

The Narwhal List 2019

Another year of progress in Canada's tech community



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The Narwhal List

"2018 turned out to be a great year for Narwhals; and results show that Canada has made some progress at scaling companies."

2018 was another remarkable year for Canadian Narwhals. In brief:

- 17 new companies joined the list last year, replacing others that no longer qualify for the list.
- Compared to the year before, we almost doubled the number of firms on track to become Unicorns in the near future.
- The list had a strong cohort of 25 technology companies that raised, on average, \$40 million, and two healthcare companies, each averaging \$100 million in new capital.
- The average financial velocity in the technology sector increased from 9.4 to 12.8.
- Entry to the Narwhal List is becoming more exclusive: the minimum financial velocity for entry is now 6.7 (compared to 4.7 in 2017).
- Although none of the firms on last year's list went public in 2018, none were sold—a hopeful sign of retention in Canada.

What is highly disappointing though is that Canada has yet to produce a Unicorn since Kik Interactive became one in August of 2015. That's over three years without producing a Unicorn when we should be producing between two and five a year. In fact since Kik became a Unicorn, 19 US companies were **founded** and became Unicorns.

Exhibit 1 features the ten leading Canadian Narwhals. The full list is published at www.impactcentre.ca/narwhal.

The Narwhal List Exhibit 1

Rank	Company	Founded	Total Funding (\$US Millions)	Financial Velocity	Sector	City
1	BlueRock Therapeutics	2016	225.0	75.0	Biotechnology	Toronto
2	Element AI	2016	105.7	35.2	Artificial Intelligence	Montreal
3	Ironshore Pharmaceuticals	2008	343.0	31.2	Drug Delivery	Toronto
4	DalCor Pharmaceuticals	2015	118.5	29.6	Pharmaceuticals / Drugs	Montreal
5	Hootsuite	2008	279.9	25.4	Internet	Vancouver
6	Ritual	2014	113.5	22.7	Mobile	Toronto
7	Repare Therapeutics	2016	68.0	22.7	Drug Development	Saint-Laurent
8	Wealthsimple	2014	113.0	22.6	Internet	Toronto
9	Kik	2009	220.5	22.1	Mobile	KW
10	North	2012	152.7	21.8	Consumer Product	KW

Measuring Progress

Background

The Impact Centre's Narwhal List identifies a set of young Canadian companies that have the potential to become successful on the world stage. It also points to possible financial pathways to turn these companies into Unicorns, which are closer to reaching public financial markets. The transition to the Unicorn scale and possibly public listings may give our firms the ability to compete on their own merits and have the currency necessary in public stock to fund acquisitions throughout the world that will lead to even greater scale.

Canada has a number of reputable lists that rank technology firms. The oldest is the Branham300. Generated by the Branham Group Inc., this listing is useful to gain a perspective on the comparative revenues of Canadian firms. Another well-known list is Deloitte's Technology Fast 50™, which ranks Canadian technology firms according to their percentage revenue growth rates. The Technology Fast 50™ program rewards firms in their earliest years, when extraordinary growth rates are possible from a revenue base of C\$50,000 (the minimum revenue to qualify as an applicant).

The Narwhal List sheds light on the ability of firms to scale up and reach world-class status. The ranking system is derived from publicly available information and tracks all firms in the country with data in the public domain—not just those that elect to participate by revealing private revenue data. The Narwhal List also enables businesses to benchmark themselves against other Canadian firms, Unicorns, and the competition. Since the Narwhal List includes all private firms with fundraising activity, it is also a useful indicator for how Canada as a whole is faring in business incubation and growth.

The 2019 Narwhal List

The current report builds on our effort started two years ago: we provide here our annual update identifying private Canadian companies with the potential to scale to world-class status. Movements on the list can also tell us whether Canada is making progress at creating a cohort of high-potential companies.

In our first Impact Brief in 2017 (*The Narwhal List, released March 2017*), we identified an approach to measuring the progress of product focussed technology companies through the use of "financial velocity." This concept enables companies to think easily and quickly about growth. If you have a large market that is ready and willing to purchase your innovation, then your growth is limited only by the capital you have on hand to fuel that growth.

