of an ecosystem. If we compare the zombies and failures in 2019 to the total number of companies from the previous year, we see that about one-quarter of the companies from 2018 regressed or failed a year later. The total percentage of “troubled” companies may be higher than that because there may be companies less than two years old that are dormant. However, they don't show up because we require zombies to be two years old or older. In 2019, the proportion of ailing companies was a bit higher in Nova Scotia, and a bit lower in New Brunswick. It will be interesting to see if these ratios increase in 2020.

One final comment about troubled companies: some began as university projects, both in undergraduate and graduate entrepreneurship programs. If these university projects have all the hallmarks of young startups, we add them to the databank. We should do this because they are healthy for the ecosystem and should be included in our tally. But it should surprise no one that a large proportion of them don't progress as students move on from university (many with debt) and want to get jobs rather than face the risks associated with entrepreneurship. ■

## Part 3 – Company Metrics

There are three main metrics that we use to analyze the fitness of startups – employment, revenue and funding – and they all showed great strength in 2019. However, in some cases, the spoils were concentrated in a handful of companies. ■

### 3.1 Employment

This is an important and complicated part of this report. Throughout 2019, it became apparent that Atlantic Canadian startups were bulking up with staff like they never had before. Patrick Hankinson, the CEO of Concrete Ventures, keeps his own data on Atlantic Canadian startups and tech companies, including employment stats based in part on LinkedIn data. He posted quarterly through the year on social media, highlighting strong growth in employment in the region's startup and tech communities.

When we began surveying founders and CEOs in January, we found the same thing. We got a lot of survey responses on the elite and scaling companies listed in Sections 2.3 and 2.4, and we began to notice staff levels were up by about 50 percent at the companies that responded to our survey.

We began to look into job data on the other companies in late March and early April 2020, either from company websites, our reporting or LinkedIn data. We still saw strong gains in employment, but not as strong as in the surveys. It could have been that we were now tracking the established companies. They have large teams, of several hundred people in some cases, and tend not to grow at the rate of the scaleups. It could also have been that the pandemic had set in, and some companies had already trimmed staff. When we conducted a COVID-19-related survey April 12-17, some 32 percent of respondents told us they had decreased staff since February (though 16 percent had increased staff). Diving into those numbers we saw that 19 companies said they reduced staff, though 13 of those had only cut one position. None of the companies cut more than three employees. We did not have a large enough survey sample to draw concrete conclusions, but our research indicates there had not been a huge culling of staff as of late April 2020. ■

Chart 3.1 - Metrics of Staff Changes, 2019

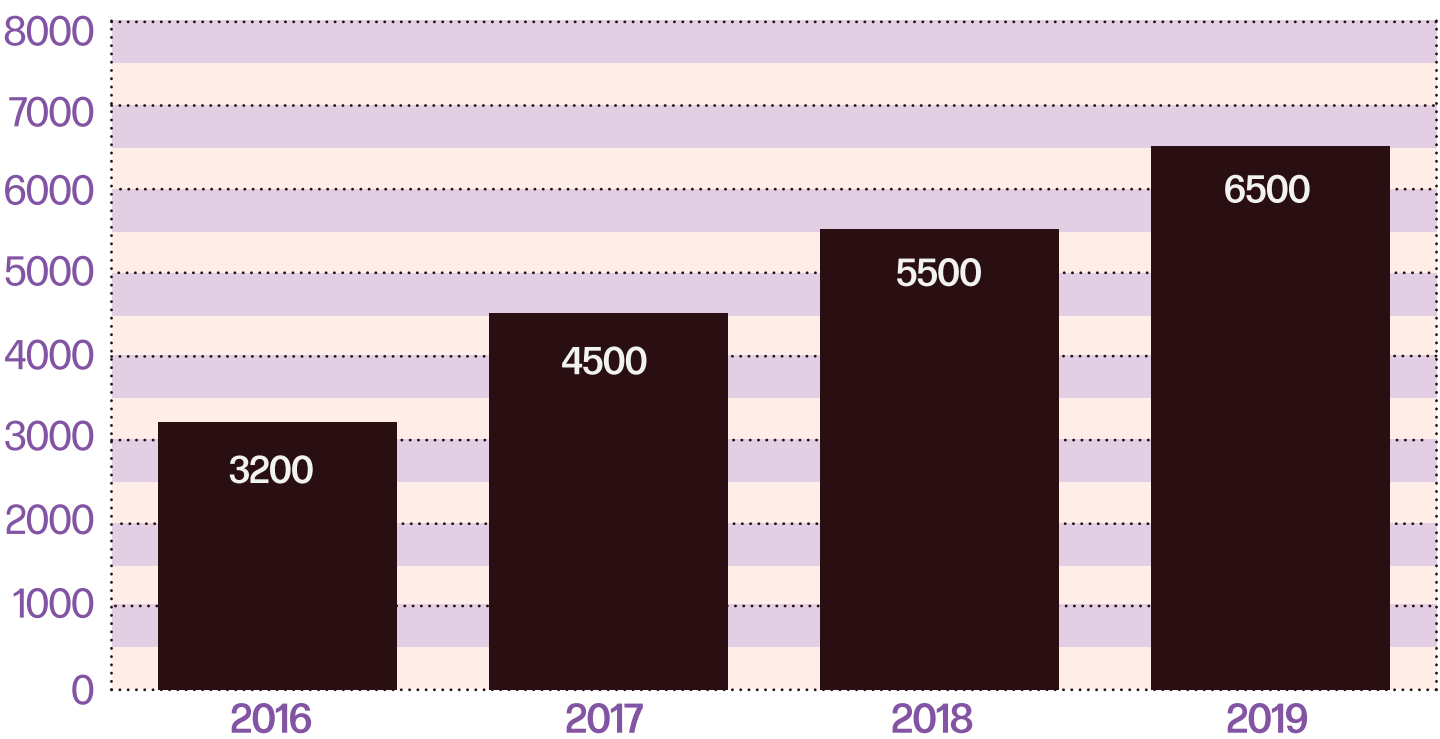
Employment – survey	NS	NB	NL	PEI	Total
No. of jobs	698.5	320.0	300.0	83.0	1,401.5
YoY Change	41%	61%	56%	38%	48%
Employment – total	NS	NB	NL	PEI	Total
No. of jobs	3,190.0	1,799.5	1,197.0	315.0	6,501.5
YoY Change	21%	29%	17%	21%	23%

Source: Entrevestor Databank.

Our research found that about 6,500 people were directly employed at the end of 2019, up from about 5,500 people at the end of 2018. Excluding companies that exited, left the region or went bust, the employment levels at the companies in

the Databank rose 23 percent from a year earlier. As you can see from Chart 3.1, we found even stronger job growth among the companies that completed our survey. Their staffing increased 48 percent in 2019. ■

Chart 3.2 - Startup Jobs, 2016 - 2019



Source: Entrevestor Databank

What drove the job growth? Three things. First, there was record funding in 2018, and second there was strong revenue growth in 2018 and 2019. These two factors gave the ►



► companies the money they needed to go out and hire. It’s no coincidence that the strongest hiring growth was in New Brunswick – total job growth of about 29 percent. That’s a direct result of the province reporting record funding of \$84.7 million in 2018. The final reason for the strong hiring was the expectation of the good times lasting, even accelerating, well into 2020 and 2021. Companies were hiring to prepare for continued growth, bolstering development teams to produce more and better products, and business development teams to generate higher sales.

Before we look at what has happened to the job market during the COVID-19 pandemic, we should note that the labour market for tech talent had grown perilously tight in 2019. Last September, the Atlantic Provinces Economic Council put out a report called Digital Technology Firms: Their Importance and Role in Atlantic Canada’s Economy that highlighted the tight market for tech talent. The report, sponsored by the pan-regional IT group TechImpact, said Atlantic Canada’s post-secondary institutions graduated only about two-thirds of the IT personnel required by industry. There were 1,358 graduates from “digitally focussed” programs at Atlantic Canadian post-secondary institutions in 2017. That is well below the 2,000 workers required by industry each year.

“In Atlantic Canada there are . . . signs that pressures are intensifying,” says the report, whose lead author was Patrick Brannon, APEC’s Director of Major Projects. “The number of job vacancies for the computer and information professional industry in Atlantic Canada has increased from 195 people in Q4 2015 to 480 in Q4 2018.”

Other voices have also called for the region to produce more tech talent. Paul Preston, the CEO of the Newfoundland and Labrador Association of Technology and Innovation, said the province’s university and community colleges now graduate about 50 coders a year, but the Brookfield Institute has said the province will need 2,000 of these people in the next five years. “We’re going to need to get to about 200 [programmers] a year over the next five years,” said Preston. “We know we have to increase the tech talent.” The St. John’s founders we’ve spoken to admitted (at least before March 2020) that it was tough but not impossible to find tech talent. There were problems attracting top people, such as CTOs, but there was plenty of hiring of junior and mid-level programmers.

We’re writing this report in the spring of 2020, and it’s too soon to predict whether the COVID-19 crisis will force skilled workers to leave Atlantic Canada. But there are real concerns that the talent pool could be ravaged by plunging revenues and an inability to raise capital. As of early May 2020, high-growth companies have been able to limit the number of layoffs, but funders and support organizations believe more layoffs are coming. Founders and CEOs in troubled companies are salvaging their teams by a number of means. Some are tapping groups like Innovacorp or NBIF for investment, or seeking additional non-dilutive funding from groups like NRC IRAP or ACOA. In some cases, troubled companies are “lending” their staff to larger or more stable companies so the latter can build products while the former wait for better days. The goal, above all else, is to keep the tech teams together and avoid laying off good people. “It’s probably the hardest thing they’ve done as CEOs – to let people go when there’s no other choice,” said NBIF Chief Executive Jeff White. “We’re natural builders, and it’s just a disgusting thing to go through.” He added that rebuilding teams will be the hardest thing to do in the recovery. “Building the team is the most expensive form of growth,” he said. ■

### 3.2 Revenue

We’ve said it before: revenue is the hardest and most important data to gather on startups. We do our best to gather information on revenues through our surveys and interviews, and have a patchy record in prying information out of founders. In our interviews, some founders are happy to discuss their sales. For example, The Rounds’ CEO Tim Rice told us in an interview his company had revenue of about \$750,000 in its last fiscal year, which ended in August 2019, and as of early April was on track to double that to \$1.5 million in its 2020 fiscal year. When Verafin announced its record \$515 million funding round in September, it revealed it had achieved \$100 million in annual recurring revenue in early 2019. Metamaterial Technologies told us in January 2020 it has booked sales of about \$1 million to \$1.6 million in each year since 2016, and the company then had \$3.5 million in orders on its books.

In our survey, we take whatever information we can get, and have considerable success. First, we ask CEOs to report their revenues in each of the last two years, so we have concrete information on what revenue bracket each company is in and how quickly its revenue is growing. If CEOs choose not to reveal full details on their companies’ revenues, we ask them to reveal their revenue growth rate.

### Chart 3.3 - Revenue Responses to Entrevestor’s Survey

Companies completing the survey	151
Companies with sales that provided full revenue details	68
Companies saying they were pre-revenue	43
Companies that revealed only revenue growth	28
Companies revealing no revenue data	12

Source: Entrevestor Databank

What this reveals is that 92 percent of the companies we heard from – 139 companies – told us something about their revenues. These 139 companies account for 16 percent of the companies in our databank. It’s a decent sample. In 2018, when we had a larger number of responses to our survey, we received revenue data from 139 companies as well.

Given that we have incomplete data, we like to examine the companies in two ways. First, we look at the revenue brackets, and then we look at revenue growth. ■

### Chart 3.4 - Companies in Each Revenue Bracket

	2018	2019
\$1M - plus	15	15
\$500 - \$999	6	13
\$100K - \$499K	18	17
\$1 - \$99K	32	23
Pre-Revenue	46	43

Source: Statistics Canada

For the second year in a row, we have had 15 respondents (or roughly 13 to 14 percent of the total) tell us that their revenues exceeded \$1 million. These companies’ revenues overall grew by 61 percent last year.

While that band has been fairly consistent for a few years, we see movement in two other bands. The \$500,000-\$999,999 band contained only six companies in 2018, sparking concerns that there weren’t enough scaling companies moving up the ranks of the startup community. But in 2019, we saw that there were more than twice as many of these companies, up to 13. Second, companies in the lowest “with-sales” band, between \$1 and \$99,000, fell to 23 from 32. This is a small sample size, but it may suggest that once companies are finding their product-market fit, they are moving more quickly to capture revenues of more than \$100,000.. ■

Chart 3.5 -  
Companies in Each Revenue Growth Bracket

	2018	2019
100% or more	27	30
50% - 99%	5	12
0% - 49%	15	14
Declining sales	5	3
First-time revenue	NA	5

Source: *Entrevestor Databank*, accounting only for companies with revenues of \$100,000 or more in 2018 or 2019.

In assessing the revenue growth, we strip out companies with revenue of less than \$100,000. We're then left with 64 companies on which we have data on revenue growth, and 30 of them in 2019 experienced a doubling of revenues or better. It was the largest single group.

Overall, the companies sharing full revenue data with us said that their revenues in 2019 were 70 percent above the previous year's level. It's the slowest growth in three years, but it's impressive that the region's startups have recorded three straight years of revenue growth of 70 percent or higher. The revenue growth was highest in Newfoundland and Labrador at 133 percent, followed by New Brunswick at 86 percent. The weakest was Nova Scotia at 34 percent.

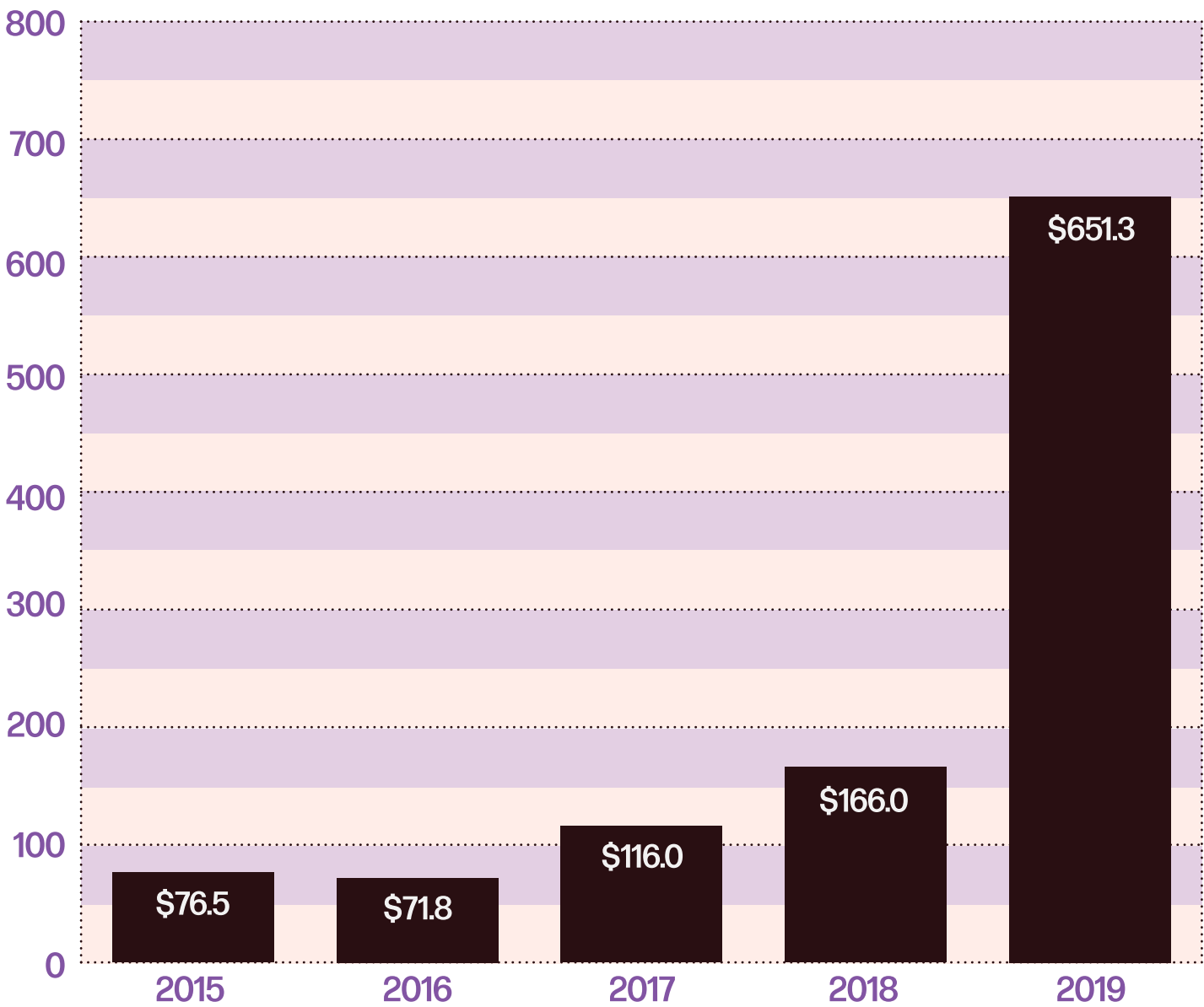
We get revenue data from different companies each year, so this next metric is not a concrete piece of data comparing the same companies year after year. But it is indicative of growth in the community. In 2017, the companies giving us revenue data reported total revenue of \$25.9 million. In 2018, the figure was \$45.3 million, and in 2019 it was up to \$60.1 million. ■

### 3.3 Funding

The news was greeted with disbelief when it broke on Sept. 25th that St. John's-based Verafin, the world's largest financial crime management software company, had closed a \$515 million equity and debt recapitalization. At first, no one was sure how to classify the round, as it included both equity investment and borrowing. That was settled when the CVCA determined that it was a "growth capital round", and that it was the largest ever by a Canadian company.

