



# The Global Startup Ecosystem Report Cleantech Edition

entrepreneurship  
FOR CLIMATE

Learn more and get connected at [startupgenome.com](http://startupgenome.com)

# Table of Contents

04	About Startup Genome	22	The Opportunity That Corporations Can't Afford to Miss
05	Global Member Network	25	Global Funding & Performance Trends
06	Our Services	28	Deployment-Led Innovation: An Algorithm for Green Growth
07	About Our Global Partners	32	In Search Of The Elusive Political Entrepreneur
08	About Entrepreneurship For Climate	35	Top Five Ecosystems by Region And Ecosystems to Watch
10	About Foresight Canada	36	Cleantech Ecosystem Players
10	About Innovate BC	36	Top Accelerators & Incubators
11	The Problem in Cleantech Isn't Innovation — It's Scaling	37	Top VC Firms and Impact Investors
14	Global Startup Sub-Sector Analysis	38	Cleantech Ecosystem Pages
16	Global Cleantech Ranking: Top 25 + 10 Runners-Up	82	Individuals Can't Solve the Climate Crisis, But Clusters Can
16	Key Findings	84	Collaborating to Accelerate Canadian Cleantech
17	Global Top 25	87	Methodology, References, & Acknowledgments
18	Cleantech Rankings	88	Methodology
19	How Building High-Performance and Interconnected Climate Tech Entrepreneurial Communities Will Slow Climate Change	92	References
		108	Acknowledgments & Partners

Copyright © 2022 Startup Genome LLC (startupgenome.com). All Rights Reserved. You agree not to reproduce nor distribute the report, either by email, website download, or any other electronic or physical means without the prior written authorization of Startup Genome. This material has been prepared for general informational purposes only and is not intended to be relied upon as professional advice. February 2022, version 1.2.

This report cannot be offered for download on any website other than [startupgenome.com](https://startupgenome.com)

# Ecosystem Pages

## 38 TOP PERFORMERS

- 39 Silicon Valley
- 41 Tel Aviv
- 43 Stockholm
- 45 London
- 47 Los Angeles
- 49 Boston
- 51 Amsterdam-Delta
- 53 New York City
- 55 Beijing
- 57 Washington, D.C.
- 59 Berlin
- 61 Toronto-Waterloo
- 63 Paris
- 65 Seattle
- 67 Greater Helsinki
- 69 Sydney

## 71 ECOSYSTEMS TO WATCH

- 72 Pittsburgh
- 74 Calgary
- 76 Frankfurt
- 78 Sri Lanka
- 80 Singapore

# About Startup Genome



Startup Genome is the world-leading policy advisory and research organization for public and private organizations committed to accelerating the success of their startup ecosystem. We have advised more than 100 clients across six continents in 45+ countries to date.

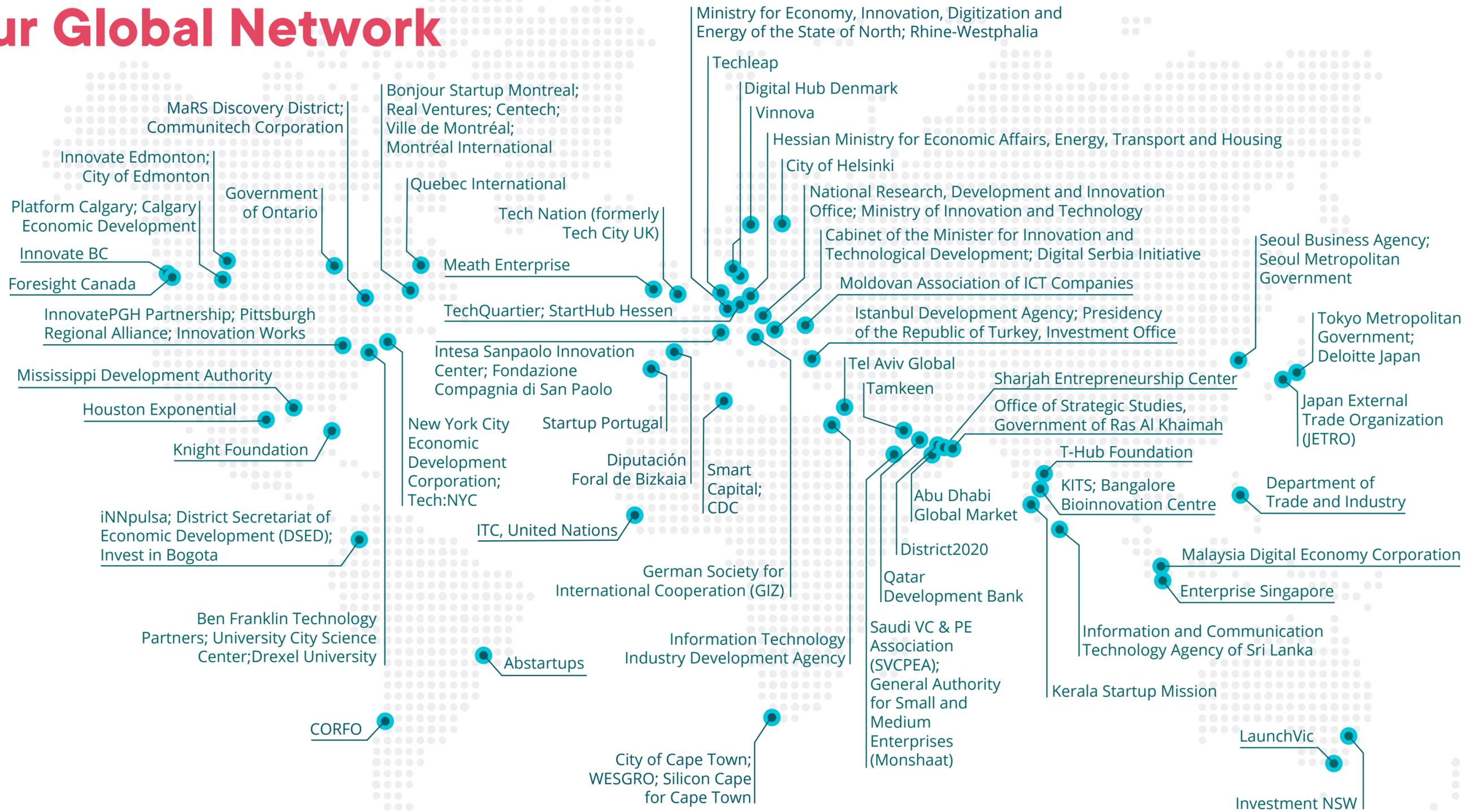
Startup Genome's mission is to accelerate startup success and ecosystem performance everywhere, working together with global thought leaders and practitioners to define and execute robust policies and programs that drive lasting change. Our impact is rooted in over a decade of independent research with data on three million companies across 280 cities.

Working side-by-side with more than 300 partner organizations, our frameworks and methodologies have become instrumental in building foundations for startups and startup ecosystems to grow. Many of the world's leading governments and innovation-focused organizations have joined our knowledge network to cut through the complexities of startup ecosystem development and fuel sustained economic growth. Considered the new science of startup ecosystem assessment, we point to key gaps in startup ecosystems and prioritize actions to take in addressing them.

Join us and boost startup success, economic growth, and job creation in your region. Follow our work at [startupgenome.com](https://startupgenome.com) and follow the company on [LinkedIn](#) and [Twitter](#).

## GSER: Cleantech Edition

# Our Global Network



## GSER: Cleantech Edition

# Our Services

We work with forward-looking governments and private sector organizations to accelerate the success of their startup ecosystems to fuel the growth of more startups, sustainable economic growth, and job growth.