The amount of "fuel" required increases as a business grows; thus, a scaling company requires more and more capital to sustain operations. In most cases, larger companies are more profitable than smaller ones and consequently accumulate retained earnings, which fuels their capital.

Financial velocity measures the speed at which a company acquires and consumes capital to fuel its growth. It is defined simply as the amount of capital a company has raised divided by the number of years it has been in existence:

$$\text{financial velocity} = \text{capital raised} / \text{years in existence}$$

Velocity is measured over time and is expressed in millions of US dollars per year. It provides a simple and elegant tool to enable entrepreneurs and investors to gauge the financial attractiveness of young and capital-intensive firms.

Achieving a high financial velocity means a company is raising more and more money over time. It is possible for a firm to have a high velocity in its first year if it raises a significant amount of funding. In each year of its existence, it must raise more and more money to maintain that high velocity.

However, if a business does not raise any money—or raises too little—in any given year, its velocity will decrease; and this may be a sign of stagnant or declining growth. Companies can graduate from the list when they get sold or have an Initial Public Offering. Financial velocity is also handy when comparing firms founded in different years.

We must note that firms can also acquire capital while not managing to grow their revenue. Although a firm may show strong growth using our proxy metrics, if it does not manage to successfully add revenue, the business will eventually not be able to raise additional capital. Thus, in the long run, any issues with using this metric in cases where firms are unable to secure revenue will resolve themselves naturally as such businesses drop in ranking or disappear entirely from the Narwhal List. Financial velocity is a “leading” metric as increases in capital usually come before increases in revenue.

The Narwhal List 2019

Just like last year, the Narwhal List is split into 40 technology companies (excluding healthcare and life sciences firms) and 10 healthcare/life sciences companies, thus identifying the top 50 Canadian tech companies: i.e. the Narwhals.

The Narwhal List 2018 - Healthcare Narwhals Exhibit 2

Rank	Company	Founded	Total Funding (\$US Millions)	Financial Velocity	Sector	City
1	BlueRock Therapeutics	2016	225.0	75.0	Biotechnology	Toronto
2	Ironshore Pharmaceuticals	2008	343.0	31.2	Drug Delivery	Toronto
3	DalCor Pharmaceuticals	2015	118.5	29.6	Pharmaceuticals / Drugs	Montreal
4	Repare Therapeutics	2016	68.0	22.7	Drug Development	Saint-Laurent
5	Turnstone Biologics	2015	50.0	12.5	Biotechnology	Ottawa
6	Milestone Pharmaceuticals	2005	165.0	11.8	Biotechnology	Montreal
7	PreciThera	2016	29.0	9.7	Drug Development	Montreal
8	Fusion Pharmaceuticals	2014	46.1	9.2	Biotechnology	Hamilton
9	Northern Biologics	2014	40.0	8.0	Biotechnology	Toronto
10	Highland Therapeutics	2008	81.7	7.4	Drug Development	Toronto