The Verafin round changed a lot in Atlantic Canada. It allowed the East Coast startup community to strut a little, given that no other Canadian company had ever closed such a massive round. It signaled a hiring boom by Verafin, and concerns that the tight tech labour market in St. John's was about to get tighter. And that one deal ensured that Atlantic Canada would report record fundraising in 2019. The deal was worth more than Atlantic Canadian startups not listed on public stock exchanges had raised in the previous four years - even though the region had record funding in 2018. ■

Chart 3.6 - Equity Funding by Year



Source: *Entrevestor Databank*

The funding data in the accompanying table does not account for money raised on stock exchanges. That is a relatively new part of the East Coast startup experience, so we examine stock market funding separately in Section 3.4. The chart shows how funding has escalated in the past few years, but it does not reveal the problem with funding in 2019.

The good news is that \$651.3 million went into high-growth companies. If we add in the \$29.5 million raised from stock market investors by Dartmouth drug discovery company IMV (See Section 3.4), the total rises to \$680.8 million. This flow of investment capital has huge importance in terms of economic development. These are companies whose revenues and

staffs are rising dramatically each year, and investors are channeling hundreds of millions of dollars into them. They are creating well-paying jobs for young people, and life sciences companies like ABK Biomedical and IMV tend to hire a disproportionate number of female scientists.

The bad news is that this windfall is concentrated in just a few companies. If we use \$680.8 million as our base, Verafin accounted for more than three-quarters of the total. If we add in ABK Biomedical, IMV and MicroSintesis, a whopping 88 percent of the funding is going to just four companies.

The following table shows the companies that raised more than \$2 million in equity funding in 2019:



Chart 3.7 - Major Funding Deals in Atlantic Canada, 2019

Company	Location	Amount	Lead Funders
Verafin	St. John's	\$515M	Spectrum, Information Venture, Teralys, BDC Capital, Northleaf Capital
ABK Biomedical	Halifax	\$40M	F-Prime Capital, Varian Medical
IMV	Dartmouth	\$29.5M	Stock market investors
MicroSentisis*	Charlottetown	\$16.4M	Northern Private Capital
Metamaterial Technologies**	Dartmouth	\$7.8M	Continental Precious Minerals
Outcast Foods	Halifax	\$4M	Angels
Appili Therapeutics	Halifax	\$3.6M	Bloom & Burton
Gemba Software	Saint John	\$2.9M	Build, NBIF, Innovatia
CoLab Software	St. John's	\$2.7M	Y Combinator, Killick, Pelorus, Panache
SomaDetect	Fredericton	\$2.6M	NBIF, Western New York Impact , Investment Fund, New York Ventures
Empowered Homes (Mysa)	St. John's	\$2.3M	Killick, Pelorus, Angels
Global Spatial Technology	Halifax	\$2M	Innovacorp, Ecofuel
Swarmio	Sydney/TO	\$2M	Innovacorp

Source: Company statements

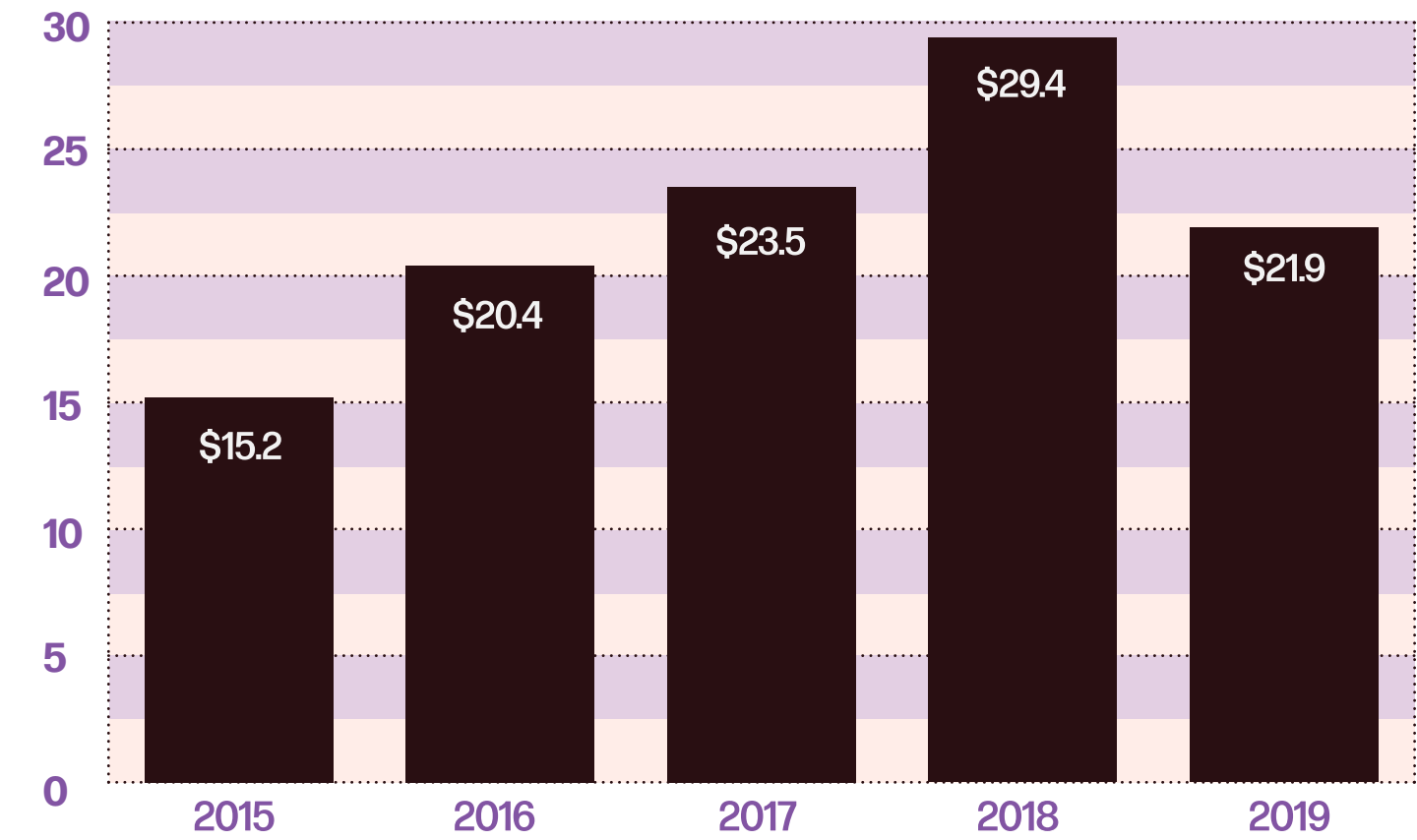
\* A private equity investment (Private equity investors take substantial stakes in companies with strong cashflow, often in leveraged investments; venture capitalists, by contrast, take smaller stakes in high-growth companies, often with the expectation of investing again as the company grows.)

\*\* Metamaterial Technologies was raising capital ahead of its listing on the Canadian Securities Exchange in early 2020. When we interviewed the company late in 2019, its management indicated it had already received commitments of \$7.8 million.

If there is one reason for concern it's that there was only one company raising between \$5 million and \$15 million. The evolution of startups usually requires a progression of ever-larger funding rounds, and that intermediate funding round was too rare in 2019.

Though Entrevestor previously disputed the view that angel funding was declining in the region, the 2019 data (and the subsequent recession) should sound alarm bells. Atlantic Canada recorded \$21.9 million in angel investment in 2019 - a drop of more than 25 percent from 2018 and the weakest figure in three years. What's most concerning is angel funding levels may fall again in 2020, at a time when many startups need funding to weather the recession. ■

Chart 3.8 - Angel Funding, 2015 - 2019 (M)



Source: Entrevestor Databank

The outlook for angel investing improved early in 2019 when the Nova Scotia government enhanced its Equity Tax Credit, which it renamed the Innovation Equity Tax Credit. The good news is that in the region's largest jurisdiction, investors can claim tax credits of 35 percent on investments of up to \$250,000. The move raised the ceiling from \$50,000 previously and brought it up to the same level as New Brunswick. The Nova Scotia government added extra incentives for investments in oceantech and life science companies, granting 45 percent tax credits in these areas. The bad news is that all investment tax credits in Atlantic Canada apply only to residents of the province granting the credit, so the investor pool is really small in every province.

Overall, the ecosystem for funding strengthened in 2019. Build Ventures announced the initial close of its second fund, which it expects will amount to more than \$60 million. Concrete Ventures, the new early-stage investment fund, began making investments in April 2019 and within a year had built up a core

portfolio of eight companies. Pelorus Venture Capital was considering a second fund, but put those plans on hold once the COVID-19 crisis took hold. And there has been more work done on the Atlantic Women's Venture Fund, which had been expected to launch in the summer of 2020.

One Atlantic Canadian investment fund quietly recorded three exits in late 2018 and throughout 2019. Saint John-based East Valley Ventures' website shows that Barrie-Ont.-based gShift was purchased in October 2018, and Victoria, B.C.-based Tutela Technologies sold out in September 2019. In December, Saint John-based Cirrus9 was acquired by Toronto's Carbon60 (See Part 5 for details). Though only one was an Atlantic Canadian company, the exits did return money to EVV, which its members channeled into other companies. "Two of the three exits provided attractive returns for EVV," said East Valley Co-Founder Gerry Pond. "The gShift exit was not material, but provided the company with a growth path." ■

3.4 Stock Market

Our 2018 report was the first to include a section on the stock market, and we decided to break out the stock market data because more companies were going public. Halifax-based Sona Nanotech listed in February 2018, and Halifax-based Appili Therapeutics joined in June 2019. Metamaterial Technologies launched on the Canadian Securities Exchange in early March 2020. Swarmio, which claims dual headquarters in Sydney and Whitby, Ont., has considered a listing, though those plans are on hold because of the recession. In our 2018 report, we wrote: “Barring a stock market crash (which is a real possibility at this point in the economic cycle), the stock market will become an increasingly important facet of the Atlantic Canadian startup community.”

As it turns out, the stock market has become an increasingly important part of the startup community, even though share prices have fallen as of May 2020. We now count seven publicly listed companies within the Atlantic Canadian startup community, and there will be eight if Swarmio is able to list. ■

Chart 3.9 -  
Atlantic Canadian Publicly Listed Innovation Stocks

Company	Sector	HQ	Price*	Market Cap*
Appili Therapeutics	Life Sciences	Halifax	\$1.05	\$48.7M
Bluedrop Performance	EdTech	St. John's	\$0.07	\$7.5M
IMV	Life Sciences	Dartmouth	\$2.52	\$127.6M
Kraken Robotics	Oceans	St. John's	\$0.41	\$59.7M
Medmira	Life Science	Halifax	\$0.07	\$48.1M
Sona Nanotech	Life Science	Halifax	\$1.97	\$102.5M
Metamaterial Technologies	Materials	Dartmouth	\$0.36	\$4.6M
Swarmio	IT	Sydney/TO	Not yet listed	Not yet listed
			Total	\$398.7M

Source: Stock market data from Bloomberg.com.  
\*Prices and market cap recorded on April 21, 2020.

This reading was taken after the COVID-19 crisis began to pressure share prices, but the seven listed innovation companies nonetheless have a total market capitalization of almost \$400 million. It helps in the current climate that four of the seven companies are in life sciences (five if you include Metamaterials, which has a biotech component), a segment that has out-performed the market recently.

In fact, for the first time, we can report on how the region's innovation stocks have performed as a group. Let's assume an investor placed \$1,000 into each of the companies at the beginning of 2019 (in the case of Appili, in June when it listed). Metamaterial Technologies is excluded as it didn't list until 2020. How would this investor have fared after one year of holding this portfolio of stocks? ■

Chart 3.10 -  
Performance of Atlantic Canadian Innovation Stocks, 2019

Company	Price 1/4/19	Price 1/3/20	Value of Investment 1/1/20
Appili Therapeutics*	\$0.75	\$0.70	\$933
Bluedrop Performance	\$0.13	\$0.12	\$923
IMV	\$7.01	\$4.25	\$606
Kraken Robotics	\$0.40	\$0.59	\$1476
Medmira	\$0.01	\$0.01	\$1,000
Sona Nanotech	\$0.26	\$0.12	\$462
Total			\$5399

\*listed in June 2019

Our hapless investor would have invested \$6,000 and ended up with \$5,399. But with luck, he or she would have held on to the stocks because some of these stocks performed well in the pandemic. Medmira is an outlier. Its shares have bounced around one or two pennies for ages, but its work on a COVID-19 test attracted a bit of interest in the spring of 2020. It jumped seven-fold to seven cents. Since the beginning of March 2020, Appili went from 69 cents to \$1.05, while Sona more than tripled in price to 61 cents to \$1.97. Other shares have taken a hit, but the performance of these health-related companies would no doubt have pleased our investor.

We've taken a light tone in describing the publicly listed companies, but there are two serious takeaways from this. First, the life sciences group has embraced stock market listings more than other sectors in the startup community. And the transparency of the stock market helps to demonstrate how powerful this group can be. Sona was not listed among our elite or scaling companies

last year, but during the COVID-19 crisis it has created more than \$90 million of value. As things stand in the spring of 2020, society and investors are placing a premium on healthcare companies and the life sciences group is creating wealth in Atlantic Canada.

The second takeaway is that Innovacorp, one of the region's leading venture capital funds, is in a position to cash in. Innovacorp is an investor in Appili, Metamaterial Technologies and Swarmio (which may list). The first of those investments has done very well lately, and Innvoacorp remains bullish on the other two. The advantage of holding listed companies is that the fund manager can decide when it chooses to exit the investment, rather than waiting around for a buyer to show up. Another Nova Scotian venture capital fund, Nova Scotia Business Inc., was able to decide the timing of its exit from DHX Media because the company was publicly listed. The fund gained almost three times its original investment when it sold its shares in 2014. ■



### 3.5 Companies Led by Women

In 2014, we asked people completing our survey to identify whether their company was headed by a woman or women, whether it was as CEO or Co-CEO. We found that 8 percent of the companies were headed by women at that time, and that these companies raised about 7.5 percent of the equity investment that year.