### Knowledge Exchange

- Support from our leaders
- Network of leading innovation policy makers in 40+ countries
- Access to policy best practices and shared learning
- Member meetings and leadership workshops



### Attraction

- Creating awareness and profile for your ecosystem
- Highly targeted towards attracting entrepreneurs, talent and investors
- Global reach through our reports, conferences and media



### Assessment

- Scientific and data-driven assessment of ecosystem performance, sub-sector strengths, and success factor gaps
- Ecosystem lifecycle
- Peer benchmarking



### Strategy

- Scenario modelling for economic impact
- Ecosystem development strategy
- Multiyear implementation roadmaps
- Stakeholder engagement and steering committee formation



### Execution

- Initiative execution and support for local ecosystem agencies and teams
- Impact measurement and reporting
- Delivered by Startup Genome and globally leading organizations and experts

Want to speak with someone from our team to find out more?  
 Contact Adam Bregu, Director of Business Development and Partnerships ([adam@startupgenome.com](mailto:adam@startupgenome.com))

## GSER: Cleantech Edition

# About Our Global Partners



TNW is a global digital brand that informs, inspires, and connects people who love tech, through media, events, and spaces. Primarily known for its media outlet and award-winning tech events, TNW also incorporates a co-working label, a global startup database, and delivers custom innovation programs to corporates and governments.



Provides actionable advice on private capital challenges. Combining rigorous academic approaches with real world industry expertise, its expert team focuses on complex, customized projects that require thorough analysis, whether quantitative or qualitative in nature, to help its clients assess or design strategies, improve performance, and chart winning strategies for the future.



Everyday investors, journalists, founders, and the global business community turn to Crunchbase for information on startups and the people behind them.

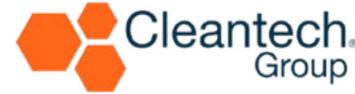


Provides data-driven intelligence on high-growth companies.



Empowers ambitious tech entrepreneurs through growth programs, digital entrepreneurship skills, a visa scheme for exceptional talent, and by championing the UK digital sector through data, stories, and media campaigns.

# About Entrepreneurship for Climate



Entrepreneurship for Climate was created by the leaders of several influential organizations from around the globe. We are bringing our networks together to accelerate momentum. Together we are committing to solving the scaleup gap that has held back the climate impact of green technologies.

We are dedicated to forming global networks that unite startups, accelerators, incubators, investors, and governments. Collectively, we will mobilize millions of people and thousands of thought leaders to join our movement and build global network solutions to the Cleantech scaleup gap.



**JF GAUTHIER**

Founder & CEO, Startup Genome  
Serial Entrepreneur



**RICHARD YOUNGMAN**

CEO, Cleantech Group



**BIANCA DRAGOMIR**

CEO, Cleantech Cluster Valencia  
Region, European Union Expert  
Group on Industrial Clusters



**MATT TONER**

Partner, Shred Capital  
Former Deputy Leader, BC Green  
Party



**PATRICK GAGNÉ**

CEO, Cycle Momentum  
Former Co-CEO, Bonjour  
Startup Montreal



**CATHERINE BÉRUBÉ**

VP, Sustainability, Investor  
Relations and Public  
Affairs, Cycle Capital &  
Cycle Momentum



**FRED WALTI**

CEO, NGIN  
Founder & Former CEO,  
LA Cleantech Incubator



**FRANS NAUTA**

Founder, ClimateLaunchpad  
Board Member, Carbon180



**JEANETTE JACKSON**

CEO, Foresight Canada



**SYLVAIN CARLE**

Managing Partner, O13  
Former Partner, Real  
Ventures



**PETER KOFLER**

Entrepreneur  
Chair, Danish Entrepreneurs

# Manifesto: Solving the Scaleup Gap in Cleantech

Working to Create the Global Category Leaders of the Net-Zero Economy

To reach net zero while achieving SDGs across communities and continents, we believe that:

- Entrepreneurs and startup ecosystems must lead the fight against climate change.
- We must work together to remove the barriers that have held back the successful scaling and massive impact potential of Cleantech startups.
- We will overcome these barriers by forming global networks that unite capital, expertise, and public policy to produce the kind of break-out successes (e.g. unicorns) that are way too rare in the green space.

Finally, we believe that time is running out.

Therefore, we are calling together global and local leaders to join us in:

- **Catalyzing demand-side policies** that enable deployment-led innovation in interconnected markets and cultivate winners rather than experiments.
- **Mobilizing capital with mentorship** by building global angel investor syndicates that bring industry expertise and global customer relationships.
- **Bringing scaling skills** and business experience to passionate Cleantech entrepreneurs.

- Combining venture investors with foundations and government funds to create **larger and more patient capital**.

Let's reframe the debate, pointing to successes and the right metrics, including direct and indirect jobs created by greener solutions, rather than lost jobs or the costs of transition.

So we don't have (much) time and the startup culture is known for embracing collaborative problem solving, optimism, and rapid impact.

This approach lets us come together with activists, collaborating and respecting each other's roles. As business leaders, we must be responsible for driving this plan forward and putting innovation into concrete action, clearing a path for governments to develop coherent supporting policies.

**It is time to accelerate the success rate and scale the impact of Cleantech.  
We must move at startup speeds.**

**Join the movement. [Sign the manifesto](#)**

# About Foresight Canada



Foresight is Canada's Cleantech accelerator. We bring together innovators, industry, investors, government, and academia to address today's most urgent climate issues and support a global transition to a green economy.

Foresight has provided support to 750+ ventures, which have generated 6,600 jobs, \$800+ million in capital support, and \$300 million in revenue.

Our work is focused on four areas:

- Acceleration programs that provide Cleantech innovators with unparalleled access to training, expert coaching, and connections.
- Industry Challenges that connect corporate leaders facing sustainability hurdles with Cleantech innovators offering market-ready solutions.
- Sector-specific initiatives that harness energy and innovation in certain Cleantech areas to support the development of high-impact solutions.
- Investor programs such as matchmaking events and venture showcases that connect impact investors with Cleantech ventures.

Cleantech innovation starts here!

Learn more at [foresightcac.com](https://foresightcac.com)

# About Innovate BC



Innovate BC is a one-stop service center to connect innovators — large and small — with BC government funding, tools, resources, and support.

Every day, staff at Innovate BC come to work to serve and celebrate innovation in British Columbia, helping our industries grow, while ensuring the benefits of our thriving technology sector are felt by people in all regions of our province. Innovate BC is a Crown Agency of the Province of BC.

Learn more at [innovatebc.ca](https://innovatebc.ca)



GSER: Cleantech Edition

# The Problem in Cleantech Isn't Innovation — It's Scaling

**JF GAUTHIER**

Founder &amp; CEO, Startup Genome

*The world's leading voice in innovation ecosystem development, JF Gauthier has advised more than 100 governments and private-public partnerships across 35 countries. He has founded five businesses and led others across two continents and three sectors (Tech, Life Sciences, and Cleantech), and achieved two exits. He is also an active angel investor, and previously worked in corporate innovation.*

At Startup Genome we believe entrepreneurial innovation is essential to winning the fight against climate change and that entrepreneurs must play a leadership role in confronting one of the most pressing challenges of our times. Yet, as of now, relatively few Cleantech startups are scaling up to become global category leaders of the net-zero economy. Why is that?

Some commenters cite an innovation gap. But the sector is not short of potentially game-changing technologies. The shortage isn't of ideas and startup support organizations, nor of capital.