The Narwhal List 2019 – Technology Narwhals
Exhibit 3

Rank	Company	Founded	Total Funding (\$US Millions)	Financial Velocity	Sector	City
1	Element AI	2016	105.7	35.2	Artificial Intelligence	Montreal
2	Hootsuite	2008	279.9	25.4	Internet	Vancouver
3	Ritual	2014	113.5	22.7	Mobile	Toronto
4	Wealthsimple	2014	113.0	22.6	Internet	Toronto
5	Kik	2009	220.5	22.1	Mobile	KW
6	North	2012	152.7	21.8	Consumer Product	KW
7	Lightspeed POS	2005	292.0	20.9	Mobile	Montreal
8	Blockstream	2014	101.0	20.2	Blockchain	Victoria
9	Integrate.ai	2017	38.2	19.1	Artificial Intelligence	Toronto
10	Hopper	2007	199.2	16.6	Mobile	Montreal
11	Breather	2012	113.7	16.2	Mobile	Montreal
12	League Inc.	2014	76.2	15.2	Internet	Toronto
13	CryptoKitties	2017	27.0	13.5	Blockchain	Vancouver
14	Kira Systems	2015	50.0	12.5	Internet	Toronto
15	Coveo	2005	169.8	12.1	Internet	Quebec
16	LeddarTech	2007	140.7	11.7	Electronics	Quebec
17	The Aion Network	2017	22.0	11.0	Blockchain	Toronto
18	ecobee	2007	131.3	10.9	Consumer Product	Toronto
19	Assent Compliance	2005	151.6	10.8	Internet	Ottawa
20	D-Wave Systems	1999	209.4	10.5	Computer Hardware	Vancouver
21	Visier	2010	91.5	10.2	Internet	Vancouver
22	TouchBistro	2010	90.0	10.0	Mobile	Toronto
23	Ranovus	2012	68.5	9.8	Computer Hardware	Ottawa
24	Happiify	2018	9.1	9.1	Artificial Intelligence	Toronto
25	Wattpad	2006	117.8	9.1	Internet	Toronto
26	Tulip Retail	2013	51.2	8.5	Mobile	Toronto
27	Hubba	2012	58.7	8.4	Internet	Toronto
28	D2L	1999	165.0	8.3	Internet	KW
29	Wave	2009	82.4	8.2	Internet	Toronto
30	eSentire	2001	140.9	7.8	Computer Hardware	KW
31	Vidyard	2011	60.7	7.6	Internet	KW
32	Rubikloud	2013	45.3	7.5	Internet	Toronto
33	Farmer's Edge Laboratories	2005	103.6	7.4	Software	Winnipeg
34	Nuco	2016	21.6	7.2	Internet	Toronto
35	Bench	2012	49.1	7.0	Internet	Vancouver
36	Drop	2015	27.3	6.8	Mobile	Toronto
37	Analytics 4 Life	2012	47.5	6.8	Software	Toronto
38	MOJIO	2012	47.4	6.8	Mobile	Vancouver
39	SecureKey Technologies	2008	73.5	6.7	Internet	Toronto
40	Platterz	2016	20.0	6.7	Internet	Toronto

The Profile of a Narwhal

The “average” Narwhal in 2018 is eight years old and has raised \$105 million of funding since its inception (up dramatically from last year’s average of \$66 million). Most firms operate in the Internet software and services industry and are headquartered in Toronto (Exhibits 4 and 5)

Breakdown by Industry

Exhibit 4

Industry	Number
Internet software and services	15
Healthcare	10
Mobile and telecommunications	8
Electronics and computer hardware	4
Other	13

Headquarters of the Top 50 Narwhals

Exhibit 5

Location	Number
Greater Toronto Area	24
Greater Montréal	8
Metro Vancouver Regional District	6
Kitchener-Waterloo Region	5
Other	7

The Year in Review

2018 turned out to be a great year for Narwhals; and results show that Canada has made some progress at scaling companies.

Fundraising

Since last year, 17 new firms have joined the list, replacing those businesses that have not recently secured funding. Exhibit 6 shows where the changes occurred. Topping the list, Ironshore Pharmaceuticals raised a whopping \$143 million while Hopper, Coveo and Assent Compliance each raised \$100 million in the year. In total, 27 of the 50 Narwhals raised some capital.

Topping the list on the technology side is Element AI. It was excluded from prior lists as it appeared to be a services business, but product roadmaps released in November finally made Element AI a contender for entry to the Narwhal List. In healthcare, Bluerock Therapeutics still heads the list.

Fundraising
Exhibit 6

	Number of New Firms	2018 Average Raised (in million USD)
Technology	15	40
Healthcare	2	110

Graduations

Unlike the year prior that was marked by four graduations from the list, there were no sales of Narwhals and no initial public offerings (IPO) in 2018. The fact that no Narwhals were sold is a good sign for Canada.

Progress

The overall financial velocity of Canadian Narwhals has improved significantly: the average was 14.6, up from 9.4 from the previous year. The boost comes mainly from the technology sector whose average increased from 9.4 to 12.8. The Canadian tech sector is growing and maturing, creating more companies that may grow in time to become globally competitive.