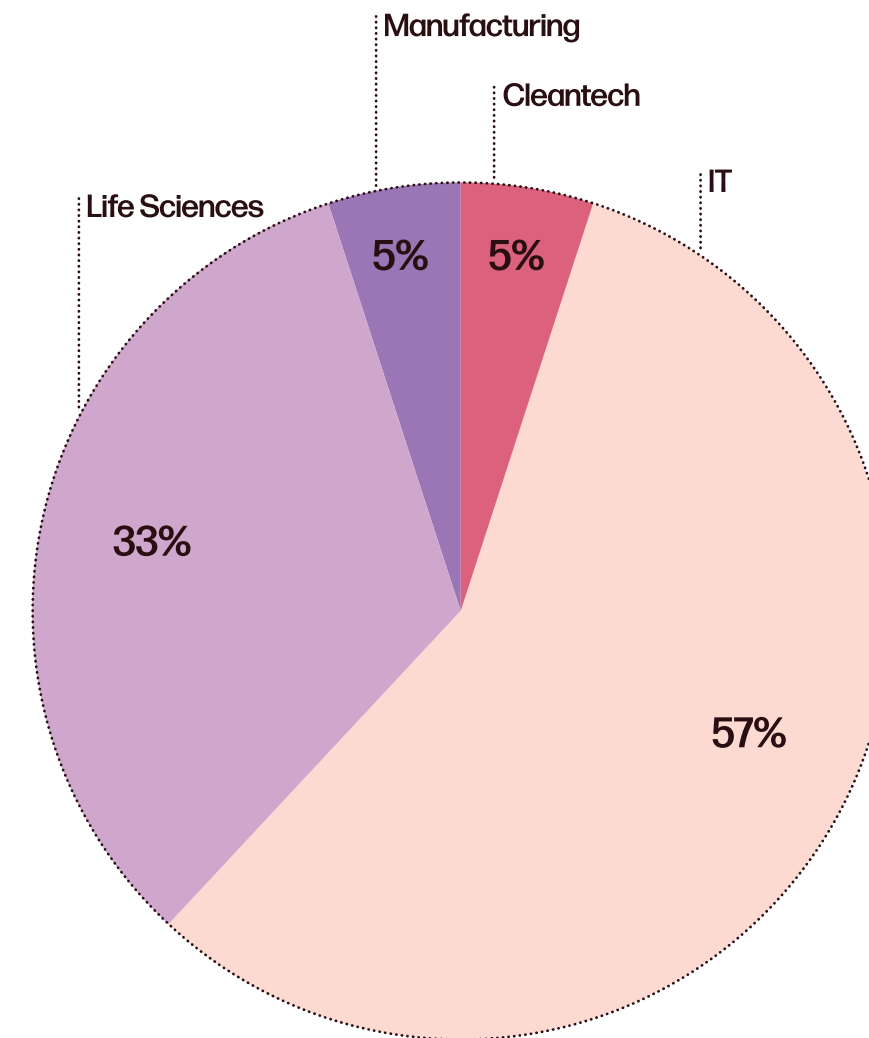
We repeated the exercise in 2019 and found that the community has made some progress in gender equity. We extended our examination beyond companies responding to our survey. We know the names of most CEOs so we were able to consider 632 companies in our databank and found that 94 of them were headed by female CEOs or Co-CEOs. That's 14 percent of the companies under consideration.

Those 94 companies raised a total of \$16.5 million in 2019. In considering what proportion that was of the total fundraising, we've stripped out the massive Verafin deal as it skews all the data. Without Verafin, the companies led by females represented 12.5 percent of the money raised by Atlantic Canadian startups last year. We're still a long way from equity, but there has been significant progress in the past five years.

#### Here are some observations about companies headed by women:

- Some 63 percent of the companies were founded in 2016 or later, and 17 percent of them were founded in 2019. This shows that we're seeing more women starting innovation-driven businesses than would have been the case a few years ago.
- Because there are so many new companies, a high proportion of the female-led companies are still pre-revenue. We estimate 43 percent of these female-led companies haven't made sales yet. We only received revenue data from three female-led companies that have sales - too few to make a meaningful statement about revenue growth. Through our reporting, we know some female-led companies are gaining strong traction. "Our revenue grew 400 percent in March," Squiggle Park CEO Julia Rivard said in an interview in the spring of 2020. Because of the COVID-19 lockdown, the number of Squiggle Park users surged from 1 million to 2.5 million.
- The female-led companies employed 496.5 people at the end of 2019, increasing their staffs by one-third in the previous 12 months.
- One-third of the female CEOs are in the life sciences sector, even though that sector makes up only one fifth of the overall startup community. ■

Chart 3.11 - Sectors of Female-Led Startups



Source: Entrevestor Databank

We've found a lot more women employed in the life sciences sector than in other parts of the startup community. For example, Halifax-based drug discovery company IMV is one of the biggest and best-funded companies in the biotech space. In September, we learned that three-quarters of its 64 employees are female, and women make up half of its management team.

We also asked the CEOs filling in our survey to tell us if they had senior or C-level executives who were female. About one-third of the companies (49 of 151 respondents) said they had at least one female C-level executive. Many of these women are known to be driving forces within their companies. CarbonCure Technologies President Jennifer Wagner was named to the Clean50, which each year recognizes 50 Canadians who have made outstanding contributions to clean capitalism. When BDC Capital's Women in Technology fund invested in Fredericton-based Eigen Innovations in 2018, it cited the leadership shown by Chief Revenue Officer Erin Barrett. ■

## Part 4 – Sectors

From year to year, there is not a lot of change in the sectors that make up the Atlantic Canadian startup community. Well over half the companies are in the IT space, and in the past few years there has been a surge of activity in life sciences (which will likely be strengthened by the COVID-19 crisis). Last year, we were impressed with the number of new startups in the ocean space, but the growth in the sector seems to be confined to Halifax. The sector that surprised us with a wave of new companies in 2019 is cleantech. ■

Chart 4.1 -  
The Startup Community by Sector, 2014 vs. 2019

	2014		2019	
	No. of startups	%age	No. of startups	%age
IT	188	66	465	67
Life Sciences	48	17	140	20
Manufacturing	32	11	42	6
Cleantech	18	6	50	7
<b>Total</b>	<b>286</b>	<b>100</b>	<b>697</b>	<b>100</b>

Source: Entrevestor Databank

One constant in the East Coast startup community over the past several years is that information technology accounted for about two-thirds of the startups. What's changed is that there has been a constant advance of life sciences companies, both in numbers and quality. This trend will likely continue for the next

few years due to two factors: first, the growth of groups like Lab2Market, which are actively promoting companies from academic settings, which will result in new biotech companies; and the COVID-19 pandemic, which is drawing capital and support to ventures involved in healthcare. ■

## 4.1 Information Technology

Chart 4.2 -  
IT Fact Box, 2019

Most of the IT companies in the region went about their business quietly in 2019, with a few champions making news. Verafin, of course, announced its record funding round. Another St. John's tech company, CoLab Software, was the first Atlantic Canadian company to announce it had been accepted into the prestigious Y Combinator accelerator in Silicon Valley. That resulted in CoLab raising \$2.7 million in just 10 days. And relationship intelligence company Introhive placed No. 10 in the 2019 Deloitte Technology Fast50, the first Atlantic Canadian company to break the top 10 in the prestigious pan-Canadian competition. It made the list with revenue growth of 1,700 percent over four years.

Other than that, there weren't any IT companies that really stood out in 2019. That's not to say there were problems in the sector. IT companies increased their staffing by about 21 percent, bringing the total of direct employment to more

Number of Companies	465
Funds Raised	\$554.4 million
Stock Market Funding	0
Number of Jobs	4,112.5
Job growth	21 percent
Revenue growth	69 percent

Source: Entrevestor Databank

than 4,100 positions. Revenues at these companies increased 69 percent.

If there was a problem it was that funding (other than Verafin) wasn't very strong. The 464 companies other than Verafin raised about \$40 million between them – not much, especially going into a recession. ■

## 4.2 Life Sciences

Chart 4.3 - Life Sciences Fact Box, 2019

Number of Companies	140
Funds Raised	\$80.3 million
Stock Market Funding	\$29.5 million
Number of Jobs	1,557.5
Job growth	23 percent
Revenue growth	82 percent

Source: Entrevestor Databank

The growth of life sciences enterprises in recent years has been astonishing. In terms of funding, jobs, and revenues, the metrics are impressive. Equally noteworthy is the strengthening of executive talent in this field.

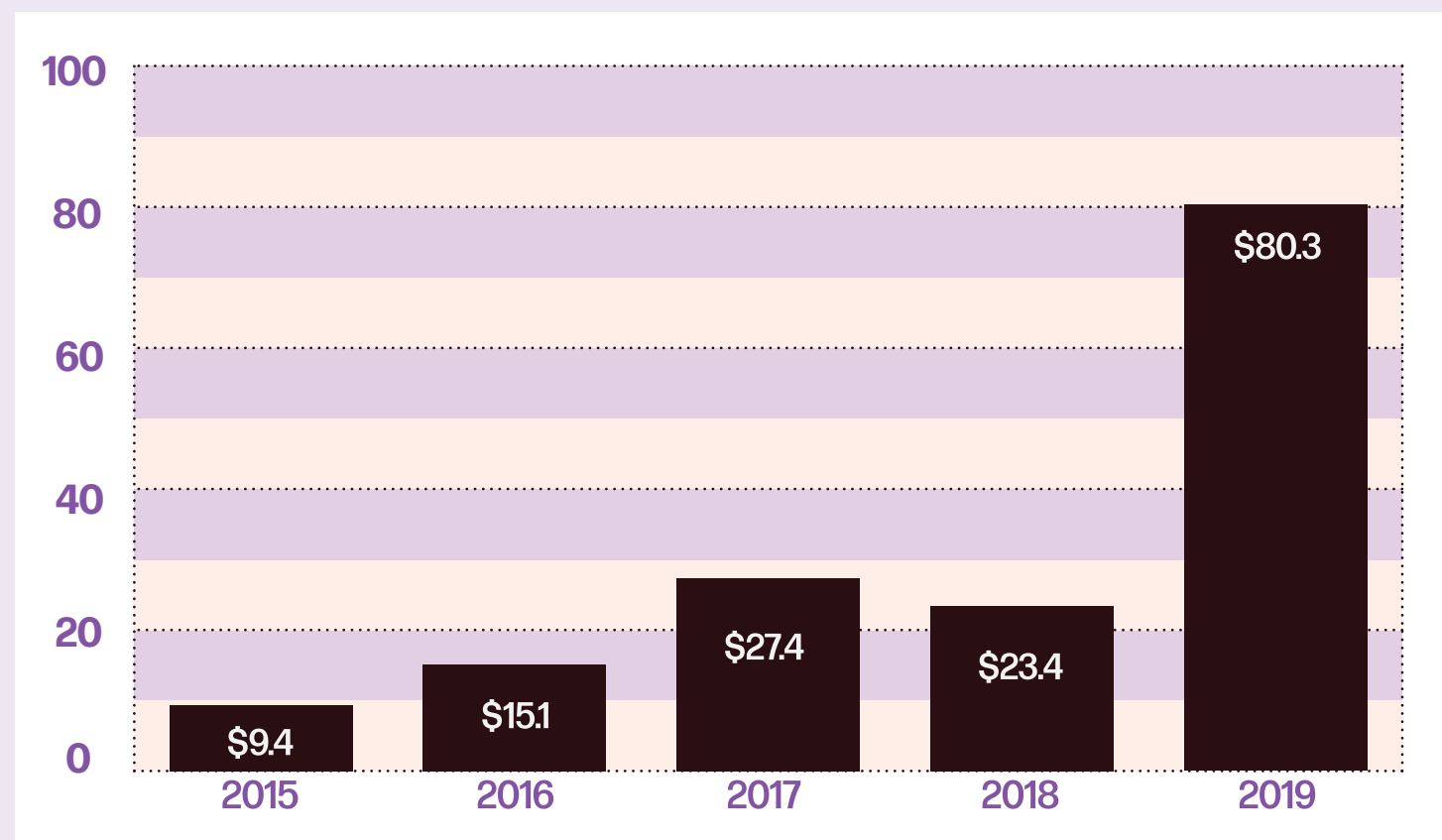
The number of Atlantic Canadian life sciences companies has almost tripled in five years, from 48 in 2014 to 140 in 2019. Last year, there were 25 new life sciences companies launched, accounting for 18 percent of the sector. Life sciences companies in the region increased employment by a weighted average of 23 percent and revenues grew an impressive 82 percent. ►



► Most of the life sciences companies continue to focus on medical technology, and St. John's continues to grow its nascent medtech cluster. But there are two sub-clusters, if you will, in this space that merit attention, and should be considered for support as a group.

First, is the cluster of cannabis companies. We're not talking about companies that simply grow cannabis, but those that are conducting R&D within the sector. For example, Brooklyn, N.S.-based Aqualitas grows cannabis, but it also has an R&D arm Finleaf, which is researching the use of aquaponics in growing flowering plants. We rated cannabis-company 1812 Hemp as one of our Rookie All-Stars because of the speed with which it reached the market. And in Dartmouth, a group of companies in the cannabis space are clustered together in a facility they call the Cannaplex.

Chart 4.4 - Life Science Funding, 2015 - 2019 (M)



Source: Entrevestor Databank

The entire sector attracted equity investment of \$80.3 million, comfortably more than the sector had attracted from investors in all of the previous four years. The main reason for such strong funding was the US\$30 million (C\$40 million) round announced by Halifax-based ABK Biomedical, an astonishing sum for a company that is still pre-revenue. But even if we strip out the ABK round, the rest of the sector raised \$69.8 million - far and away the sector's best year ever. These include the \$16.4 million private

Second is a group that gets little attention in the innovation community - cosmetics and skincare products. We were surprised when we combed through our databank just how many natural skincare products there are. Marc St. Onge, the founder of Halifax-based Bend Beauty, is a serial entrepreneur who sold his first company Ascenta Skin in 2015. He's now started another new company, SmallFood. Amy Risley continues to grow SkinFix, which expects to increase its sales through a deal with Sephora, a French multinational chain of beauty stores. Sharran Quann of Charlottetown has been selling skin products through Quannessence since 2014. There are also smaller and younger companies in the space, such as Indigena Skin Care of St. John's. It seems there is an opportunity to encourage more collaboration, mentorship and interaction between these companies. ■

equity deal announced by MicroSentisis of Charlottetown, and two rounds totalling \$4 million announced by Halifax's Outcast Foods. There were also a \$3.6 million round by Appili Therapeutics and \$2.6 million by Fredericton's SomaDetect, which has done a great job of attracting capital from outside the region.

Our \$80.3 million tally does not include money raised on the stock market, so we should add that early in 2019 IMV of Dart-

mouth raised \$29.5 million in a stock market transaction. CEO Frederic Ors told Entrevestor late in the year the company had enough runway to last to the end of 2020. Appili, which listed in 2019, managed to raise more than \$10 million in capital in early 2020, ahead of the market collapse. And Sona Nanotech's share price tripled in March-April 2020, which gives it flexibility in raising capital as it launches its COVID-19 test.

Funding for the life sciences sector also got a boost when Nova Scotia brought in its new Innovation Equity Tax Credit. It grants a 35 percent tax credit on investments of up to \$250,000 in most sectors, but life sciences is one of two sectors in which a 45 percent tax credit is applied. It should help the sector given that 63 percent of the life sciences companies in the region are based in Nova Scotia.

One further thing to note about the life sciences group is that the management capabilities in the sector have increased dramatically in recent years. First, several leading companies have recruited C-level talent with biotech or big pharma experience. Consider some of the CEOs in the sector: Frederic Ors at IMV, Michael J Mangano at ABK Biomedical, Armand Balboni of Appili Therapeutics, and Darren Rowles of Sona Nanotech. All have vast international experience, and Mangano was the architect of ABK's \$40 million funding round in 2019. The sector has also attracted talent from the IT sector, which deepens the talent pool as most medical devices rely on software. Adaptiv Medical Technologies is now headed by Peter Hickey, the former Co-Founder of Halifax tech company Oris4, while IR-Scientific's CEO is Hickey's old partner at Oris4, Andrew Doyle. Five years ago, one of the problems with the Atlantic Canadian bio community was it was dominated by researchers and academics with limited business know-how. That has changed dramatically and the executive talent pool is far richer now. ■

## 4.3 Cleantech

Chart 4.5 - Cleantech Fact Box 2019

Number of Companies	50
Number of New Companies	19
Funds Raised	\$2.4 million
Stock Market Funding	0
Number of Jobs	406
Job growth	75 percent
Revenue growth	N/A

Source: Entrevestor Databank

Atlantic Canada's cleantech segment really features one champion: CarbonCure Technologies. That's not to say there aren't other companies doing great things. It's simply a recognition that Dartmouth-based CarbonCure stands head and shoulders above its peers in the region.