The problem is the Cleantech scaleup gap. If we could scale all of the Cleantech innovations we currently possess, we might be halfway or — who knows — all the way to a net-zero economy. Sadly though, Cleantech startups often run up against significant barriers when bringing their solutions to global markets. And while more capital than ever has been raised and invested recently by VCs, investors also poured money into Cleantech startups 15 years ago and saw very few results. More capital alone will not solve the scaleup gap.

Without the ability to scale, even the cleverest innovations cannot make a significant impact. To break the challenges of the Cleantech scaleup gap we have created the **Entrepreneurship for Climate** movement together with the Cleantech Group, NGIN, Cycle Momentum, and others.

## Why Cleantech Startups Fail to Scale

Historically, many of the world's most successful startups have been in the software business. There are good reasons for this. Software startups offer solutions that have an inherent and large cost advantage, replacing labor with high variable costs with software that has a near-zero marginal cost.

Cleantech companies, however, invest vast amounts of time, money, and technical skill to develop solutions that then start out with a big cost disadvantage, sometimes to the order of 100x. These solutions compete against traditional technologies with huge economies of scale, fully depreciated production assets, and decades of production experience. It's no wonder Cleantech startups are far harder to scale than software-based businesses.

Cleantech startups face another, perhaps even larger, challenge as well. They sell into an exceptionally fragmented market. If you're selling a software solution, you can go to San Francisco, New York, or London and find huge numbers of potential buyers for your product all in one place. It's not so easy for Cleantech. Markets not only cut across multiple sectors as disparate as energy, agriculture, and new materials, but each of those sectors are fragmented across industries and geographies.

## How to Overcome These Barriers

Barriers to scaling Cleantech companies are high, but they are not insurmountable. At Startup Genome we believe we can overcome these challenges by forming global networks that unite capital, expertise, and public policy.

We are calling together global and local leaders to join us in building the following four global networks solutions to the scaleup gap, starting on January 24, 2021, at the Cleantech Forum San Francisco.

- Creating **demand-side policies**,
- **Mobilizing early-stage capital** with global industry expertise and customer relationships;
- **Bringing scaling skills** and business experience to passionate Cleantech entrepreneurs;
- Combining venture investors with foundations and government funds to create **larger and more patient capital**.

The first piece of the puzzle is tackling the maze of differing laws and regulations that Cleantech startups must currently navigate if they want to scale. That means working with governments and innovation agency leaders around the world to align their demand-side policies and procurement laws across several countries and cities to enable deployment-led innovation across large interconnected markets. Before we can create bigger winners in the subsector, we need to create bigger markets.

A second piece is a global green angel network bringing deal flow to high-net-worth individuals across many countries — breaking the current hyperlocal nature of angel investing. This will, in turn, bring business and industry expertise as well as international customer introductions to Cleantech startups.

Thirdly, while more capital than ever has been invested in Cleantech VC funds, what is needed is more patient capital across early and late stages. This could mean linking venture investors with climate-driven foundations and government funds that are looking for climate impact rather than financial return. While ensuring higher returns for pure financial investors, such hybrid funds are better aligned to the longer-time horizons of Cleantech innovation.

Finally, we must work together to connect tech executives with proven global scaling skills — abundant in the software and life sciences sectors in top ecosystems — to passionate Cleantech entrepreneurs and their teams.

## Join Us in Tackling Climate Change

Scaling up Cleantech startups means much more than big valuations and impressive exits. It means scaling up their impact and quite literally saving the planet. If that's a goal that's important to you, I invite you to read and sign our manifesto.

As executives, founders, government leaders, and innovators, we are responsible for removing the barriers that hold Cleantech startups back from realizing their massive potential to fight climate change. By working together we multiply our impact. Join us.

“  
Entrepreneurial innovation is essential  
to winning the fight against climate  
change.”

GSER: Cleantech Edition

# Global Startup Sub-Sector Analysis

## Key Findings

- Deep Tech (Advanced Manufacturing & Robotics, Blockchain, Agtech & New Food, AI & Big Data) remains the fastest growing group globally. Fintech also has experienced substantial growth in the last five years.
- Startup sub-sectors in the Growth Phase are increasing Series A funding deals at the impressive rate of 107% over five years. Mature Phase sub-sectors have grown 33% over the same period. Decline Phase sub-sectors have declined by 28%.
- Fintech, which was in the Mature Phase in 2019, is demonstrating a resurgence in Series A funding that is more characteristic of the Growth Phase, indicating new investments and innovation in this sub-sector.
- Similarly, Edtech and Gaming, both on the edge of the Decline Phase in 2019, have experienced an increase in Series A funding that returned them to the Mature Phase.
- Series A growth rates are higher than in 2019. Exit growth rates slowed in the five-year period ending in 2020.

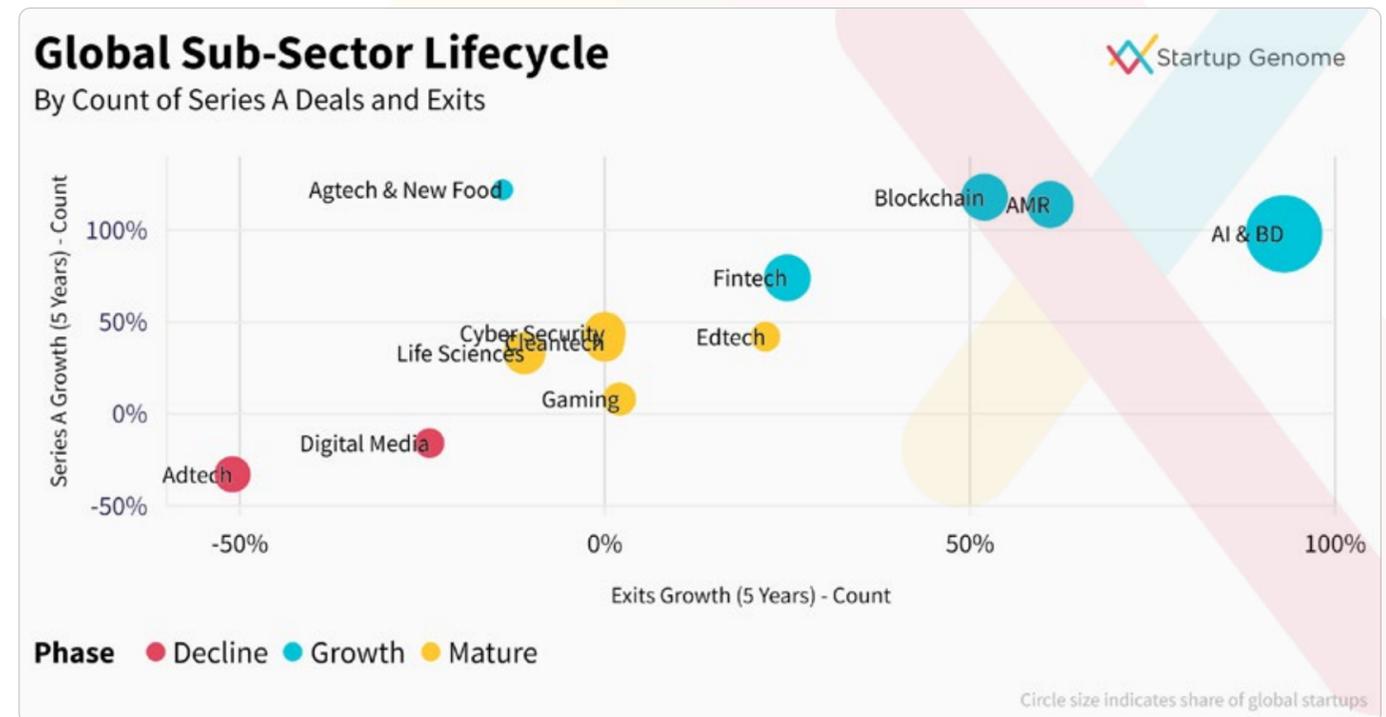


Figure 1. Global Sub-Sector Lifecycle by Count of Series A Deals and Exits

## Global Trends in Startup Sub-Sectors

The COVID-19 pandemic has created shifts in some sub-sectors, and also revived several that were previously in decline, such as Gaming and Edtech. It caused deviations from typical lifecycle patterns, as seen in the growth of Life Sciences and — in Fintech — of insurance and lending. As sectors that directly related to tackling the pandemic grew, others, including Cleantech, experienced a decline in investment. However, Cleantech has since bounced back, a reflection of the growing recognition of the importance of tackling climate change.