The average velocity in the health sector, however, dropped from 27.2 to 21.7. In fact, Exhibit 7 shows that the technology sector continued to improve over the past three years while the healthcare sector has languished.

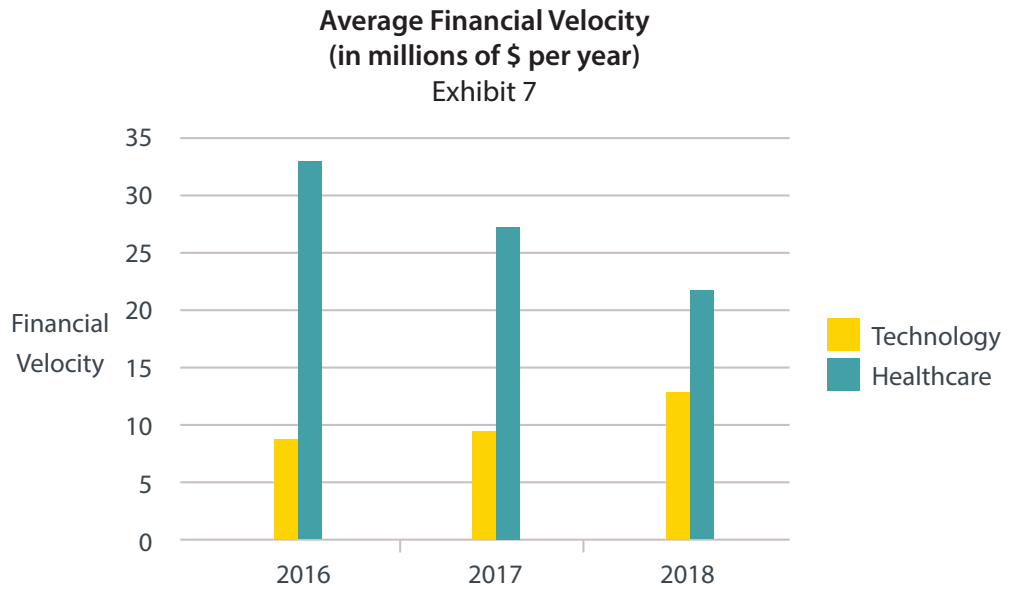
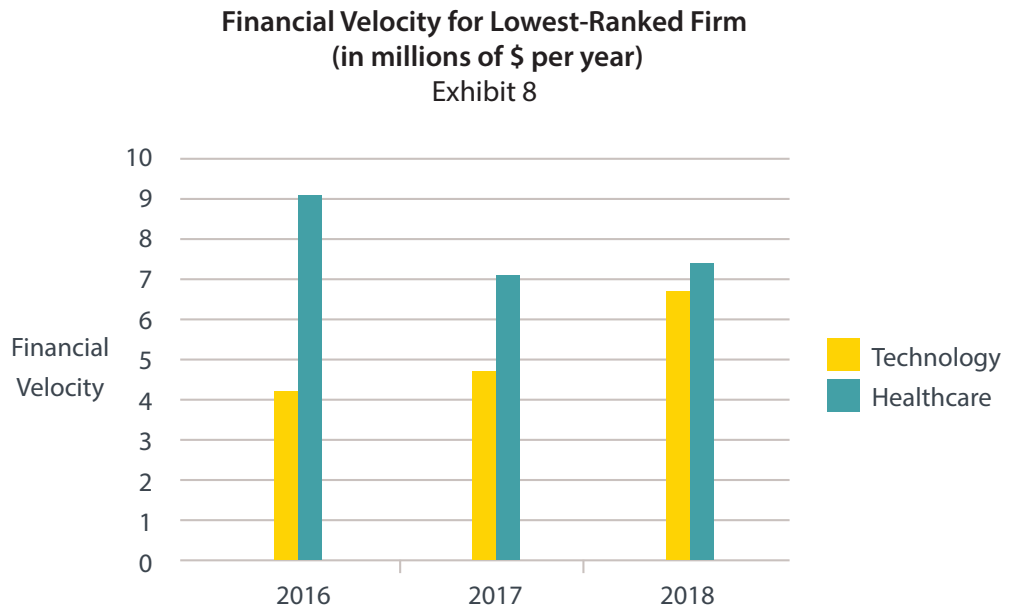


Exhibit 8 shows the financial velocity for the lowest-ranked firms on the two lists. This list also shows the progress that has been made by the technology sector and the slow decline of healthcare tech in Canada.