### Consider the kudos the company received between January 2019 and January 2020:

- CarbonCure was named to the Global Cleantech 100 in January 2019
- COO Jennifer Wagner was named to Canada's Clean 50 in October.
- Also in October, Bill Gates posted a blog highlighting CarbonCure's work
- CarbonCure was named 2020 North American Cleantech Company of the Year by San Francisco's Cleantech Group in January 2020.

The company aims to reduce the amount of carbon dioxide entering the atmosphere by 500 megatons annually, and its technology is already being used in more than 100 plants. Its biggest trophy may come in late 2020. It is one of 10 finalists in the US\$20 million NRG COSIA Carbon XPRIZE Challenge, which recognizes companies that find commercial uses for carbon. CarbonCure has already received US\$500,000 as a finalist and could win a further US\$7.5 million when the two winners are announced this year. ►

► Other highlights of the cleantech sector in 2019 were the growing business of Jaza Energy, which has installed 70 solar energy stations in rural Tanzania, serving over 23,000 people. Island Water Technologies of Charlottetown split into two companies, and its Sentry unit grew strongly in its key markets of California and the U.K. Fredericton-based Stash Energy received 1,500 pre-orders for its initial product, which works with a traditional heat pump to store energy and heat homes. And Fredericton-based Anessa, which makes decision-making software for the waste-to-energy sector, won the New Brunswick BioScience Achievement Award.

The cleantech sector got a boost in 2019 from the launch of 19 companies – a real surge after only six company launches the previous year. We could find no good reason for the surge, unless it is pent-up supply of projects by entrepreneurs after so many years with so few new launches. We’re not familiar with the companies so we can’t comment on the quality, just that it’s good to see the sector growing. Along with the new companies was a surge in hiring, as the companies in the sector grew their staff by 75 percent. There were too few cleantech companies providing data to us to make a meaningful comment on revenue growth. ■

### 4.4 Advanced Manufacturing

Chart 4.6 - Manufacturing Fact Box, 2019

Number of Companies	42
Funds Raised	\$13.1 million
Stock Market Funding	0
Number of Jobs	425.5
Job growth	5 percent
Revenue growth	70 percent

Source: *Entrevestor Databank*

The line between advanced manufacturing and IT is so fine that it’s often hard to tell which category a company belongs in. Given that hardware runs on digital technologies, most manufacturers could be placed in the IT space. That makes it difficult analysing data on the manufacturing segment.

The sector is diversified, and the most excitement in the group was produced by the materials makers. Metamaterial Technologies in 2019 announced its plans to seek a stock market listing, which it said could result in raising \$30

million in equity and non-dilutive capital. Canum Nanomaterials won the New Brunswick Innovation Foundation’s Breakthru competition.

One final note about the manufacturing segment is that it could gain a boost from the development of the ocean industry in Atlantic Canada. Some 16 percent of the ocean technology startups are manufacturers, compared with about 6 percent of the overall startup community. If the oceantech segment continues to gain steam, it could benefit the manufacturing cluster. See the next section for details. ■

### 4.5 Ocean Technology

Chart 4.7 - Oceantech Fact Box, 2019

Number of Companies	74
Number of New Companies	15
Funds Raised	\$3.0 million
Number of Jobs	814.5
Job growth	11 percent
Revenue growth	595 percent

Source: *Entrevestor Databank*

The oceantech fact box needs some explanation. Given that employment rose only 11 percent and revenues were up 595 percent, it’s obvious that there is not a clear trend developing in the highly touted oceantech sector.

This sector is unique for several reasons. It’s only become a bona fide startup sector in the past few years, and it has become the most highly promoted segment of the East Coast startup community, especially in Nova Scotia. The big news on the ocean scene was really the enrichment of the ecosystem. Canada’s Ocean Supercluster, which has said it will provide about \$350 million in R&D funding over five years, announced its first (and so far only) funded project in July 2019. The Supercluster is contributing \$5.9 million to Kraken Robotics’ \$20 million development of the OceanVision system, which will allow clients to lease unmanned submarines to conduct seafloor surveys and store the data in the cloud.

Creative Destruction Lab-Atlantic launched a stream dedicated to ocean technology companies in its 2019-20 cohort.

Memorial University will offer two pilot cohorts dedicated to ocean technology in the Lab2Market initiative, which teaches lean startup methodology to researchers. Nova Scotia’s Innovation Equity Tax Credit program gives preferential treatment to investments in oceantech companies, along with life sciences. The Startup Yard at COVE in Dartmouth has been active, and Ignite in Yarmouth is developing companies that are drawing attention.

One concern frequently voiced by support organizations in the oceans space is a “lack of pipeline”. There are simply too few companies being launched, to use a nautical term. Our research into the segment found there were 15 new oceantech companies in 2019. However, the number of total oceantech companies in the databank rose by 27, from 47 to 74. We can explain this disparity because there are some ocean companies that have been around for a few years but we only learned of them in 2019.

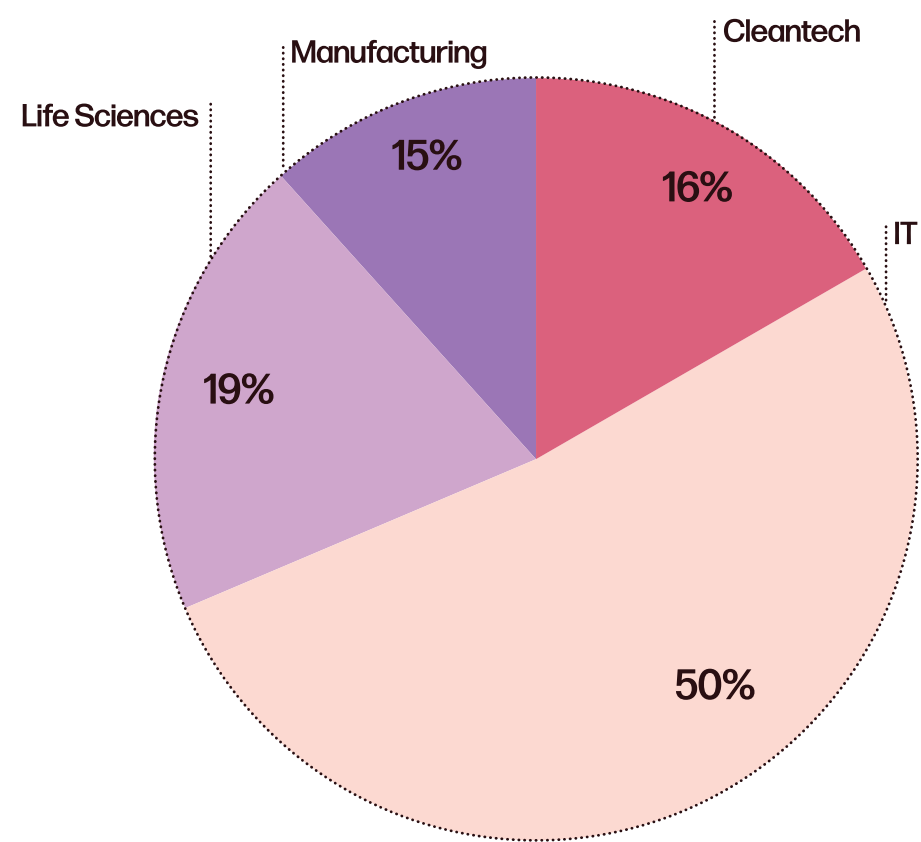
What’s more, there are some companies that are adopting ocean-related applications for their technology, or are now announcing that they have ocean functionality in their suite of applications. For example, Halifax-based Rimot.io was best known in the community for monitoring remote assets such as communications towers, but in 2019 it announced it also had a product for ships. We added Rimot to our oceans tally for the first time in 2019.

When we examined oceantech revenues, we found seven companies were pre-revenue, while three produced huge gains, either first time revenue or gains of well over 100 percent. The revenue growth number has been skewed by a few companies that really found their market, but it’s also an indication of how well some companies in the segment are doing.

Conversely, employment at ocean-related companies rose a modest 11 percent, though they employ more than 800 people. ■



Chart 4.8 - Underlying Sectors in Oceantech Startups



Source: Entrevestor Databank

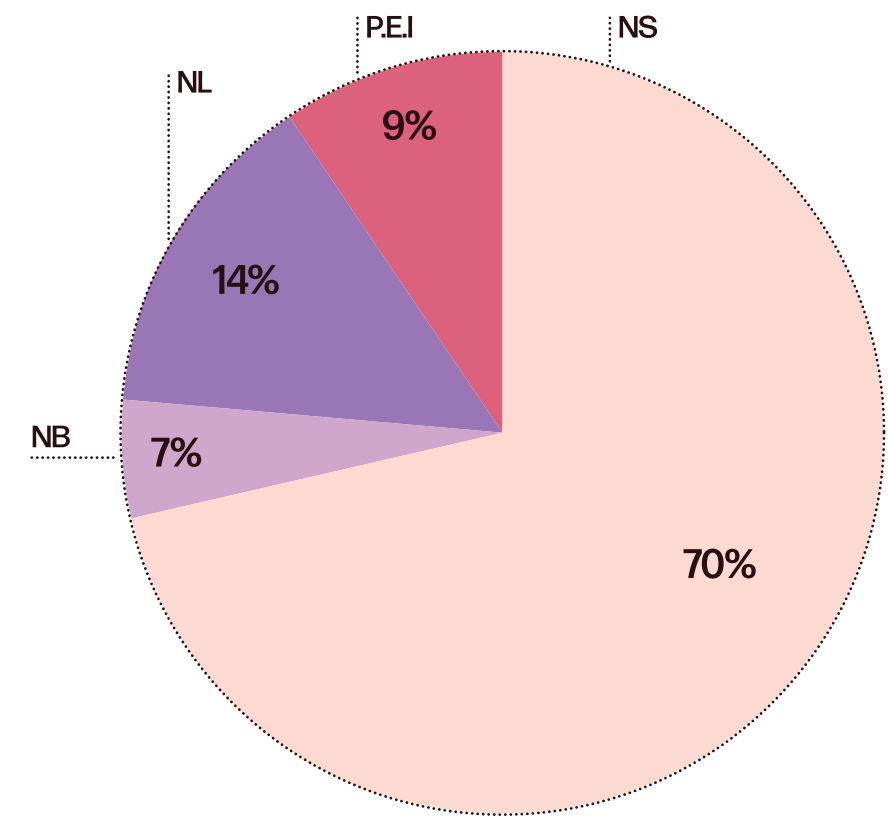
As we mentioned previously, every oceantech company belongs in another, underlying sector. For example, Halifax-based ReelData, which uses artificial intelligence to analyse fish stocks in aquaculture, is primarily an IT company and also an oceantech venture. IT accounts for half the companies in the sector, with an even distribution in the other sub-sectors. There has been some discussion that, as other oceantech hubs appear around the world, Atlantic Canada may have to find a narrow niche to specialize

in, whether it's life sciences, IT or something else. There is no dominant vertical that leaps out as a candidate for Atlantic Canadian specialization, unless it's IT.

Some 15 percent of the oceantech companies are involved in manufacturing, almost three times the concentration of the larger startup community. One of the strengths of the manufacturing sector is the role engineering companies are playing, and how they're developing expertise in producing hardware for marine envi-

ronments. The Halifax-based engineering firm Enginuity, for example, is working with a range of startups and support organizations to build prototypes and products for oceantech startups, such as The Lobster Trap Company and Ashored. Enginuity has a fixed-price Discovery program for entrepreneurs that Alastair Trower, the head of business development at Enginuity, says can "wrap a team around an idea." The stages are designed to correspond with the common funding programs available in Nova Scotia. ■

Chart 4.9 - Location of Oceantech Startups



Source: Entrevestor Databank

The true concentration in the oceantech sector is geographic. By our count, 52 of the 74 oceantech startups in the region are based in Nova Scotia. The province has always had the strongest buy-in to the sector. Some of the young Nova Scotian companies are really promising, such as ReelData, which has clients in several countries, and Ashored Innovations, which placed in the top three participants at the 2019 MassChallenge cohort in Boston. The concentration became more noticeable last year as 86 percent of the new oceantech companies were based in Nova Scotia. What's most concerning is that New Brunswick seems to be ignoring the opportunities in the space, accounting for only five of the oceantech startups.

Our impression of the performance of the ocean companies varies depending on which metrics we examine. Most troubling is the funding, as the oceantech startups raised only \$3 million in 2019. It seems few investors took advantage of the 45 percent tax credit that Nova Scotia granted for investment in the space. The companies in this sector grew their staffs by 11 percent, underperforming the startup community overall. The most audacious metric is the six-fold gain in revenues. We received revenue data from 13 companies, about one fifth of the sector. ■

Part 5 - Exits and Transactions

The year 2019 was a weak period for exits, even by Atlantic Canadian standards. After a few massive deals (Radian6, Q1 Labs, BioVectra, Ocean Nutrition Canada) early in the last decade, we grew accustomed to thinking these big deals happened as a matter of course every year or so. But in the second half of the decade there was only one nine-figure deal, the sale of Halifax-based STI Technologies in 2017, reportedly worth more than \$200 million. Companies kept getting sold, and most continued to grow in Atlantic Canada after the sales, but there were no other blockbuster deals.

From 2016 to 2018, there were 25 deals, or about 8.3 per year. The biggest sale we know of in 2018 was the sale of Panag Pharmaceuticals, which was worth as much as \$27 million. Few of the 25 deals were as big. After eight exits in 2018, we could find only four in 2019, none of which revealed the terms of the deals.

Dragon Veterinary

This is only an exit by one of the founders. Bedford-based Dragon Veterinary provides voice recognition software for veterinarians. Its software understands and interprets the unique terms used by veterinarians with a 95 percent accuracy rate. Co-Founder Shawn Wilkie sold his share in the company early in 2019 to Co-Founder Tomek Obirek, in what Wilkie described as a fair deal for both parties. Wilkie has gone on to found another voice-recognition company, Talkatoo.

The Center for Aquaculture Technologies

The Center for Aquaculture Technologies, a P.E.I.-based research group, was purchased by Cuna del Mar, the aquaculture-focused investment group backed by Christy Walton, in April for an undisclosed price. The companies said that Cuna del Mar bought all the shares of CAT from Linnaeus Capital Partners BV, a Dutch investment group. With operations in P.E.I. and San Diego, CAT is a specialist in researching the ways that aquaculture operations can boost their output through genetic improvement. The research organization also helps with the commercial development of innovative feed and health management products and services. Cuna del Mar is an investment group dedicated to revolutionizing seafood production by focusing on open ocean aquaculture – that is, establishing fish farms offshore. Christy Walton is the widow of John T. Walton, one of the sons of Sam Walton, the founder of Walmart. The operations are headed by Robert Orr, best known as the former CEO of Ocean Nutrition Canada, the Dartmouth-based food additive producer sold for \$540 million in 2012.

Alpha Dog

Bedford-based Alpha Dog Games, one of the leading mobile-game developers in Atlantic Canada, was acquired in October by Bethesda Softworks of Maryland for an undisclosed price. Founded by Jeff Cameron and Shawn Woods in 2012, Alpha Dog developed such games as the MonstroCity series (most recently, MonstroCity Rampage) and Wraithborne. The company has made a name for itself in the development of mobile games, with its 2012 Wraithborne mobile game being downloaded by more than 1.5 million players. The company had 12 employees at the time of the purchase, and became ZeniMax Halifax after the sale, growing to 13 employees in early 2020.

Cirrus9

Saint John-based Cirrus9 was acquired in December 2019 by Toronto-based Carbon60 for an undisclosed price, becoming the East Coast segment of Carbon60's coast-to-coast operation. Founded in 2010 by CEO Fred Bullock, Cirrus9 operated data centres, managed enterprise cloud infrastructure and related hosting services and support. It served customers in both the public and private sectors with a client base extending from Atlantic Canada to British Columbia. The Cirrus9 team became part of Carbon60, and Bullock joined the management team as Senior Vice-President of Business Solutions.