Figure 1 illustrates the current view of sub-sector phases based on our 2019 methodology. It provides a summary of global exit and funding event counts and shows the relative share of each sub-sector as a percentage of the global startup population. Figure 2 offers an alternate perspective on the impact of sub-sectors

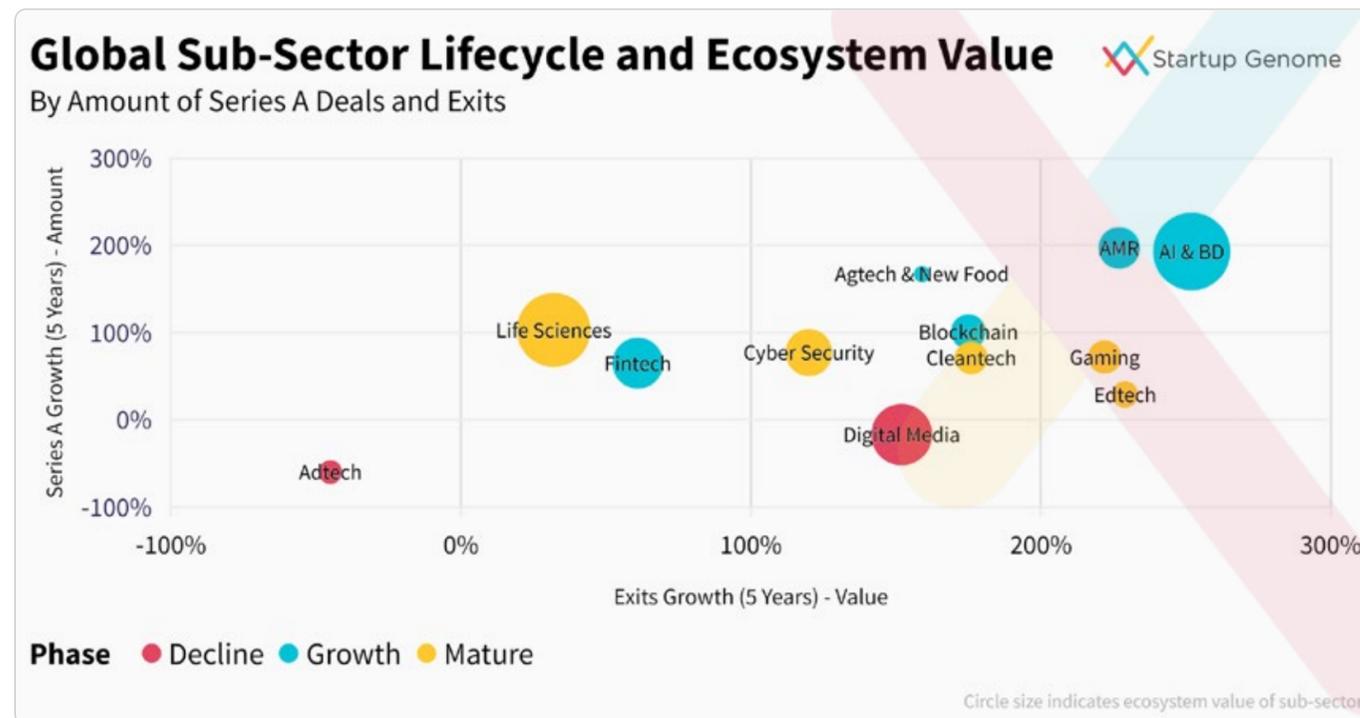


Figure 2. Global Sub-Sector Lifecycle By Amount of Series A Deals And Exits

globally: it measures their growth based on the amount of investment and exit value in each sub-sector. This second graph largely reflects the growth of sub-sectors in ecosystems with higher amounts of dollar investment and the impact of large exit events on growth. The bubble size in Figure 2 represents the ecosystem value added by a given sub-sector and indicates how attractive it is for global investors.

Interestingly, measured by both number of events and amount of funding, certain sub-sectors continue to stand out. AI & Big Data, for example, and Advanced Manufacturing & Robotics are experiencing high growth by both metrics. These two lifecycle views also reveal which sub-sectors are generating outsized ecosystem value compared to their peers. For example, Life Sciences, which comprises just 8% of global startups, added \$183 billion in ecosystem value in 2020 — the second highest amount after AI & Big Data.

For more detailed sub-sector analysis, explore the [Global Startup Ecosystem Report 2021](#) and our other [sub-sector reports](#).

### Sub-Sector Definitions

Please see the Methodology section for a full list of our sub-sectors and their definitions. Note that sub-sectors are neither mutually exclusive nor comprehensive. Some startups operate in sub-sectors we did not cover. In addition, data from patents indicates a clear convergence of technologies, with AI, for example, increasingly interacting with other fields. Over time we would expect a similar convergence of Startup Sub-Sectors. More details appear in the Methodology.