Becoming World-Class

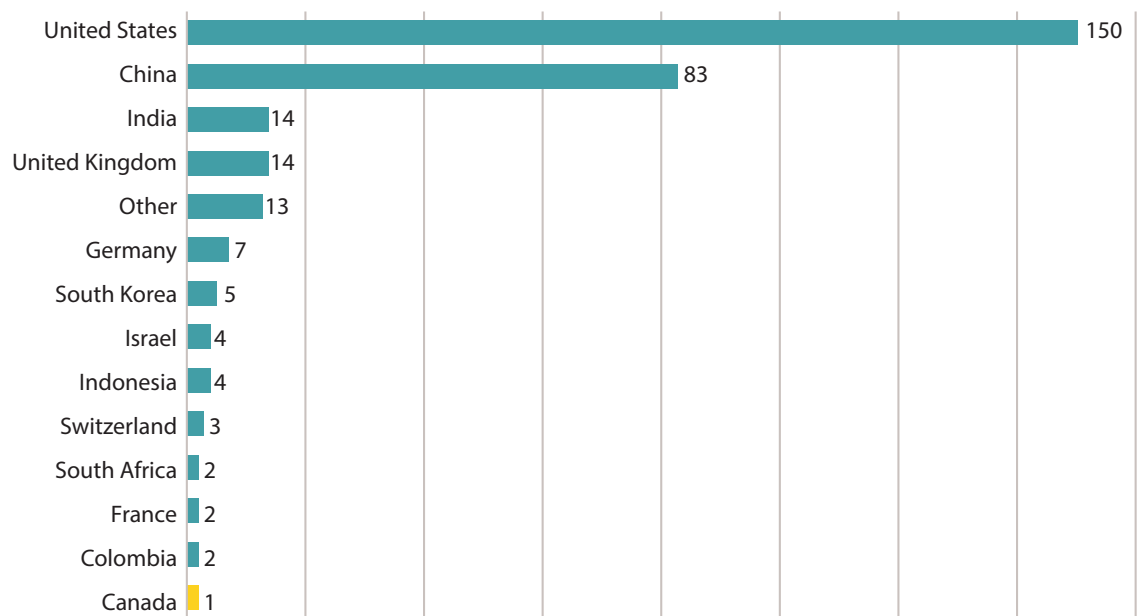
As a tech company matures, it can grow through the acquisition of private funding or undertake an IPO and access public funds. With the increasing availability of private capital in recent years, firms are staying out of public markets longer. As a result, many of the world-class companies that are created eventually transition to “Unicorn” status (defined as private companies with a market value of above \$1 billion).

Global Ranking

Exhibit 9 shows the total number of Unicorns in countries around the world. Canada is clearly challenged to create Unicorns. While we might not be able to produce on a pro-rata basis at the same pace as the US, we could use some of the less populous countries as a potential benchmark, putting us closer to a target of 5–10 Canadian Unicorns at any point in time. To keep pace with comparable jurisdictions in Exhibit 9, Canada should be able to produce at least two new Unicorns every year.

Number of Unicorns by Country in 2018

Exhibit 9



What is highly disappointing though is that Canada has yet to produce a Unicorn since Kik Interactive became one in August of 2015. That's over three years without producing a Unicorn when we should be producing between two and five a year. In fact since Kik became a Unicorn, 19 US companies were **founded** and became Unicorns.

If the growth of a Canadian tech company to a globally competitive business can be captured as a progression from startup to Narwhal to Unicorn to IPO, then the next question becomes: what would it actually take for our Narwhals to become Unicorns? To answer this, we can perhaps look at the US for some hints.