Part 6 - Rural innovation

Chart 6.1 - Rural Startups Fact Box, 2019

A stalwart of the startup community once told Entrevestor, “Innovation tends to be an urban phenomenon.” The fact that 90 percent of the companies covered in this report are based in cities certainly lends credence to that statement. But that is not to say that cities are the exclusive preserve of high-growth innovation companies. In the last couple of years, we’ve witnessed more methodical approaches to developing innovation in rural settings.

The reason innovators tend to thrive in urban environments is the proximity to resources – especially human resources. Funding agencies, universities, mentorship groups – they’re all based in cities. Most Atlantic Canadians live within a few hours’ drive of a city, so it’s not as if these facilities are inaccessible to rural innovators, and there are support groups for rural entrepreneurs. Andrew Button, the CEO of Mash-Up Labs, has been offering virtual curriculum for entrepreneurs for years, and Acadia University has championed innovation in the rural economy. Then in 2018, Propel began to offer virtual curriculum for both its accelerators (one for early-stage companies, the other for scaling companies). That allowed rural IT companies the same programming as their urban peers. Also in 2018, Ignite Labs opened in Yarmouth, to provide an innovation hub in southern Nova Scotia. A year later, Ignite opened a second base, this time in Stellarton, N.S. in Pictou County. The Spark Nova Scotia competition for entrepreneurs outside of Halifax was taken over by Permijot Valia and Sandra Goodwin in 2019, and it awarded \$375,000 in prize money to nine companies.

Number of Companies	73
Funds Raised	\$2.3 million
Number of Jobs	369.5
Job growth	15 percent
Revenue growth	54 percent

Source: Entrevestor Databank

In the past few years, we’ve seen an increasing interaction between the rural organizations, the companies they work with, and the support organizations in larger centres. Ignite has signed an agreement to cooperate with the Start-Up Yard at COVE in Dartmouth, and its companies like BlackWatch.Tech have been working out of the Dartmouth facility. BlackWatch also entered (and won \$25,000 in) the Volta Cohort pitching event in May 2019. Enginuity, the Halifax engineering firm, has been helping rural companies like The Lobster Trap Company of Yarmouth make their prototypes and get products to market.

Nova Scotia has shown itself to be the farthest ahead in supporting rural innovation, with most of the programs described here taking place in that province. The province that has shown the least progress is Newfoundland and Labrador. Of the 86 companies we cover in the province, all but three are in the greater St. John’s area. There is work being done to address the situation. In Corner Brook, Memorial

University’s Grenfell Campus and the College of the North Atlantic have come together to form the Navigate Entrepreneurship Centre. And now that Genesis has solidified its St. John’s base with the acquisition of the Common Grounds co-working space (now Genesis Co-working), the organization aims to do more to encourage entrepreneurship in Western Newfoundland and in Labrador.

There have been several rural companies that have been leaders within the startup community for years, and continue to advance. Miramichi-based fintech company Patchell Brook Equity Analytics raised \$360,000 in equity funding in the fall of 2019, after two years of strong revenue growth. Halifax Biomedical, which is based in Mabou, Cape Breton, has had great success selling its imaging product in U.S. hospitals. And there is a wave of young companies. What’s more, we’re not seeing a surge of rural zombies. By our calculations, rural companies make up 10 percent of the startups in the region, and they account for 14 percent of the zombies we tracked in 2019.



## Part 7 - Provincial Data

Chart 7.1 -  
The Startup Community by Province, 2014 vs. 2019

	2014		2019	
	No. of startups	%age	No. of startups	%age
NS	153	53	371	53
NB	79	28	180	26
NL	28	10	86	12
PEI	26	9	60	9
<b>Total</b>	<b>286</b>	<b>100</b>	<b>697</b>	<b>100</b>

Source: *Entrevestor Databank*

In the last five years, the greatest growth in the startup community has been in Newfoundland and Labrador, which has more than tripled its number of startups. While the whole community has more than doubled its companies, the growth in Newfoundland has been astonishing. ■

## 7.1 Nova Scotia

Chart 7.2 - Nova Scotia Fact Box 2019

Number of Companies	371
Funds Raised	\$83.6 million
Number of Jobs	3,190
Job growth	21 percent
Revenue growth	34 percent
Elite Companies	27
Scaling companies	23
New companies	100
Failures	29
Zombies	50

Source: *Entrevestor Databank*

The important activity in the Nova Scotia startup community in 2019 was in the development of the ecosystem rather than the performance of companies.

Certainly, many companies had highlights, which we've already cited. ABK Biomedical raised \$40 million in a VC round. CarbonCure Technologies was named the 2020 North America Cleantech Company of the Year. Appili Therapeutics listed on the TSX Venture exchange. Metamaterial Technologies began a listing process it believed would culminate in access to \$30 million in capital. And overall, there was pretty good performance by the broader community. With 100 rookie companies, the number of startups in the province increased to 371. Taken together, these companies produced pretty good growth metrics, with jobs increasing 21 percent and revenue 34 percent.

One thing to notice about these highlights is that none of them are IT companies, even though IT accounts for more than 60 percent of the Nova Scotian startups. While the IT group includes several elite Nova Scotian companies like SimplyCast and Dash Hudson, huge strides have been made in other sectors, especially life sciences. Startup Genome, the Silicon Valley-based evaluator of startup ecosystems, noted in early 2018 that the life sciences sector is one of the strengths of the Atlantic Canadian ecosystem, and it is certainly true in Nova Scotia. As the COVID-19 crisis deepens, it's becoming more and more apparent that several

Nova Scotia life sciences companies are making great strides. As well as the ones named in the previous paragraph, other companies like Adaptiv, Sona Nanotech, Densitas and DeCell have advanced dramatically in the past year.

The real advances came in the ecosystem, as there was a maturing of the support structure. There are four things to note about the deepening of the ecosystem. The first two apply to the entire Atlantic Canadian ecosystem, but gel nicely with the other developments in Nova Scotia:

**1. A Focus on Scaling** – Nova Scotia Business Inc. will soon launch its third cohort of Scale Up Hub: Cambridge, in which companies commit to spending time in the Boston area to develop markets in New England. NSBI is interested in expanding the program to include other cities around the U.S. and the world. It is one of several programs that encourage the sales of growing companies.

**2. Increased Emphasis on Research** – Lab2Market and the Springboard Atlantic "Tables" (groups of academics and executives in target industries) will roll out in the next two years, accentuating the role of applied research in the creation of new companies.

**3. Development of the Oceantech Ecosystem** – Nova Scotia is far ahead of other provinces in this development. The Start-Up Yard at COVE is growing in importance as its companies are attracting investment and drawing attention within the startup space. Start-Up Yard and the engineering firm Enginuity are working with groups like Ignite to provide an urban base for innovators from outside Halifax so they have access to the resources in the region's largest city. And the Creative Destruction Lab-Atlantic, offered through Dalhousie University, has a stream dedicated to ocean technology, providing curriculum and funding opportunities. In total, the oceantech ecosystem is developing, and even attracting startups from outside Canada to spend time in Nova Scotia.

**4. A Strengthening of Links Between Organizations** – There has been an explosion of organizations working in the startup space in the past few years, and there are groups working to link the various components of the ecosystem. ACOA has been working at this across the region for several years with the Atlantic Growth Strategy. Now ONSIDE – which stands for the Organization for Nova Scotia Innovation-Driven Enterprise – is working to advance the province's work in the Regional Entrepreneurship Acceleration Program at the Massachusetts Institute of Technology. ONSIDE calls itself a "backbone organization" meaning that it aims to provide a link between the various groups and strengthen their operations. In Halifax, the Halifax Innovation District, overseen by the Halifax Partnership, is performing a similar function within the capital city, acting as a conduit between the various support groups. ➤

► The Cape Breton startup community continues to advance with a few companies leading the way. Security, which helps SMEs meet the cybersecurity standards of the enterprise customers, launched its product in January 2019 and its revenues increased 3.8 times in 15 months. Orenda Software, whose solution interprets impressions about an organization and calculates the potential impact on its brand and reputation, received more than \$850,000 in support from the federal government early in 2020. It intended to use the money to expand from five to 12 employees.

After we held a presentation of our 2018 data research in Sydney, we ran an article on *Entrevestor* recommending two things that would improve the Cape Breton startup community. First, we recommended a computer science program at Cape Breton University. The enthusiasm of the Sydney tech community is infectious, and it would gain momentum with an academic program. Second, we recommended a Cape Breton angel fund. There are Cape Breton residents and expats who would support a fund for their own entrepreneurs, but not necessarily a Nova Scotian or Atlantic Canadian fund. It would help drive badly needed capital to the young companies on the island.

One final note about the Nova Scotian ecosystem is there should be a long-term boost from the launch of the Innovation Equity Tax Credit. The big move was the Finance Department raising the ceiling for qualifying investments from \$50,000 to \$250,000. That means a scaling company needing \$1 million needs to find four angel investors, rather than the 20 previously. The added incentives for oceantech and life sciences companies should help those sectors in the long term. ■

## 7.2 Halifax

Chart 7.3 - Halifax Fact Box 2019

Number of Companies	271
New companies	62
Funds Raised	\$78.6 million
Number of Jobs	2,535.5
Job growth	23 percent
Revenue growth	33 percent
Publicly Listed Startups	5
Stock Market Funding	\$29.5 million
Ocean Companies	41
Elite Companies	25
Scaling companies	19

Source: *Entrevestor Databank*

In our 2018 report, we broke out metro Halifax as its own jurisdiction because the Nova Scotian capital has such a strong concentration of startups. We’ve repeated the exercise in our 2019 report, looking at how the region’s largest city is blossoming into an innovation centre.

While impressive, the numbers don’t tell the whole story. High-growth companies in Halifax employed more than 2,500 people at the end of 2019, and their employees increased at a rate of about 23 percent. Their revenues rose 33 percent, which wasn’t bad but underperformed the pan-regional startup community by about half. The lone stock market funding last year was by IMV, based in Dartmouth, and Halifax companies accounted for 56 percent of the capital raised from conventional channels (if we strip out the mammoth Verafin deal).

The numbers are fine, but more important is the growing complex of intertwined support organizations. The Halifax Innovation District has become more than a patch on a map. Volta has become something more than a place where geeks hang out, and the Start-Up Yard at COVE has evolved into a pillar of the city’s ecosystem. The innovation community is multifaceted and is developing a range of companies that could never be produced by a community excelling in just one sector.

The boundaries of the innovation district include two multi-disciplinary universities, Dalhousie and Saint Mary’s, the former being the largest research institution in the region.

Dalhousie’s Sexton Campus, with the Engineering faculty and the Emera Idea Hub, is a short walk from Volta, which has become the main meeting space for the city’s innovators. Though Volta’s strength is in IT, the organization is spreading its wings into other sectors, such as working with BioNova and the Nova Scotia Health Authority on medtech devices that incorporate digital technologies.

Halifax is becoming a hub for ocean-related innovation, with CDL-Atlantic offering a special stream in nautical innovation, and Start-Up Yard at Cove offering ocean-front work space adjacent to a community college. Enginuity in Spryfield is an engineering facility offering specialist work in ocean-related products, and has a special package for startups needing to get to prototype.

The western end of the Innovation district features the medtech ecosystems – Dalhousie University’s medical school, the hospitals, the Labs at Innovacorp on Summer Street. But again, this bio-hub is within walking distance of the Goldberg Building at Dal, the home of the university’s Faculty of Computer Science, whose student base has been increasing by 20 percent annually recently.

The result of all this cross-pollination is high performance in a range of sectors. There are some tremendous IT companies in Greater Halifax – Manifold, Proposify, Dash Hudson and Simply-Cast, to name a few. And there are excellent manufacturing companies, such as Metamaterial Technologies, fine cleantech ventures, such as Carboncure Technologies, and life sciences companies such as IMV, Appli Therapeutics, and Sona Nanotech. The diversity in the ecosystem and clustering of complementary facilities is producing an ecosystem that can develop world leaders in a range of disciplines. ■

## 7.3 New Brunswick

Chart 7.4 - New Brunswick Fact Box, 2019

Number of Companies	180
Funds Raised	\$19.5 million
Number of Jobs	1,799.5
Job growth	29 percent
Revenue growth	86 percent
Elite Companies	10
Scaling companies	13
Failures	8
Zombies	23

Source: *Entrevestor Databank*

It would have been difficult for New Brunswick in 2019 to outdo its performance of 2018, especially in terms of funding. The province in 2018 generated \$84.7 million in equity funding, including three investment rounds worth more than \$10 million each, by Sonrai Security, Introhive and Resson. Funding in 2019 fell by three-quarters, down to \$19.5 million. It seems like a disappointment after a stellar 2018, but we should bear in mind that New Brunswick in 2019 recorded the fourth-highest level of funding of any year since 2011.

We should also remember that the wave of funding in 2018 bore fruit for many startups in 2019. We received revenue information from 23 New Brunswick companies and they revealed healthy growth in sales. Their collective revenues rose 86 percent from the previous year. And our research showed New Brunswick startups generated a 29 percent increase in employment – the strongest job growth in the region. Our news coverage captured the progress made by several companies and every phase of development. We’ve reported on promising newcomers like cybersecurity company Gray Wolf Analytics and cannabis company 1812 Hemp. We’ve also posted articles about young scaling companies Kognitiv Spark, which was named to Delotte’s Companies-to-Watch list as a part of the 2019 Technology Fast50 Awards, and was a finalist in the 2019 Microsoft Mixed Reality Partner of the Year Award. And of course, we’ve reported on the elite companies in New Brunswick. Agtech company SomaDetect raised \$2.6 million in equity financing, and then received a \$3.9 million grant from SDTC. Fredericton’s SmartSkin raised \$4.5 million in non-dilutive funding. And Saint John-based Gemba Software Solutions (the developer of ProcedureFlow) raised \$2.9 million in equity funding from Build Ventures, Innovatia and NBIF. ►



► The biggest corporate news for the year in New Brunswick concerned Introhive, which became the first Atlantic Canadian company to breach the top 10 of the Deloitte Tech Fast50. Introhive had raised a US\$15.2 million equity and debt round in June 2018, then buttressed it by gaining a \$1 million loan from ACOA in early 2019. Late in the year, observers saw why the company had been able to raise so much capital. Deloitte placed Introhive at No. 10 of its Fast50, saying the company had increased revenue 1,700 percent over the previous four years.

Through it all, the University of New Brunswick’s J. Herbert Smith Centre for Technology, Management and Entrepreneurship turned in a performance so stellar it almost justified the length of its name. UNB TME, as it’s commonly called, continued to generate new companies and provide a range of programs to support companies regardless of where they were in the startup lifecycle. When we held our briefing on our Atlantic Canada Startup Data report, academic Jonathan Calof called UNB TME the “Dhirendra Machine” as a salute to its Chair Dhirendra Shukla and complimented the number and quality of companies it produces. The Dhirendra Machine was fired up in 2019. It continued to nurture young companies, many of which received kudos throughout the year. Canum Nanomaterials won the 2019 Breakthru competition, while Gray Wolf Analytics (headed by Shukla) and Vertiball gained customers through the year. Potential Motors, whose CEO went through the Masters of TME program, brought Marcel LeBrun and Chris Newton, two of the leading tech investors in the region, on to its board. The range of programs offered by UNB TME is what makes it remarkable. As well as the academic programs, it oversees two accelerators (The Summer Institute and Energia Ventures), the I-Stem program to teach entrepreneurship to researchers, and Scale Up Atlantic, which puts late-stage companies through Babson College’s Scalerator program.

The success of UNB TME highlights the biggest problem with the New Brunswick ecosystem: most of the activity is in Fredericton. If we break down startup activity in New Brunswick in 2019, we see Fredericton accounted for 46 percent of the jobs, 66 percent of the new companies, and 74 percent of the funding. Fredericton has the advantage of being home to the province’s largest research institution, UNB, and that has a huge impact on the development and success of startups. What’s really troubling is the lack of new companies in the other centres, because that indicates they risk being left behind by the faster-growing communities. We counted eight new companies in Moncton and three in Saint John. We might have missed some (if so, it wasn’t from lack of trying) but for several years we’ve seen these cities lagging in the launching of new companies.