GSER: Cleantech Edition

# Global Cleantech Ranking: Top 25 + 10 Runners-Up

## The Top 25 Ecosystems for Cleantech Companies Today

### Key Findings

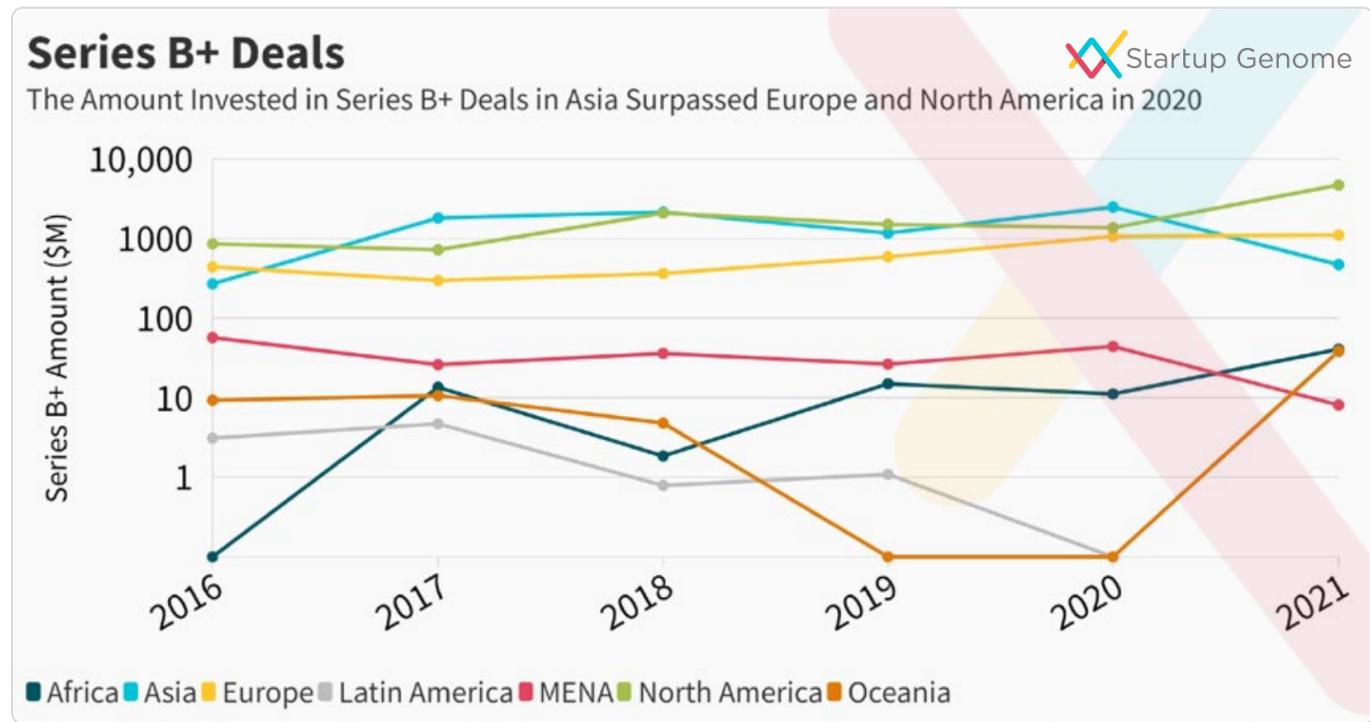
- The top five Cleantech ecosystems are Silicon Valley, Tel Aviv, Stockholm, London, and Los Angeles. This is the first time that Stockholm has entered the top five, and the first time that Tel Aviv has ranked this high since 2012.
- North America and Europe dominate the top 25 Cleantech ecosystems, with 44% and 40% respectively. Asia has two ecosystems in the top 25, and MENA and Oceania each have one.
- The second quarter of 2021 saw 77% growth in the number of Series B+ deals compared to the same quarter in 2020, an all-time high.
- While Asia saw a decline in Series A deals in recent years, it recorded a 2x increase in total late-stage investments (Series B+) in 2020, from \$1.17 billion in 2019 to \$2.47 billion, driven in part by several huge investments in EV companies.
- Post-money valuation of Cleantech companies increased by 23% in 2020 and 176% in 2021.
- Cleantech companies have the highest age at transaction of any sub-sector, with the average company taking 3.8 years to reach Series A and 5.5 years to reach Series B – almost eight months and 11 months longer than for tech startups across sectors.

## Global Top 25

Among the most striking findings of the Global Cleantech Ranking is the presence of Tel Aviv and Stockholm in the top five ecosystems. Stockholm [ranks #18 in the world overall](#) but #3 in Cleantech. Sweden is an innovation leader in renewable energy technologies and has an ambitious goal of net-zero emission by 2045. Similarly, Tel Aviv is a technology leader, [ranking #7 globally](#), but its position at #2 in Cleantech is noteworthy. For years Israel has been a global leader in the development of efficient solutions adapted to its resources in agriculture, waste management, clean energy, and water treatment, among others. These two ecosystems are punching above their weight and leading the world in Cleantech innovation.

London’s high position at #4 in the ranking reflects the city’s focus on sustainability in recent years and its decision to promote Cleantech as a key growth sector. In comparison, New York, which tied with London as #2 in the world overall, ranks at just #9 in Cleantech.

Although Asia lags behind North America and Europe in the number of cities represented in the Cleantech ranking, China has enacted ambitious goals and strategies, and is quickly catching up. The number of deals and exits in China is a fraction of the number in Europe, but the nation has recently poured huge amounts into a small number of very large deals, mostly in the electric vehicle sub-sector. As a result, the total amount invested in Series B+ in Asia surpassed the amount invested in both Europe and North America in 2020.



# Global Cleantech Startup Ecosystem Rankings

*Factors are tiered from 10-1*

Ranking	Ecosystem	Region	Performance	Funding	Startup Experience	Knowledge	Talent	Focus
#1	Silicon Valley	North America	10	10	10	8	10	3
#2	Tel Aviv	MENA	10	8	10	10	3	6
#3	Stockholm	Europe	10	8	8	8	8	8
#4	London	Europe	9	10	10	4	8	4
#5	Los Angeles	North America	10	9	9	7	8	3
#6	Boston	North America	9	10	10	5	8	7
#7	Amsterdam-Delta	Europe	8	9	9	1	7	8
#8	New York City	North America	8	10	9	6	5	1
#9	Beijing	Asia	9	4	7	10	6	1
#10	Washington DC	North America	8	8	8	2	7	5
#11	Berlin	Europe	7	8	7	3	4	6
#12	Toronto-Waterloo	North America	4	9	8	10	9	5
#13	Denver-Boulder	North America	6	6	6	6	9	8
#14	Gothenburg	Europe	1	2	1	4	3	10
#15	Paris	Europe	7	7	8	2	5	2
#16	Vancouver	North America	6	6	6	7	6	6
#17	Dublin	Europe	8	2	5	7	1	2
#18	Bern-Geneva	Europe	2	7	5	5	6	10
#19	Seattle	North America	3	7	7	9	10	4
#20	Greater Helsinki	Europe	3	5	6	4	4	9
#21	San Diego	North America	6	2	4	9	4	4
#22	Sydney	Oceania	6	4	3	6	5	4
#23	Houston	North America	4	6	4	1	6	9
#24	Barcelona	Europe	5	5	3	2	3	6
#25	Delhi	Asia	5	4	2	10	1	2
#26 to #30	Calgary	North America	3	6	5	8	10	3
	Frankfurt	Europe	5	2	4	5	1	5
	Madrid	Europe	7	1	4	9	2	1
	Shenzhen	Asia	4	1	1	1	2	10
	Singapore	Asia	1	3	2	3	2	10
#31 to #35	Copenhagen	Europe	2	1	2	8	9	8
	Edinburgh-Glasgow	Europe	2	3	6	4	4	7
	Mumbai	Asia	1	4	2	2	7	9
	Research Triangle	North America	2	5	3	3	10	7
	Zurich	Europe	4	3	2	6	2	2

26-30 and 30-35 are alphabetical order

GSER: Cleantech Edition

# How Building High-Performance and Interconnected Climate Tech Entrepreneurial Communities Will Slow Climate Change

**FRED WALTI**

Founder &amp; CEO, Network for Global Innovation

*Combining his experience as an entrepreneur with a passion for clean technology, Fred Walti is the founder and CEO of Network for Global Innovation and the co-founder of Los Angeles Cleantech Incubator.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

If we are to slow climate change in time to save our planet, we need to learn fast, innovate faster, and commercialize the needed technologies at the speed of light. How do we do that? By connecting communities of climate tech entrepreneurs, so that they can learn from each other and better support their local ecosystems. In practical terms, this means being able to connect innovative companies with the customers who need their solutions, no matter where each resides. It means building a global, connected investment network that is geographically agnostic.

The challenge of slowing down climate change requires an extraordinary blend of local and global thinking. Communities must be empowered to develop and commercialize their own solutions because doing so is cheaper, faster, and more likely to succeed. Porting in solutions developed halfway around the world most often doesn't work, especially in developing countries. Yet, each community of climate tech entrepreneurs can't operate in a vacuum because that makes things slower, more expensive, and less effective.

We developed the Los Angeles Cleantech Incubator (LACI) and then connected it to climate tech communities around the world to learn from each other's mistakes and successes. From this experience, we developed a framework of common factors for successfully building a climate tech innovation ecosystem. Today, the Network for Global Innovation (NGIN) shares this experience and applies its framework to build

a global support system for climate tech entrepreneurs, so that each of them has a shot of making a meaningful contribution to the climate emergency.