Exhibit 10 lists the 25 top-ranked US Unicorns (out of the almost 150 in existence) ordered according to their financial velocity. We looked at all US-based Unicorns in the CB Insights database as at December 31, 2018 for which we could determine financial velocity. We have also included their valuation and the "valuation multiple" (defined as the valuation divided by the amount of capital raised).

Financial Velocities of US Unicorns
Exhibit 10

Company	Founded	Financing (\$M)	Financial Velocity	Valuation (\$M)	Valuation Multiple
Uber	2009	16,858	1,686	72,000	4.3
JUUL Labs	2017	2,041	1,021	15,000	7.3
Lyft	2012	4,762	680	11,500	2.4
WeWork	2010	5,460	607	20,000	3.7
GRAIL	2015	1,614	404	2,460	1.5
Airbnb	2008	4,398	400	29,300	6.7
Katerra	2015	1,290	323	1,000	0.8
Social Finance (SoFi)	2011	2,194	274	4,500	2.1
Instacart	2012	1,896	271	7,600	4.0
Magic Leap	2010	2,353	261	4,980	2.1
Kabbage	2009	2,488	249	1,000	0.4
Avant	2012	1,719	246	2,000	1.2
letgo	2015	975	244	1,000	1.0
Lime	2017	467	234	1,100	2.4
Bird Rides	2017	418	209	2,000	4.8
Indigo Agriculture	2016	616	205	3,500	5.7
AppLovin	2012	1,385	198	1,400	1.0
OpenDoor Labs	2013	1,179	197	2,000	1.7
Devoted Health	2017	368	184	1,800	4.9
Brex	2018	182	182	1,100	6.0
Oscar Health Insurance Co.	2012	1,267	181	3,200	2.5
Compass	2012	1,143	163	4,400	3.8
Pinterest	2010	1,465	163	12,300	8.4
DoorDash	2013	971	162	4,000	4.1
Zoox	2014	790	158	3,200	4.1

Although the average US Unicorn is 1.5 years older than the average Narwhal, it has an average financial velocity of \$98.9 million per year (meaning that, on average, these firms have raised an astounding \$98.9 million per year since inception). Taking out Uber and JUUL Labs as obvious outliers that have amassed substantially larger funds, the average financial velocity for the Top 50 Unicorn Club is still a remarkable \$81.6 million per year (compared to the Canadian Narwhal average of \$14.6 million per year).

Comparison of Financial Velocities

Exhibit 11

	2018 (millions of \$ per year)	2017 (millions of \$ per year)
Unicorn	98.9	93.7
Narwhal	14.6	9.4

If Canada’s objective is to create more world-class companies from the tech sector (as envisioned by the federal government, and particularly Innovation, Science and Economic Development Canada), then one step on the road may consist of creating more Unicorns.

Since the lowest-ranked US Unicorns (the ones with valuation of \$1 billion) are closest in size to Canadian Narwhals, they may provide instructive examples on what is actually needed to reach that point.

We took a closer look at 34 US-based Unicorns with a valuation of \$1 billion, the minimum amount needed to become a Unicorn. Collectively, these companies have raised an average of \$275 million (Exhibit 12). (Although there were actually 38 businesses with a valuation of \$1 billion, we eliminated four businesses from our analysis as they were considered outliers.) Of these, there are 21 US Unicorns with a financial velocity of \$10–33 million per year (Exhibit 12).

Canada has 28 Narwhals with a financial velocity in that range. In fact, this is up dramatically from the 18 that were at this level last year and the 10 that were in this range the year before. This means that we are making some progress in our ability to scale companies. Because of the way companies are valued for venture capital purposes, if each of these companies can maintain this rate of capital acquisition, they all have the potential to become Unicorns in the near future .