Having said that, we do have to recognize the work being carried out at Venn Innovation in Moncton. The organization has extended its mandate beyond the Moncton area to become an innovation hub for the province and region. It has been working with academic Jonathan Calof to host competitive intelligence seminars around the region. Its Entrepreneur-in-Residence Alicia Roisman Ismach is leading the development and support of a fintech cluster in Atlantic Canada, heading a trade mission to the Money 20/20 conference last October.

Ismach is part of Venn’s international recruitment drive, bringing in specialist talent from around the world. Ismach is a native of Argentina who has spent most of her career in the Israeli tech sector. She joined Venn at the same time as Mexican startup specialist Alicia Grayeb, who is Venn’s Manager of Startup Services. South African native Mischa Jacobs is the head of communications and events coordination. They’ve joined a team that has won recognition lately: Jonathan Dunnett, Venn Innovation’s Program Manager of Markets and Insights, last year was a finalist for the Technology Councils of North America’s first-ever innovation awards. ■

## 7.4 Newfoundland and Labrador

Chart 7.5 - Newfoundland and Labrador Fact Box, 2019

Number of Companies	86
Funds Raised	\$530.6 million
Number of Jobs	1,197
Job growth	17 percent
Revenue growth	133 percent
Elite Companies	8
Scaling companies	6
New companies	21
Failures	9
Zombies	8

Source: *Entrevestor Databank*

Even if Verafin did not exist, the Newfoundland and Labrador startup community would have had a really good year in 2019. Of course, Verafin does exist, and it did raise \$515 million in equity and debt in September 2019. As we explained in Section 2.1, that megadeal dominated the news in 2019 and is a testament to the company’s management team and the ecosystem in St. John’s. But even if we look past that deal, there was a lot to like about the performance of the region’s northeastern province.

The other piece of big news to come out of Newfoundland and Labrador was not one but two companies being accepted into the Y Combinator accelerator in Silicon Valley. CoLab Software, which makes advanced design and manufacturing collaboration software, was the first to announce it had been accepted into the prestigious program. CoLab capitalized on its Y Combinator connections by raising \$2.7 million after the cohort ended. Then it emerged that a sec-

ond St. John’s company, Sequence Bio, also attended the program. Sequence made less noise about the accelerator, preferring to highlight the launch of its NL Genome Project, which will collect genetic samples from 2,500 Newfoundlanders with the goal of improving the development of new drugs.

In total, Newfoundland and Labrador companies other than Verafin raised \$15.6 million in 2019 – more than Newfoundland companies have raised in all but two years since 2011. Some of the funding came from Killick Capital and Pelorus Venture Capital, which have been strong backers of companies in the province, and Pelorus has spoken about raising a second fund. “We have not started actively fundraising for Fund 2 but we would like to continue investing in Newfoundland and Labrador because we think it is a strong ecosystem,” Pelorus Director Chris Moyer told *Entrevestor* in June. “We think it is the strongest in Atlantic Canada.” Moyer later said

the fundraising plans were put on hold because of the COVID-19 crisis.

We received a strong response to our survey from Newfoundland and Labrador startups, with 27 percent of the 86 companies completing the form. What we saw was stellar job growth, led by the scaling and elite companies. Overall, employment at the province’s startups increased 17 percent, so they were employing 1,197 people. What was most impressive was the revenue growth – up 133 percent. There were concerns late in 2019 that the market for technology talent was too tight in St. John’s and that the companies would not find the people they needed to grow. By early 2020, we were hearing that companies were managing to find junior and mid-level developers, but the problem was in finding senior people, like CTOs. By spring, the big concern was that the companies had assembled great teams, and now they had to maintain their staffs in the face of the COVID-19 lockdown. ►



► Last year, we reported on the beginnings of the life sciences sector in St. John's, and that flourished in 2019 into an interesting cluster of medtech companies. The strength of the group is its ability to work closely with medical professionals through the Bounce Health Initiative, as well as the Living Labs and Test Beds program at the Eastern Health Authority. While Sequence Bio has been going for several years, most of the other medical-ly focused companies are only a year or two old, such as:

- BreatheSuite, which helps people use inhalers properly;
- Polyunity, which uses 3D printers to create medical simulations of parts of the human body. These can be used to train medical professionals around the world;
- Granville Biomedical, which is improving women's health by 3D printing vaginal simulation products;
- And Cyno, which has developed a healthcare platform offering secure online health services.

Memorial University of Newfoundland has always been a cornerstone of the island's innovation community, and the university has deepened its ecosystem in the past couple of years. Genesis, MUN's innovation hub, has found the silver bullet for incubating startups: idea-stage companies can attend the Evolution program, which helps them understand their product-market fit; and the more successful can graduate to the Enterprise program, which helps them to scale. In 2019, the organization launched its own \$775,000 micro-fund and purchased the Common Grounds co-working space, rebranding it as Genesis Coworking.

The Memorial Centre for Entrepreneurship has established itself as a force in the development of new companies at MUN in just a few years. The MCE is dedicated to helping MUN students and faculty learn about entrepreneurship and get their businesses off the ground. Several noteworthy startups are past winners of the MCE's Woodward Cup, which provides seed funding for young companies. MCE is also a key component of the Bounce Healthcare initiative, which is helping to generate medical tech companies in the province. MUN deepened its oversight in innovation with the appointment of Paula Mendonça as Director of Innovation and Entrepreneurship. In 2020, Memorial is due to be one of three Canadian universities offering pilot projects in the Lab2Market program, which works with researchers on turning their discoveries into businesses. The MUN stream will focus on oceantech enterprises.

As we mentioned in Part 6, the one thing Newfoundland and Labrador needs to work on is rural innovation. We haven't been able to find any activity off the Avalon Peninsula, and we hope greater effort within the ecosystem will increase the launch of startups in other parts of the province. ■

## 7.5 Prince Edward Island

Chart 7.6 - P.E.I. Fact Box 2019

Number of Companies	60
Funds Raised	\$17.6 million
Number of Jobs	315
Job growth	21 percent
Revenue growth	75 percent
Elite Companies	4
Scaling companies	4
New companies	11
Failures	1
Zombies	11

Source: *Entrevestor Databank*

The thing that stood out in Prince Edward Island's startup community in 2019 was the big deals, especially in the Island's vaunted life sciences sector. Led by the PEI BioAlliance, life sciences has long been a strength on PEI and in 2019 it produced transactions that brought in capital for the biotech community.

The biggest of these was the Charlottetown-based drug manufacturer BioVectra being sold to U.S. private equity firm H.I.G. Capital in October for as much as US\$250 million (C\$330 million) – more than three times the price it sold for almost six years earlier. BioVectra's owner, British pharmaceutical company Mallinckrodt plc, agreed to the sale that included both a fixed payment immediately and a deferred payment that would depend on the company's performance. Six months earlier, BioVectra had announced a five-year, \$145 million expansion to its facilities in Charlottetown and Windsor, NS, and plans to add 150 new employees. It is being financed in part by a \$37.5-million contribution from the federal government's Strategic Innovation Fund.

In June, Charlottetown-based MicroSintesis, which has developed a product to ensure gut health in animals, sold a minority stake for \$16.4 million to John Risley's private equity fund, Northern Private Capital. Two months before that, the P.E.I. research group Center for Aquaculture Technologies was bought for an undisclosed sum by Cuna del Mar, the

aquaculture-focused investment group backed by Walmart heir Christy Walton.

The Microsintesis financing was a landmark deal for P.E.I., bringing private equity capital into P.E.I. for the first time. It was the main reason P.E.I. booked funding of \$17.6 million, the most ever in a single year. It was not the only deal. Island Capital Partners has been an active investor (as well as providing strong mentorship to the Island community), and has co-invested in a few deals with Natural Products Canada, the Charlottetown-based group that supports companies across Canada whose goods are made of natural substances. Island Capital and NPC both invested in Island Water Technologies, the Charlottetown company whose Sentry water monitoring solution has been selling especially well in California and the U.K. The two funding bodies also teamed up to participate in PhotoDynamic's \$2.3 million round in early 2020, which will help finance the launch of its teeth-cleaning product in the autumn.

Another facet of the life sciences community on P.E.I. is the strength of the agtech enterprises. Agyle Intelligence, whose software automates the process of analyzing collected data, especially in the food industry, experienced a 500 percent growth in revenues in 2019. And Fieldetect was a finalist for the BioInnovation Challenge on the strength of its hand-held, portable device called LabAnywhere, which can quickly test animals on farms to see if they're carrying viruses. In 2020, the University of P.E.I. team behind the company won a grant of \$355,000 to convert LabAnywhere into a medtech device that could test for COVID-19 in humans.

The non-bio side of the startup community in Charlottetown continued to make headway as Startup Zone pressed ahead with its accelerator program for early-stage companies. Its website says there are now 80 member companies, three-quarters of whom have increased revenues since joining.

One highlight of 2019 was the Mentorcamp held in Charlottetown in September. As well as providing a chance for mentorship for several Atlantic Canadian companies, the event also featured a compelling discussion on the various phases of fundraising, from the first hundred-thousand dollars to more than \$10 million. ■



# Part 8 - The Atlantic Canadian Ecosystem

This is our seventh report on Atlantic Canadian startup data, and we're still noticing ways in which the ecosystem that supports innovation-driven companies is evolving. In the early years, we witnessed the growth of foundational organizations, such as Volta, Genesis, Propel, Build Ventures, and the network of life sciences groups. In recent years, the improvements have been more targeted. In our 2018 report, we chronicled the growth of programs that teach sales curricula. In 2019, the improvements were pronounced in the academic sphere, and there were other improvements in sundry areas. We're examining media coverage of startups for the first time, because the broader media is finally taking notice of the great things happening in the startup space.

## 8.1 Programs at Post-Secondary Institutions

In June 2017, noted American academic Steve Blank told Entrevestor in an interview, "It's almost a criminal waste that there isn't already an I-Corps here in Canada." He can call off the cops. Several pilots for Lab2Market, the Canadian equivalent of I-Corps will take place in Canada in 2020 and 2021, and Atlantic Canada is playing a key role. University of New Brunswick has already completed its first cohort of a similar program called I-Stem, and is planning its second cohort late in 2020.

Lab2Market is a new pan-Canadian program based on the successful I-Corps program in the U.S. and a similar program in the U.K. The program will work with PhD candidates and post-doctoral researchers to determine whether their scientific discoveries could be developed into startups.

Ryerson, Dalhousie and Memorial universities will hold the pilot sessions in 2020 and 2021. The original schedule was

One thing we should bear in mind is that this is a strong ecosystem, and it has been developed over a decade or more. Last year, Silicon Valley-based Startup Genome ranked Atlantic Canada No. 4 ecosystem in the world in the Activation Phase of development. This is the youngest phase of ecosystem development, and we were exceeded only by: Western Denmark; Belgrade and Novi Sad (Serbia); and Taipei City. Atlantic Canada has placed ahead of such other Activation Phase members as Calgary, Edmonton and Quebec City in Canada, and Estonia, Manila, Frankfurt and New Zealand internationally. With the world gripped by pandemic and recession, we should remember that the facilities and programs described here are valuable and beneficial and must be preserved. ■

disrupted by the COVID-19 lockdown. As it stood at the time of writing this report, Dal was to hold the debut cohort, dedicated to healthcare, in the summer of 2020. Then Dal and MUN will hold cohorts in the autumn, with the MUN cohort focusing on ocean technology.

The over-arching goal is to help researchers assess the market potential of their intellectual property, and then help them develop their ideas into companies if they determine there is a market.

One thing to note about Lab2Market is that it is part of a multidimensional effort to base more startups on research. As we will see below, there are a range of groups that are deepening their work in research-driven entrepreneurship. Springboard Atlantic is enhancing its relationship with specific industrial sectors, and the largest research universities in the region have improved their innovation and entrepreneurship programs. ■

## 8.2 The Media

Over the past few years, one element of the ecosystem that has strengthened is the media coverage of the region's startups and innovation-driven companies. This is important for the ecosystem because media coverage promotes the region's companies internationally. With Google Alerts and social media, even a local news story can reach important people in national and foreign markets. This coverage also helps to inform policy-makers and the community at large about part of the economy that was too long overlooked. "You have a great high-tech industry and you are great at ignoring it," Alicia Roisman Ismach, Entrepreneur-in-Residence at Venn Innovation, said in a 2020 interview, referring to Atlantic Canada. The increased media attention will ensure it isn't ignored any more.

In late 2011, when Entrevestor began, the only other reporter covering this beat was Devin Stevens of Allnovascotia.com, and his work was behind a paywall. The media covered local favourites like Verafin in St. John's and Immunovaccine Technologies (now IMV) in Halifax, and the fantastic success of Radian6 and Q1 Labs in Fredericton generated coverage in New Brunswick. But overall, the press coverage of the innovation sector was scant.

That has changed in a big way. Entrevestor is still going and there is far greater coverage in the traditional media. For several years, CBC New Brunswick has reported on the five finalists of the biennial Breakthru competition, producing some great content on the young companies (and allowing viewers to vote for the Viewers' Choice Award). Since launching in 2016, Huddle.today has been a champion of all small business, including the innovation sector. As well as covering New Brunswick business, it also now has a reporter in Halifax.

CBC Newfoundland has been reporting on startups far more frequently in the last year – not just the established companies, but the one- and two-year-old startups like InspectAR, BreatheSuite, Rally and Creatros. The coverage focuses on the founders' stories and the potential of the technology. On Christmas Day, the CBC website ran an article with the headline: "N.L. tech startups had a wildly successful 2019. Can they keep it up?"

There has been more regional coverage of startups. Saltwire, the regional news chain created by the Chronicle-Herald, did several regional reports on startups and innovation before the COVID-19 crisis forced a reduction in coverage. Having been bought out by Editor Dawn Chafe and Director of Sales Tonia Sheridan, Atlantic Business Magazine is focusing more than ever on innovation. Its 30 Under 30 feature in November showcased startup founders from across the region.

Atlantic Canadian startups are also getting more attention in the national media. Freelance reporter Quentin Casey has been reporting on the sector in the Financial Post for years. The Globe and Mail every now and then features what's going

on in the Atlantic Canadian innovation section, such as King's Journalism student (and Entrevestor intern) Avery Mullen's report on the UNB course on mental health for entrepreneurs. Betakit, the national tech publication, also reports frequently about what's happening on the East Coast, including terrific coverage last year of Entrevestor's startup data report.

All this attention helps to inform the broader community about the strength of the innovation economy in Atlantic Canada, which helps to create the political will to support it. It even helps promote the companies outside the region and country. Any story can come up in a Google search, or be found on Twitter with the right hashtags. Being covered by larger media increases the chances that our companies' stories will be told far and wide. It's a component of the ecosystem that has been strengthening in recent years. ■

## 8.3 Atlantic Canada Opportunities Agency

As well as providing direct support to companies, ACOA effectively serves as the central bank of the region's startup ecosystem. Most – if not all – of the organizations listed below rely on ACOA for funding and guidance. It's difficult to overstate the importance of ACOA's role in most components of the Atlantic Canadian startup ecosystem. The agency underpins many of the programs and organizations described in this section. Under the leadership of Francis McGuire, ACOA is working to take a more regional perspective in several key sectors. It has named "champions" for such priority areas as IT and oceans to produce a broader view of these segments.

In terms of direct support to startups, ACOA for years was known for its Business Development Program, which provided loans of up to \$500,000 to startups that have raised equity capital. In the past two years, that has been replaced for the most part by the Regional Economic Growth through Innovation program, or REGI. It's a national program that is administered by the federal government's Regional Development Agencies, which in the case of Atlantic Canada is ACOA. Like the old BDP, it offers zero-interest loans to companies that have raised equity capital. REGI and the National Research Council's Industrial Research Assistance Program, or IRAP, have become the two main sources of non-dilutive financing in the region. ■

## 8.4 Educational Institutions

Universities – especially research universities – have been essential in shaping the startup community in Atlantic Canada. We've noticed over the years that the three strongest cities for startups in the region are Fredericton, Halifax and St. John's. They account for 65 percent of startups in our databank. It's no coincidence that the three main universities in these cities ►

► - UNB, Dalhousie and MUN respectively - account for about 80 percent of the university R&D in the region. The results of our survey also indicate how heavily the region's startups depend on these institutions. Of the 151 founders who completed our survey, 88 startups, or 58 percent, said their company collaborated with at least one post-secondary institution in the region. Twenty-seven of them worked with more than one institution, and six worked with universities or colleges in more than one province. These collaborations took the form of using an institution's facilities, attending their programs or conducting research together.