## Our Starting Point: The Los Angeles Cleantech Incubator

Ten years ago, few ecosystems for climate tech entrepreneurs existed anywhere. Yet, climate tech entrepreneurs needed the same kind of support systems that had been serving software entrepreneurs for decades — probably even more so given the special challenges facing climate tech. So, in October 2011, a small group of entrepreneurs launched an incubator in downtown Los Angeles' eroding industrial zone. It was focused on the "hard stuff" — the deep technologies that needed to be invented, developed, tested, piloted, and produced to make the dream of a green economy a reality. Located far from Silicon Beach and the glamor of media startups, LACI started out in a bus repair garage with two people and one mantra: "For Entrepreneurs, By Entrepreneurs."

LACI's early years were focused on creating and refining core business assistance practices to aid Cleantech entrepreneurs. Early programs included an investor-like vetting process, coaching by entrepreneurs in residence, an early emphasis on both investment and customer acquisition, an ever-growing advisor and mentor network, peer learning, and guidance on corporate governance. All of this was wrapped in an easy to use plug-and-play co-working space and located alongside a garage to assemble products.

In its first six years, LACI helped more than 120 early climate tech entrepreneurs raise over \$225 million in funding. These entrepreneurs made electric airplanes, established solar marketplaces, developed mobile battery-storage units, installed electric-vehicle (EV) charging station networks, invented efficient new technologies

for generators, and constructed buildings faster, cheaper, and way more energy efficiently.

Eventually, these entrepreneurs needed a larger gathering place. In 2015, LACI created the La Kretz Innovation Campus for entrepreneurs, engineers, environmental organizations, and policymakers to collaborate and support the development of clean technologies and LA's green economy. The campus also includes offices and event space, as well as the region's highest caliber advanced prototyping center, where members can design, build, test, certify, and manufacture products.

These efforts created community-wide results. LA became the largest green economy in the US, if not the world. More Cleantech entrepreneurs were starting their businesses there, and underserved populations including women and people of color were given a chance to make their contributions. In six short years, LACI delivered over \$625 million in long-term economic value to the City of Los Angeles, and LA became ranked as the #6 tech startup ecosystem in the world by Startup Genome.

## The NGIN Innovation Ecosystem Model

The entrepreneurial spirit is thriving in every corner of the world, but not everywhere has a thriving ecosystem to support its entrepreneurs. Many of the markets that need Cleantech innovation and commercialization do not have well-developed ecosystems to support development in their home market. A number of factors contribute to this, including cultural aspects (not all countries have a history of entrepreneurship), lack of knowledge (using best practices), and the embryonic nature of the Cleantech market itself (thus not generating the resources to develop and sustain an ecosystem).

To address this gap, NGIN is working with organizations, cities, and countries to strengthen their ecosystems. NGIN's Innovation Ecosystem Model provides its

## NGIN Ecosystem Model

Seven components are needed to build and manage a region-wide innovation economy



members and partners with a framework for building innovation-driven economies for cities. The model identifies the seven core elements necessary to create a high-performance innovation hub and the methods in which they must interact.

## Connecting the Dots: Building a Global Climate Tech Entrepreneurial Support System

NGIN's mission is to build robust climate tech communities and connect them to attack climate change simultaneously, on a global scale. Today, we are assisting communities from West Bengal to Brisbane in harnessing innovation to build their green economies while connecting over 24 countries on almost every continent. Our members include cities, incubators, accelerators, universities, technology parks, global NGOs, and early-stage risk investors.

## More Local. More Global. Simultaneously and Connected

Building communities of entrepreneurs in places that don't have them today is critical to slowing climate change in every corner of the world. Using best practices learned from more developed countries is a cost effective and time-saving approach. Yet, that's simply not enough. We need to connect innovation centers to learn from each other, to collaborate on projects together, and to reduce friction for their young innovators to take their products across borders. More muscular entrepreneurial communities that are connected to each other in real time will slow climate change in our lifetime.

GSER: Cleantech Edition

# The Opportunity That Corporations Can't Afford to Miss



**PATRICK GAGNÉ**  
CEO, Cycle Momentum

*Patrick Gagne has co-founded several companies that have contributed to the growth of urban living and economic development in Montreal. He is the CEO of Cycle Momentum, a startup accelerator and innovation engine in the Cleantech space, and a board member of Bonjour Startup, which aims to facilitate the creation, growth, and influence of Montreal startups.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

Funding for startup support organizations (SSOPs) such as incubators and accelerators has become critical to the development of the Cleantech startup ecosystem, as it is ramping up to become one of the fastest growing sectors of the economy in the coming decade. SSOPs have the potential to make a strong impact on the growth of the ecosystem because they not only offer support to entrepreneurs, but also act as catalysts for the innovation space in Cleantech. Startups that have benefited from SSOP programs show a significant increase in performance on key measures such as employee and revenue growth compared to other startups.

## The Funding Conundrum for the Cleantech Startup Ecosystem

The challenge facing SSOPs lies in balancing a mix of private and public funding sources. Private funding such as corporate partnerships, startup fees, and return on equity have not proven to be sufficient enough to match government grants. In a survey conducted in 2020, the Deep Centre observed that “a significant majority (88%) of BAIs (or SSOPs) receive some revenue from corporate partners and that this revenue constitutes an average of 17% of the overall revenue mix for BAIs.”<sup>1</sup>

1. Deep Centre, “[Partners for Prosperity and Innovation](#)”

SSOPs in the Cleantech space tend to be more reliant on public funding than others given the capital-intensive nature of the startups that participate in their programs, which typically results in the need for long-term support. As a result, reliance on government subsidies has slowed the development of service offerings for entrepreneurs.

## Corporations as a Lever to Accelerate the Development of the Cleantech Space

To accelerate their development, SSOPs need to increase corporate involvement in the Cleantech sector. Although most established corporations see an interest in participating in Cleantech innovation as a whole and in growing the Cleantech space, they typically seek out benefits for their own organization as well.

Partnerships with the startup ecosystem can take on many forms, including sponsoring ecosystem events, establishing a residency in a Cleantech hub, developing a startup-corporate matchmaking program, or launching a full-blown open innovation program. One example of the latter is [Open Innovation Challenge: Greenhouses](#), which was developed by InnvoHQ, Hydro-Quebec's innovation subsidiary, and Cycle Momentum.

The range of benefits in partnering with the startup ecosystem is wide. In the short term, corporations can gain:

- Greater velocity in commercialization of innovations.
- In-depth business intelligence on innovations in key sectors.

In the mid-term, they can:

- Pollinate the entrepreneurial and innovation culture.
- Create value, such as additional revenues and investments in emerging innovations.

And in the long-term, they can:

- Accelerate implementation of technologies to reduce greenhouse gases.
- Create a strategic investor practice (corporate venture capital).

Although there are compelling benefits to partnering for a corporation, the SSOPs that they engage with need to level-up their performance standards in order to increase engagement from established companies. To maximize benefits, corporations need to onboard their key employees and executives and go beyond a financial commitment in their collaborations with startups. Critical success factors include:

- Obtaining C-Level buy-in from the get-go on the benefits of an open innovation project.
- Identifying key strategic challenges — and getting executive buy-in — to submit to the startup ecosystem.
- Generating a strong startup funnel and selecting the applicants who have the best product-challenge fit.
- Managing expectations on deliverables for both executives and startups.