US-based Unicorns with Valuations of \$1 Billion
Exhibit 12

Company	Founded	Financing (\$M)	Financial Velocity
Pony.ai	2016	214	71.3
Desktop Metal	2015	277	69.3
Convoy	2015	275	68.8
Cohesity	2013	410	68.3
TripActions	2015	235	58.8
Netskope	2012	400	57.1
ServiceTitan	2013	325	54.2
MediaMath	2007	605	50.4
Illumio	2013	267	44.5
Ginkgo BioWorks	2009	436	43.6
Adaptive Biotechnologies	2009	416	41.6
Root Insurance	2015	164	41.0
Vox Media	2011	324	40.5
Gusto	2011	316	39.5
TechStyle Fashion Group	2010	300	33.3
Lookout	2009	281	28.1
Pat McGrath Labs	2016	82	27.3
WalkMe	2011	217	27.1
Sweetgreen	2007	322	26.8
Rubicon Global	2008	278	25.3
Zip Recruiter	2010	219	24.3
Symphony Communication Services Holdings	2005	296	21.1
JFrog	2008	227	20.6
Supreme	1994	500	20.0
CloudFlare	2009	182	18.2
Zoom Communications	2011	143	17.9
Roblox	2004	249	16.6
Rocket Lab	2006	215	16.5
TalkDesk	2011	124	15.5
Soundhound	2005	214	15.3
Age of Learning	2007	182	15.1
Medallia	2001	255	14.2
Procore Technologies	2001	255	14.2
SMS Assist	1995	255	10.6
MarkLogic	2001	172	9.6

These results point to a sense of cautious optimism in Canada's technology space. Although we have made significant progress and have continued to leverage our investments in startups and incubation, our analysis suggests that we have significant work ahead of us. For example, while the 28 Canadian firms with a financial velocity of \$10-33 million per year have raised, on average, \$140 million in 2018 (up from \$105 million in 2017), the smallest American Unicorns have accumulated nearly double that amount in the same timespan: \$275 million per firm in 2018, (up from \$202 million in 2017).

Based on these numbers, one can argue that to turn 28 Narwhals into Unicorns, they must raise another \$135 million (on average) at valuations that would qualify them for entry into the Unicorn Club. The sheer difference in scale between investments available to technology firms in Canada and the US is a stark reminder that we have to be significantly smarter about how we nurture and invest in Canadian technology companies.

Even as Canadian Unicorns continue to grow and eventually go public, the challenge is not to lose sight of the whole pipeline. We have to continue to produce a steady stream of startups that can grow and have all the supports necessary to become members of the exclusive Narwhal List and Unicorn Club.

Methodology

This study looked at the fundraising patterns of over 1,000 private VC-funded Canadian technology product businesses listed on the CB Insights' database as at December 31, 2018. It also looked at an equivalent number of companies identified by Crunchbase. All amounts are stated in US dollars. Additionally, we examined the results of those companies identified by CB Insights as Unicorns.

The data were only collected from public sources and may therefore be incomplete. Despite our best efforts, we may have omitted a company that belongs on the Narwhal List or may have included one that does not fit. All efforts were made to check the veracity of the data. Please note that all readers are encouraged to report errors or omissions. If we have made a mistake in reporting any company statistics or have inadvertently left off a company, please contact us and we will be pleased to update the list in a subsequent release.

This study was not intended to be academically rigorous; nor was it intended to be all-encompassing about the topic of financial velocity and business potential. It was designed only to add to the conversation on innovation and highlight areas worthy of future research by looking at data available from publicly available sources. We plan to continue exploring and developing research on the subject in future Impact Briefs.

About the Impact Centre

Science to Society

We generate impact through industry projects and partnerships, entrepreneurial companies, training and research.

We bridge the gap between the university and industry to accelerate the development of new or improved products and services based on physical technologies. We work with graduate students and researchers to help them commercialize their discoveries. We provide undergraduate education and training for students at all levels to ease their transition into future careers.

The Impact Centre conducts research on all aspects of innovation, from ideation and commercialization to government policy and broader themes such as the connection between science and international development. We study how companies of all sizes navigate the complex path between a discovery and its market and how their collective innovations add up to create a larger socioeconomic impact.

Our objective is to understand how we can improve our ability to create world-class technology companies, how governments, companies, and academia can identify and adopt best practices in technology commercialization.

Impact Briefs

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