One thing that stood out about our study this year is that the startups working with post-secondary institutions in 2019 did not outperform the startup community overall. In past years, the startups collaborating with post-secondary institutions reported higher revenue growth than the startup community overall, doubling it in some years. This year, we received full revenue data from 40 companies that (a) had sales and (b) worked with post-secondary institutions. Their revenues in total increased 45 percent in 2019, far short of the 70 percent revenue growth we recorded for the East Coast startup community overall. Maybe we just got a bad sample. There were 17 other companies that revealed their revenue growth and 10 of them said their revenues increased by 100 percent or more.

In other metrics, the companies collaborating with post-secondary institutions did well. As a group, their staffing levels increased by 49 percent and they raised \$33.6 million in equity financing.

Be it coincidence or not, there's a correlation between a post-secondary institution's research budget, and the number of startups it's working with. Some 42 startups said they were working with Dalhousie, which is also the region's leading research institution. MUN and UNB are runners-up in both categories. Saint Mary's University plays a far larger role in the lives of startups than its research budget would suggest. Our research also shows that startups are more involved with community colleges than is commonly believed. Eleven startups said they were working with the Nova Scotia Community College, six with the New Brunswick Community College and three with the College of the North Atlantic. ■

Chart 8.1 -  
Institutions Cited in the  
Entrevestor Survey

institution	Times Mentioned
Dalhousie	42
Memorial	16
UNB	15
SMU	12
NSCC	11
Acadia	8
NBCC	6

Source: Entrevestor Databank

One thing to note about Chart 8.1 is that it does not show the number of actual partnerships between startups and institutions. It simply reveals the number of times each institution was identified in our survey as being a partner. ■

Chart 8.2 -  
Atlantic Canada's Top  
Research Universities 2019

Institution	Sponsored Research Income	%age Change	National Ranking
Dalhousie	\$141.3M	-5.84%	18
Memorial	\$116.8M	4.5%	20
UNB	\$38.7M	-19.7%	28
UPEI	\$11.4M	-11.7%	43
U de M	\$11.2M	-0.9%	44
SMU	\$8.4M	2.9%	47
St. F X	\$7.3M	-8.0%	49
Acadia	\$6.4M	20.4%	50

Source: ReSearch Infosource Inc.

There's reason for optimism that universities and colleges in the region will strengthen their relationships with startups in the future. The work of Springboard Atlantic, Lab2Market and I-Stem all suggest there will be more collaboration in the future, and that more companies will be generated by research at these institutions. ■

### Springboard Atlantic

Springboard Atlantic, the organization that supports applied research throughout the Atlantic region, had a landmark year in 2019, announcing \$9.6 million in funding from the Atlantic Canada Opportunities Agency in August. This three-year funding commitment was supplemented by a pledge of \$5.1 million from the 19 post-secondary institutions that make up the Springboard network.

Springboard works with Atlantic Canadian universities and colleges to encourage and support researchers within these

institutions in working with industry. The group works with companies of all sizes to conduct R&D with academic researchers, and helps students and faculty begin their own startups based on their research.

These funds support the efforts of 30 industry liaison officers situated at 14 universities and five colleges across Atlantic Canada, as well as six staff at Springboard's head office in Halifax.

Along with the new funding, Springboard revamped its strategy to dive

deeper into specific industries, to learn their problems and partner them with researchers who can help solve issues. The first example of these collaboration efforts was "Ocean to Plate", a series of consultations to help the lobster industry find solutions to new and evolving challenges. The organization is planning to target one or two specific industries each year and find ways that its network can deepen its work in these fields. In April 2020, it launched a "COVID-19 Table", to help industries battling the disease work with researchers. ■



## University Entrepreneurship Programs

Here is a glance at the entrepreneurship programs operated at universities in the region:

### Acadia University

Acadia Entrepreneurship Centre

[www.acadiaentrepreneurshipcentre.com](http://www.acadiaentrepreneurshipcentre.com)

#### Findlay MacRae

The AEC predates the startup boom. The centre's tagline is "Supporting the Rural Economy," and its Rural Innovation Centre offers incubation services to young businesses. It takes a unique focus, striving to apply cutting edge technology to agricultural and rural initiatives. It works closely with the Acadia Institute for Big Data, which has launched several projects involving the wine and agricultural industries, and Launchbox, the Acadian University sandbox. The Centre has bases in Wolfville, Liverpool and Bridgewater. ■

### Memorial University of Newfoundland

Memorial Centre for Entrepreneurship

[mce.mun.ca](http://mce.mun.ca)

#### Genesis

[Genesiscentre.ca](http://Genesiscentre.ca)

#### Paula Mendonça, Michelle Simms, Florian Villaurmé

The region's largest university deepened its oversight of entrepreneurship in late 2019 when it appointed Paula Mendonça as its new Director of Innovation and Entrepreneurship. A veteran of the university's Technology Transfer and Commercialization Office, Mendonça sees herself as a bridge between the various groups at MUN who deal with applied research and starting new businesses.

The cornerstone of this is, of course, Genesis, the dean of Atlantic Canadian innovation hubs. Now in its third decade, Genesis has been adding to its offerings, as well as its trophy case. One of its graduates, Verafin, laid claim to the biggest growth capital funding round ever in Canada, and two other members of its stable, CoLab Software and Sequence Bio, were the first Atlantic Canadian companies accepted into the prestigious Y Combinator accelerator in Silicon Valley.

Since it moved into its current location at MUN's Signal Hill Campus, Genesis has ramped up its Evolution program (which establishes product-market fit) and Enterprise program (which focuses on scaling). In 2019, the organization launched its own \$775,000 micro-fund and purchased the Common Grounds co-working space, rebranding it as Genesis Coworking.

The Memorial Centre for Entrepreneurship has established itself as a force in the development of new companies at MUN in just a few years. The MCE is dedicated to helping MUN students and faculty learn about entrepreneurship and get their businesses off the ground. Several noteworthy startups are past winners of the MCE's Woodward Cup, which provides seed funding for young companies. MCE is also a key component of the Bounce Healthcare initiative, which is helping generate medical tech companies in the province. ■

### Saint Mary's University

Masters of Technology, Entrepreneurship and Innovation

SMU Entrepreneurship Centre

[smuec.ca](http://smuec.ca)

#### Ellen Farrell, Michael Sanderson

SMU and its students are excelling in a range of entrepreneurial pursuits. Most important, its students and grads are launching some fascinating companies. Ashored Innovations – a product of its MTEI program – was the only Canadian company accepted into the MassChallenge program last year, though 3,000 companies around the world applied. Ashored ended up as one of the top three companies in the program's pitch competition.

Launched in 2013, MTEI is an accelerated graduate program for people who want to develop their own company or lead innovative divisions of existing corporations. It supports companies that are launched in the program through a VC-based model, in which funding relies on students reaching milestones. Reaching the first milestone can produce funding of up to \$25,000.

For the past three years, SMU has also offered a pioneering program to teach students about venture capital. Venture Grade is a VC fund managed entirely by students. SMU is also the Canadian base for the Venture Capital Investment Competition, the world's largest venture capital competition. While the university hosts the Canadian championships on its campus, its teams have been competing in the New England finals, with teams placing in the top three in each of the last three years.

The SMU Entrepreneurship Centre is a facility to support entrepreneurship throughout the university with a special emphasis on social ventures. The centre also works closely with The Spark Zone, a sandbox it oversees with several other post-secondary institutions. SMU is also home to the David Sobey Centre for Innovation in Retail and Services. ■

### Dalhousie University

The IdeaHUB

Creative Destruction Lab – Atlantic

Lab2Market

[www.Dal.ca](http://www.Dal.ca)

#### Jeff Larsen, Spencer Giffin and Margaret Palmeter

Dalhousie University has transformed its entrepreneurship programing in the last three years, and capitalizes on the university's position as the largest research institution in the region. Since Jeff Larsen became the Executive Director of Innovation, Creativity and Entrepreneurship in early 2016, Dal has become the East Coast hub of CDL and will be one of three universities to pilot Lab2Market in 2020 and 2021. (See Section 8.1). In the past two years, the university also saw the fruition of a project that was in the works before Larsen's tenure as the IdeaHUB was opened on the university's Sexton Campus, serving as a base for hardware companies in Halifax.

The rationale at Dal is to use its sandboxes to generate interest in entrepreneurship throughout the school and teach the fundamentals of lean methodology. In tandem with this work, Dal is working with such groups as Lab2Market, CDL and Springboard Atlantic to spin more research discoveries into growing companies.

Dal is a central partner in the Ocean Frontier Institute, which received \$220 million in funding in 2016. An international hub for ocean research, OFI brings together experts from both sides of the North Atlantic to explore the vast potential of the ocean. Researchers say the addition of the OFI was a boon to applied research because it can produce funding for multi-disciplinary projects that previously would have fallen through the cracks between different faculties. ■

### University of New Brunswick

Technology, Management and Entrepreneurship

[www.unb.ca/fredericton/engineering/tme](http://www.unb.ca/fredericton/engineering/tme)

#### Dhirendra Shukla

Housed within the Faculty of Engineering, the Dr. J. Herbert Smith Centre for Technology, Management and Entrepreneurship emphasizes the role of engineering and design within the development of a product. TME has become a multi-faceted hub of entrepreneurial supports, starting with its work with undergraduates in the TME program. Three years ago, it launched a Masters of TME program, which has continued to launch some of the leading new companies in Fredericton. In early 2020, UNB drew media attention across the country when it introduced a program called Entrepreneurial Resilience, which teaches self-care to over-stressed startup founders.

TME operates two accelerator programs: Energia Ventures, which offers programming for energy, cleantech and cybersecurity companies, and the Summer Institute, which teaches the human elements of entrepreneurship. The New Brunswick Innovation Foundation in 2019 agreed to contribute as much as \$500,000 to Energia over two years to help fund the companies in the program.

TME in 2018 launched Scale Up Atlantic Canada in collaboration with Boston-based Babson College – long recognized for its entrepreneurial program. The accelerator is led by Babson professor Daniel Isenberg, who will use his trademarked program Scalerator as the basic curriculum.

UNB is the home of the Canadian Institute for Cybersecurity, which provides research into one of the pillars of Fredericton's IT community. The university is also a founding member of the Smart Grid Initiative, which is a partnership between government, private industry and academia to improve the storage and transmission of electricity. It has also launched the I-Stem program, which teaches lean startup methodology to researchers, and which will be offered for a second time late in 2020. ■

## The Nova Scotia Sandboxes

Nova Scotia has a "sandbox" program, which is a series of groups within universities that aim to spark interest in entrepreneurship. These programs serve as tentacles into the community, educating researchers and students about programs and drawing them into entrepreneurship.

### The Island Sandbox

Cape Breton University, NSCC

#### Darren MacDonald

The Island Sandbox is a collaboration between Cape Breton University and the Nova Scotia Community College. Its primary focus is to help students launch businesses in three key areas – cleantech, social entrepreneurship and entrepreneurship for New Canadians.

### Shiftkey Labs - [shiftkeylabs.ca](http://shiftkeylabs.ca)

Dalhousie, NSCAD, SMU, Volta, NSCC

#### Akram Al-Otumi

Shiftkey's specialty is software-based innovations. The organizers believe it can be challenging to navigate the wealth of resources and supports available to bring ideas to fruition. ShiftKey Labs aims to lead the entrepreneur through the development process. Entrepreneurs work out of the free collaboration space where they meet with current students, post-secondary alumni, mentors, and industry partners.

### Cultiv8

Dalhousie's Agricultural School, Acadia

#### Jason Grant

Located on the campus of the former Agricultural College, Cultiv8 aims to bring about innovation in agriculture. The services range from testing ideas to teaching business principles, and the group hosts a range of events.

### The Spark Zone - [thesparkzone.ca](http://thesparkzone.ca)

SMU, NSCC, NSCAD, MSVU, Atlantic School of Theology

The Spark Zone brings together students and community members to create, develop and ultimately launch business ideas and social innovations. The Spark Zone gives students access to a variety of services and supports at each partner institution, striving to provide opportunities for both students and community members interested in developing an entrepreneurial mindset. The group has been working with the David Sobey Centre for Innovation in Retail and Services to generate retail-related startups.

### Launchbox - [aec-wordpress.colibri-software.com/launchbox](http://aec-wordpress.colibri-software.com/launchbox)

Acadia University

#### Leanne Strathdee

Launchbox is the centre for student entrepreneurs at Acadia University. It supports students in their entrepreneurial pursuits by providing free programming, networking, access to mentors, and other entrepreneurs, working space and competitions.



► **IDEA** - [www.ideaproductdesign.org](http://www.ideaproductdesign.org)

Dalhousie, NSCAD

Clifton Johnston

IDEA is a multidisciplinary collaborative initiative that integrates NSCAD Design with Dalhousie's Faculty of Engineering and the Rowe School of Management. The IDEA Sandbox is built around new product development. It provides professional mentoring, seminars, programming and space for students, faculty and businesses in support of product development.

**DiscoverBox (formerly the Innovation and Enterprise Centre)**

St. Francis Xavier University, NSCC

Paula Brophy

DiscoverBox believes that rural communities have the assets and strengths to face current economic, environmental, social, and cultural challenges. Programs and services focus on social entrepreneurship and growing rural businesses.

**Surge Innovation** - [Surgeinnovation.ca](http://Surgeinnovation.ca)

Dalhousie University (Others may be added soon.)

Aaron Newman

Surge aims to train science students to think like entrepreneurs and turn their research into businesses. It offers a range of programs that encourage researchers to use their scientific knowledge to solve problems, especially in oceans, clean technology and life sciences.

**Cube (Formerly Tri-County)**

NSCC, Université Sainte-Anne

Nina Barnaby

This sandbox focuses on businesses and social enterprises with an emphasis on community development.

**Pulse**

Dalhousie, IWK, NSHA, NSCAD, NSCC and others

Natasha Breward

Pulse focuses on innovation in health technologies, life sciences, primary care, care for mental health and addictions, and continuing care.

## 8.5 Mentoring Groups

There's a fine line between the innovation hubs and the mentoring groups, as many organizations offer both work space and programming. The groups in this section are primarily mentoring bodies, while those in Section 8.7 feature places where entrepreneurs can work.

**Propel**

Pan-regional - [Propelict.com](http://Propelict.com)

**Barry Bisson** - The regional IT accelerator completed its third major revamp in 2018 by launching a virtual accelerator comprising two phases. It initiated Launch36 in 2011, then the pan-regional PropelCT accelerator in 2014. In 2018, the Propel board hired a new CEO, Barry Bisson, the former head of UNB TME and Shad, a national program for gifted high school students. He oversaw the creation of Incite, a program that overcomes the vast distances between cities in the region by offering all curricula online. The first phase helps participating companies find their product-market fit and the second teaches sales methodology. In the spring of 2020, the organization announced there would be a continuous intake for Incite, so companies could jump into the program at any time. ■

**The Joint Economic Development Initiative, or JEDI**

Fredericton - [www.jedinb.ca](http://www.jedinb.ca)

**Alex Dedam, President** - JEDI is a not-for-profit that supports Aboriginal participation in the New Brunswick economy, working closely with the federal and New Brunswick governments. The four tribal councils of New Brunswick and the New Brunswick Business Council govern JEDI. Jedi launched the country's first tech accelerator for Aboriginal entrepreneurs in 2016 and is now more focused on a broad range of entrepreneurial support. ■

**Mashup Lab**

Rural Nova Scotia - [www.mashuplab.ca](http://www.mashuplab.ca)

**Andrew Button** - Mashup Lab supports rural entrepreneurs through in-person and online curricula. It offers Mashup Weekends to let budding entrepreneurs come together to create businesses in a weekend. And its Dream Business program offers online programming to help

entrepreneurs launch new businesses in six months. ■

**B4 Change**

The Pond Deshpande Centre  
Fredericton - [www.ponddeshpande.ca/social-enterprise-accelerator](http://www.ponddeshpande.ca/social-enterprise-accelerator)

**Karina LeBlanc** - The accelerator at UNB's Pond-Deshpande Centre focuses on social entrepreneurship, or companies with a social mission. The accelerator is now six years old with dozens of graduates. ■

**Innovacorp's Programs**

Nova Scotia - [Innovacorp.ca](http://Innovacorp.ca)

Nova Scotia's public early-stage venture capital agency launched programs for startups in general and in specific sectors in the past few years. Its varied programs include:

- The Sprint Competition, which is open to all innovation companies across the province;
- The Early Stage Commercialization Fund, which helps researchers launch companies;
- The Accelerate program, which helps startups that are preparing to bring on investors;
- And the Green-Blue Challenge, which supports cleantech and oceantech startups.