## Unlocking the Full Potential of the Virtuous Circle

The fight on climate change can only be successful through key technological innovation and significant collaboration efforts across the business world. Without a doubt, corporations have a huge influence and role to play. They have the power to unlock a virtuous circle of collaboration that will benefit not only themselves and secure their business continuity, but also propel the Cleantech ecosystem and increase the number of emerging startups.

Many large companies with a long-term strategic perspective have already opened their eyes to this opportunity and are actively collaborating with SSOPs and Cleantech startups. With the support of talented SSOPs, these companies are conducting open

innovation challenges, sponsoring acceleration programs in Cleantech sub-sectors of key interest, and leveraging specialized technology and startup scouting services. But there are still too few corporations on board to create the velocity needed to reach the tipping point and help address the funding challenge of the Cleantech ecosystem.

This article is a call to action to CEOs, CPOs, and innovation leaders to explore and connect with the Cleantech ecosystem to better understand the strategic business value doing so can provide. The corporate and industrial worlds can not continue to conduct business the same way as in the past and expect Cleantech innovations and startups to knock at their doors like their existing suppliers. A new collaboration approach is required to develop the strategic suppliers of tomorrow. And the time is now!

“  
The fight on climate change can only be successful through technological innovation and collaboration across the business world.  
”

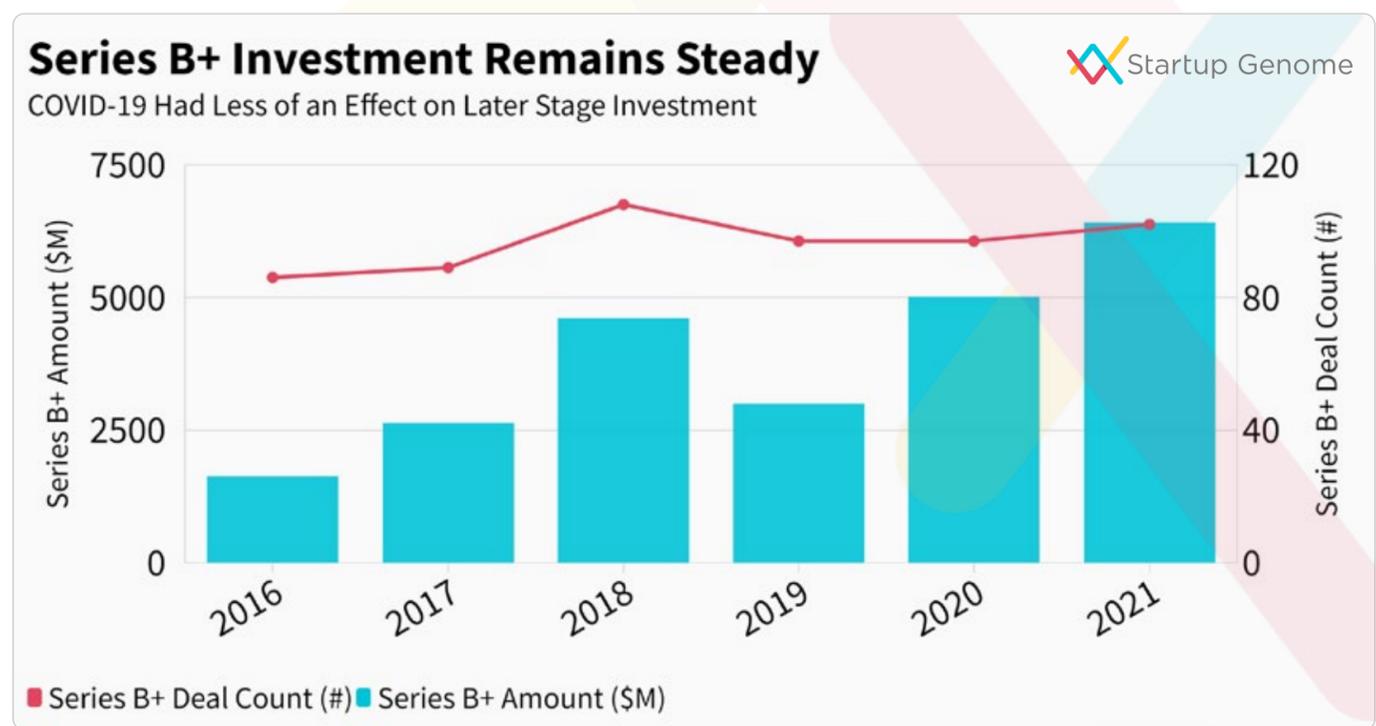
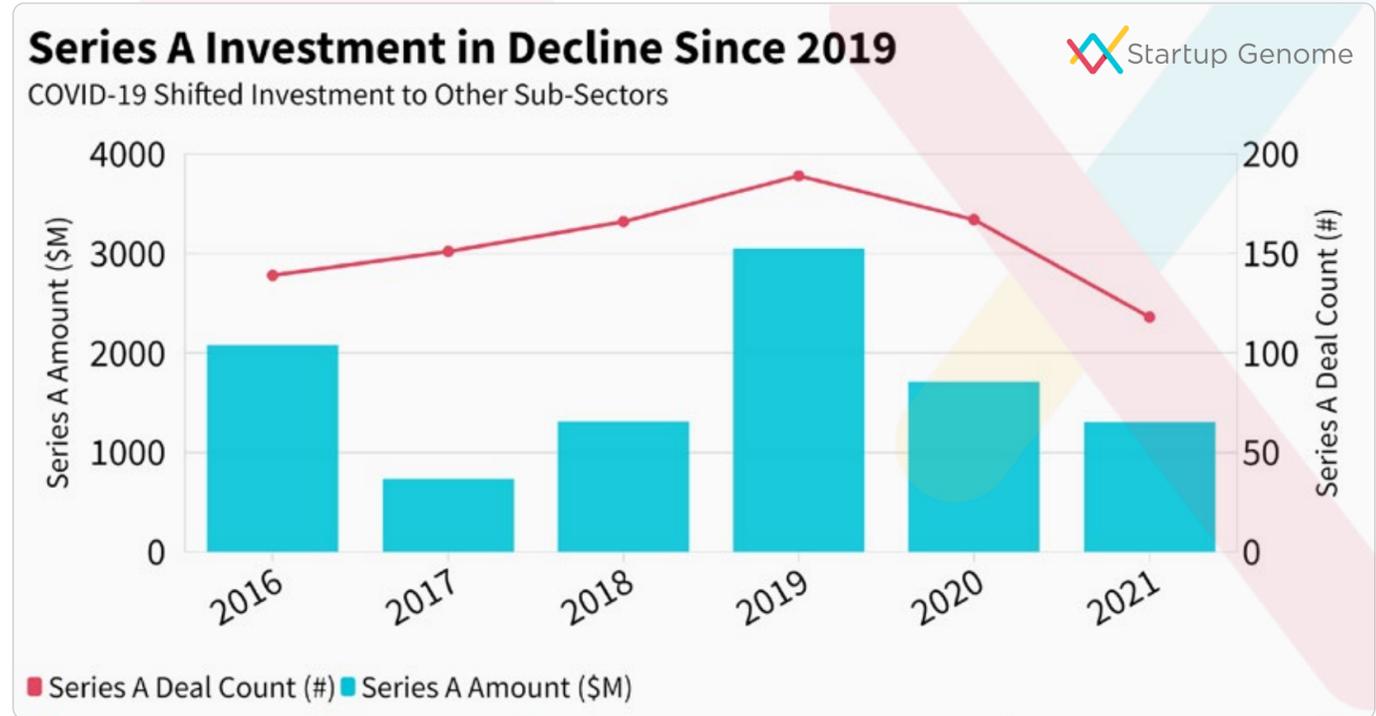
GSER: Cleantech Edition

# Global Funding & Performance Trends

The history of investment in the Cleantech space is volatile and complicated, making it hard to identify simple, durable investment trends in the sub-sector. A wave of enthusiasm for Cleantech saw investors pouring funding into the sub-sector starting in 2006. Five years later, a sector-wide bust cost those investors billions and dampened the appetite for Cleantech investing for years afterward.