Other programs continue to evolve, though in recent years they have included sector-specific competitions for such segments as oceantech, cleantech, and life sciences.

Innovacorp also oversees the Start-Up Yard at COVE in Dartmouth, which has become the hub for oceantech in Nova Scotia. As well as working space, it offers some funding and mentorship to resident companies.

The Cape Breton office of Innovacorp has proven to be one of the more creative teams in the ecosystem. Over the years, it has initiated the I-3 and Sprint competitions, which Innovacorp adopted across the province. More recently, it has launched the Intersect program, in which established businesses like laundry services or manufacturers reach out to entrepreneurs to help them solve problems. ■

## 8.6 Investor Groups

The big news in funding in 2019 was Build Ventures closing the initial round of its second fund, which it hopes will eventually top \$60 million. The onset of the recession in early 2020 has raised concerns about the ability of companies to raise funds, but these funding groups were active in 2019:

**Build Ventures**

Build Ventures holds a unique position in the East Coast funding community. It is the only fund set up to invest tranches of \$1.5 million to \$3 million. In September 2019, Build announced the initial close of its second fund at \$50.5 million. As of spring 2020, the second fund had backed two companies that are new to the Build portfolio -- Potential Motors of Fredericton and Gemba Software Solutions of Saint John. ■

**Concrete Ventures**

Concrete Ventures, which has more than \$17 million to invest, offers investments from \$100,000 to \$750,000 to pre-seed companies in Atlantic Canada. The fund is helmed by Patrick Hankinson, an entrepreneur and investor whose company Compilr exited for more than \$20 million in 2014. In its first year, Concrete built up a portfolio of eight companies. ■

**Creative Destruction Lab - Atlantic**

In less than three years, the Creative Destruction Lab-Atlantic has established itself as the main angel funding group in Atlantic Canada. Its members invested about \$7 million in its first two years. The CDL is primarily a mentorship group that assembles wealthy business people (who it calls fellows or associate fellows) to advise and invest in young innovation companies. Its biggest impact may be in corralling angel investors (both in Atlantic Canada and elsewhere) and getting them to write cheques for Atlantic Canadian entrepreneurs. ■

**East Valley Ventures**

Headed by Gerry Pond, East Valley Ventures is a division of diversified technology company Mariner Partners. It conducts business similar to an angel network, bringing local investors into funding deals, and its members have backed two of the most successful investments in the history of the East Coast startup community - Radian 6 and Q1 Labs. Its members stress that they place far greater emphasis on mentorship than on funding. As of May 2020, the portfolio comprises 29 companies, three of which were added in 2019. ■

**Innovacorp**

As a venture capital fund, Innovacorp received a funding injection of \$40 million for its Nova Scotia First Fund in 2017, and has become more ambitious since. Its CEO Malcolm Fraser, hired in 2017, has set the goal of Atlantic Canada having one of the top 10 start-up ecosystems in the world. To establish a baseline, Innovacorp enlisted Atlantic Canada in Startup Genome, an international organization that assesses the performance of startup communities around the world. Lately, Innovacorp's staff and board have been speaking more about finding a billion-dollar investment opportunity. ■

**Island Capital Partners**

ICP launched in 2017 with the announcement that it was beginning with \$4 million to invest. What impressed observers was not so much the size of the fund but the mentorship potential it brought to its portfolio companies. The fund is headed by managing investment director Alex MacBeath, a former CEO of Grant Thornton Canada. Its partners include: Ron Keefe, the former CEO of Charlottetown drug manufacturer BioVectra; Steve Nicolle, former CEO of Halifax-based STI Technologies; and Paul Lypaczewski, who has run several IT companies over the past 30 years. Its Director of Operations is seasoned financial executive Stefanie Corbett. ■



► **Killick Capital**

Managing the holdings of the Dobbin family of St. John's, Killick Capital is now rechanneling the proceeds of two exits into an exciting assembly of young ventures. The investment company sold part of its Killick Aerospace business for about US\$229 million in January 2015, months after it exited its investment in anti-fraud software maker Verafin in a private equity buy-in. Since then, President Mark Dobbin has been methodically investing in a portfolio of younger companies, such as HeyOrca, Sequence Bio and Empowered Homes. ■

**8.7 Local Incubators or Co-Working Spaces**

**Genesis** - [www.genesiscentre.ca/home](http://www.genesiscentre.ca/home)  
**Michelle Simms**

What started off as the commercialization centre of Memorial University has become one of the major hubs for entrepreneurship in the region. In 2018, Genesis moved from MUN's main campus to the Battery Campus on the slope of Signal Hill. The move tripled the organization's capacity and placed its resident companies closer to downtown St. John's. Under the leadership of CEO Michelle Simms, the centre has taken over the Common Ground co-working space and launched a micro-fund. The centre's programs include the Evolution program for new companies, and the Enterprise program for scaling companies. ■

**Planet Hatch** - [Planethatch.com](http://Planethatch.com)  
**Fredericton**

**Adam Peabody**  
Planet Hatch is a co-working space in Fredericton's Knowledge Park and has established itself as the hub for startups in the New Brunswick capital. It features a range of services and events, including two different programs on sales or exporting. The organization changed direction in 2015 and decided

**New Brunswick Innovation Foundation**

NBIF has continued to back New Brunswick companies, often co-investing with a range of other funders. Since Jeff White became CEO in 2018, it has partnered with more and more organizations around the region, including Energia Ventures, Innovacorp and Propel. Its Breakthru program, which will be held again in 2020-21, is the main vehicle for bringing new companies to the fore in New Brunswick. ■

to focus less on tech startups and more on a broad-based support model for all kinds of entrepreneurship. ■

**Venn Innovation** - [Venncentre.ca](http://Venncentre.ca)  
**Moncton**

**Doug Robertson**  
Formerly Tech SouthEast, Venn has established its Main Street office in Moncton as the hub for New Brunswick innovation, and its programs extend across the region. Its Vennture Garage has been turning out some interesting companies, such as Porpoise and Fytiv. In the past year or so, Venn has been expanding to be more than a Moncton-focused organization and is offering support to companies across New Brunswick and the region. It partnered with ACOA in 2017 to offer a pan-regional program in competitive intelligence, hosted by University of Ottawa professor Jonathan Calof. ■

**Volta Labs** - [www.voltaeffect.com](http://www.voltaeffect.com)  
**Halifax**

**Martha Casey, COO and Interim CEO**  
Volta tripled its size and broadened its scope in 2018, so it now occupies a unique position in the Atlantic Canadian community. Its physical space comprises three floors at the Maritime Centre in downtown Halifax, including ground floor retail space, and serves as the anchor for Halifax's

**Pelorus Venture Capital**

The manager of the Venture NL fund has built a dynamic portfolio of companies in just five years. Venture NL so far has invested in eight companies, and in 2019 added St. John's-based Rally to its portfolio. Pelorus had been considering raising a second fund, though those plans are now on hold due to the recession brought on by the global pandemic. ■

innovation district. That means Volta provides a place where the general public can come to learn what the movement is all about.

As well as providing work space for operations ranging from one to 30 people, the organization offers a range of services. The Startup Bureau offers resident companies a group of mentors to help guide their businesses. Volta in 2017 launched the Volta Cohort, a pre-seed funding program that as of May 2020 had provided more than \$750,000 to 31 companies. In 2019, Volta added the LEAP program, led by VC veteran Toon Nagtegaal, to help startups prepare to apply to accelerators around the world. ■

**Navigate Startup House**  
[navigatestartup.com](http://navigatestartup.com)  
**Sydney**

Navigate opened in late 2015 as a base for the growing tech community in the second-largest metro area in Nova Scotia. It offers co-working space, subsidized offices for as many as four startups and a range of mentoring sessions. ■

**Startup Zone** - [www.startupzone.ca](http://www.startupzone.ca)  
**Charlottetown**

**Patrick Farrar**  
Supported by Innovation PEI and

various community groups, the Startup Zone is a 3,600-square-foot facility at Water and Queen streets that opened in July 2016. It has enough space for about 16 companies and is a work zone for tech and innovation startups as well as other entrepreneurial pursuits. The organization in the spring of 2018 named Patrick Farrar its new CEO. In the past year, the curriculum has been placing a greater emphasis on teaching companies to sell and bring in early revenue. ■

**Connexion Works** - [connexionworks.ca](http://connexionworks.ca)  
**Saint John**

The co-working space on Germain Street opened in 2014. It offers space for small companies and hosts regular events. The organization behind it works closely with Enterprise Saint John and other community groups. ■

**Ignite Labs**  
**Yarmouth and Stellarton**

**Doug Jones**  
Ignite Labs opened in June, 2018, to provide an entrepreneurship hub for Nova Scotia's South Shore and southern districts. The facility offers mentorship and working space to companies in a range of sectors and offers specialization in ocean technology. In 2019, it added an office in Stellarton, Pictou County. ■

**8.8 Life Sciences Organizations**

**EmerGence** - [emergencebioincubator.com](http://emergencebioincubator.com)  
**Charlottetown**

Launched in late 2014, EmerGence is a virtual business incubator focused on life sciences businesses in the food, nutraceutical and pharma segments. Its portfolio companies include several based in Atlantic Canada, in other parts of Canada, and in other countries. It has said it wants to grow into a more pan-Atlantic-Canadian organization.

Emergence works with its group of mentors to identify the areas in which each company needs mentorship and find a leading expert in the field to help the company. The incubator also offers Specialist Services Projects, in which it will fund as much as 65 per cent of the cost of bringing in specialists to help a company with a specific project.

**Natural Products Canada** - [www.naturalproductscanada.com](http://www.naturalproductscanada.com)  
**Charlottetown**

**Shelley R. King**  
Headquartered in Charlottetown, NPC supports Canada's natural product innovators, including businesses, research institutes, investors, and others who work with products and technologies derived from natural substances. NPC offers commercialization programs, connections and scouting services and an investment fund. It has been making venture capital investments in recent years, including in such Atlantic Canadian companies as Chinova Bioworks and Island Water Technologies.

**BioNova** - [www.bionova.ca](http://www.bionova.ca)  
**Halifax**

**Scott Moffitt**  
BioNova is a not-for-profit that represents life sciences companies in Nova Scotia. It has about 65 members, many of which are life sciences startups in the province. The organization's big event each year is BioPort Atlantic, a conference held each autumn. The highlight of BioPort is the BioInnovation Challenge, a pitching event for life sciences companies in the three Maritime provinces. By entering BIC, novice companies receive a range of mentoring sessions that culminate with the pitch at the competition.

The organization released its BioFuture 2020 report in 2018, which outlined future growth plans not just for the life sciences sector but also for BioNova itself. These include the launch of an accelerator to teach sales to life sciences companies.

**BioNB** - [Bionb.org](http://Bionb.org)  
**Fredericton**

**Jennifer O'Donnell**  
BioNB is the bioscience authority in New Brunswick for government, industry, and media, translating and communicating the business opportunities behind the science in a highly technical sector. BioNB builds and enhances new and existing businesses, supports technology transfer from public institutions and the private sector, and works to build a community and enhance collaboration among sector stakeholders. Like BioNova in Nova Scotia, the organization has progressed as the life sciences community in the province has grown.

## 8.9 The Oceantech Ecosystem

The oceantech ecosystem has been established over the past few years. In its current form it is stronger in some ways than the support systems for other sectors but weaker in other points.

Atlantic Canada is, of course, the home to Canada’s Ocean Supercluster, which has the potential to fund about \$350 million in ocean-related R&D over five years. That should set the oceans sector apart from other sectors.

So far, what has stood out is the special programming and benefits for entrepreneurs in the oceantech space. For example, CDL-Atlantic in the last year has opened a special stream for oceantech companies. And Memorial University will offer a special stream for oceans companies in its two pilot cohorts for Lab2Market. The Nova Scotia government also offers an enhanced Innovation Equity Tax Credit for oceans (and life sciences) companies.

The most active programming as of the spring of 2020 is the Start-Up Yard at COVE in Dartmouth. It has all the facets of a complete ecosystem, offering resident companies funding, office space and programming (as well as ocean frontage).

The ocean support organizations are extending into rural areas, with Ignite in Yarmouth forming a partnership with Start-Up Yard. The oceantech community is also doing a good job of reaching out to oceantech companies around the world, several of which have attended CDL-Atlantic programs.

One weakness in the sector is developing a pipeline of new companies. Support organizations have highlighted this problem, though the number of ocean companies in our databank continues to grow. The other problem is that the ocean ecosystem is focused too much in the Halifax area, and to a lesser extent in St. John’s. More needs to be done to make this a pan-regional initiative. ■

### Appendix – Methodology

Over the past five years, we’ve established our annual startup analysis as the most comprehensive study of a regional startup segment available in Canada. The data comes from two main sources: our survey of startups, and Entrevestor’s daily reporting on the community.

Patrick Hankinson, the head of Concrete Ventures, also monitors data on Atlantic Canadian startups, so in the last year we have begun collaborating with him.

Our goal has always been to bring out the metrics on the region’s startups, which we define as:

1. A company headquartered in Atlantic Canada, or with dual headquarters that include an Atlantic Canadian head office;
2. A company commercializing innovation;
3. And a company producing a product for the global market.

There are huge grey areas with these definitions, but we have tried to be uniform in applying the same standards across the region, year after year.

We received 151 responses to the survey – representing almost one-third of the startups in the region.

We’re able to supplement this survey with our deep knowledge. Entrevestor has posted more than 4,500 articles since September 2011 so has an intimate knowledge of the startup community. We conduct more than 200 interviews a year. We pride ourselves on reporting on all four Atlantic Provinces and have used this broad and deep understanding of the community to complement the results of the survey.

Wherever possible, we’ve used the largest sample size available. Preferably, we use the 697 startups we’ve identified. However, for some data we can only get information from the 151 companies that responded to the survey, or those that responded to the survey supplemented by other information. In each case, we have tried to be as clear as possible about the number of companies we’ve counted and how we arrived at the details.

Unless we state otherwise, all the data is as of Dec. 31, 2019. In most cases, we have rounded percentages off at the decimal point – we’re collecting data that can best be described as messy, and it’s a fool’s game to be too precise in reporting growth. The important thing is the broad trends. For all sticklers about grammar, we use the word “data” as a singular noun. (When’s the last time you heard someone use the word “datum” in a sentence?) We also use curriculum rather than curricula.

We would like to sincerely thank the Atlantic Canadian startups that trusted us with confidential information. ■



### About the Author

Peter Moreira spent more than 30 years in journalism in Asia, Europe and North America. He worked with The Deal of New York, covering M&A, private equity and VC markets in the U.S. and Canada for six years, serving four years as London Bureau Chief. At Bloomberg, he covered European and U.K. banking and finance. He previously worked for the South China Morning Post in Hong Kong, Knight-Ridder Financial in Hong Kong and Seoul, and at the Canadian Press’s parliamentary bureau in Ottawa. His writing has appeared in USA Today, the Globe and Mail, The Toronto Star, National Post, the Chronicle-Herald and the Independent on Sunday (London). Peter is a graduate of the Canadian Securities Course. He is the author of Hemingway on the China Front (Potomac, 2006), Backwater: Nova Scotia’s Economic Decline (Nimbus 2009), and The Jew Who Defeated Hitler, (Prometheus, 2014). He is the author of the Jimmy Spracklin crime series, murder mysteries set in San Francisco’s Haight-Ashbury area in the late 1960s. They include The Haight (2018) and A Hitman on Haight Street (2019). ■





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