However, the increasing urgency of the climate crisis, technological developments, a series of alarming reports from the Intergovernmental Panel on Climate Change, and the high-profile COP26 dealmaking among world leaders have all pushed investors to re-evaluate the sub-sector.

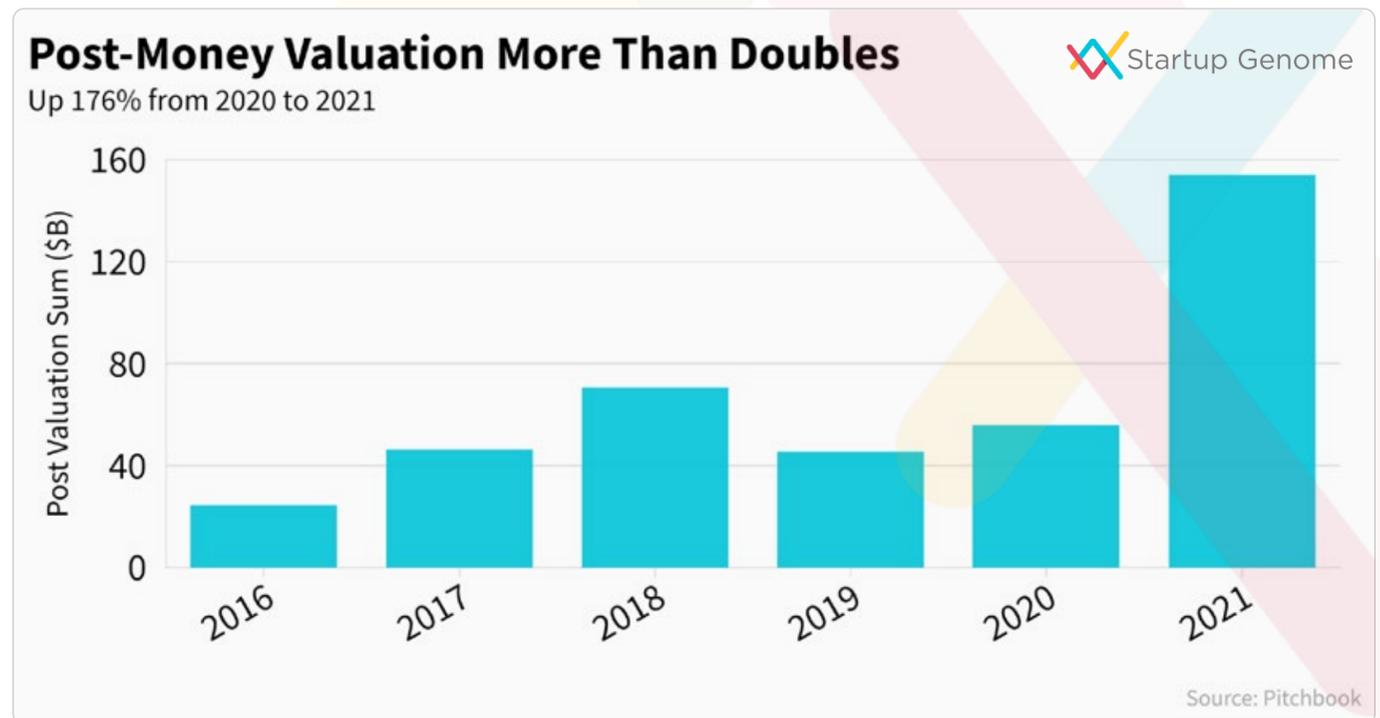
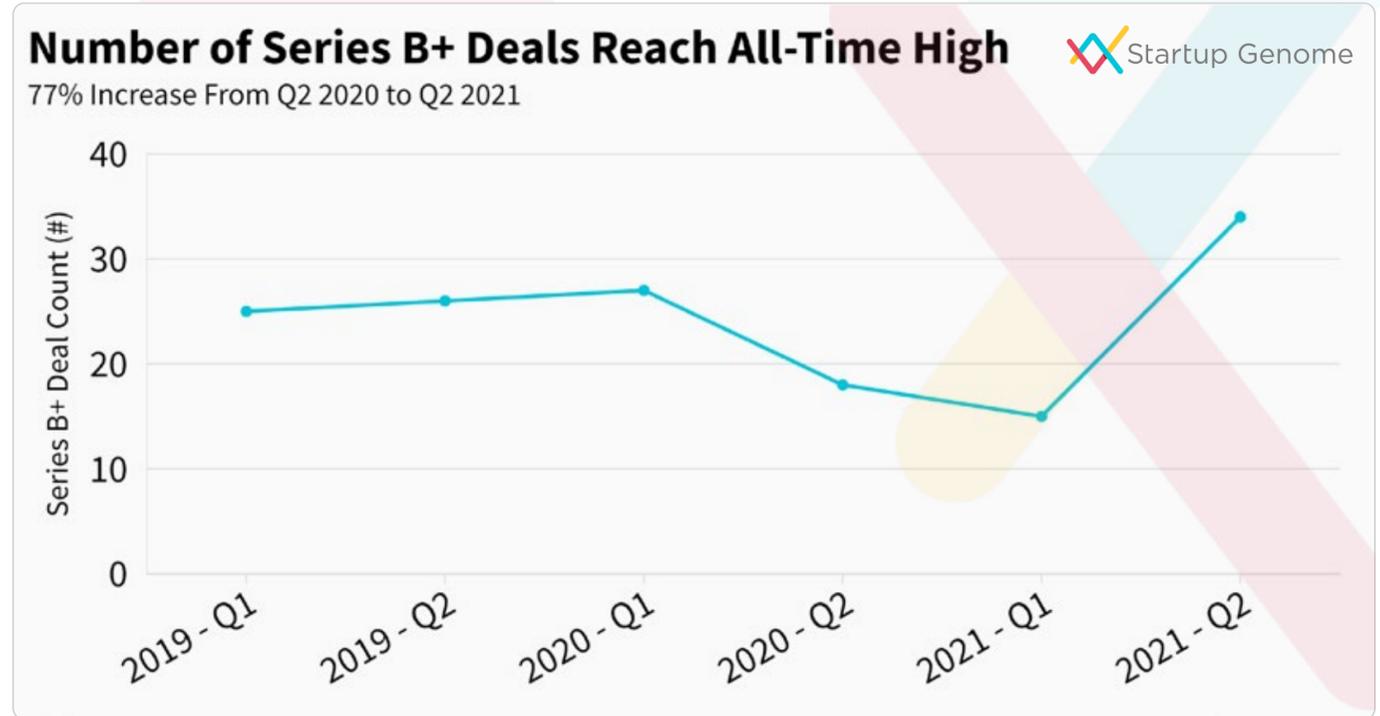
Hard numbers reflecting this trend are still hard to come by, however. This dearth of data is due to both the usual lag in availability of data on deals, as well as the complications of the COVID-19 pandemic, which temporarily accelerated investment into sub-sectors that were highly relevant to pandemic challenges, such as [Life Sciences](#), and delayed investments in sub-sectors that were not, including Cleantech.



But there are clear early signs of a renewed interest in Cleantech. There was a dramatic drop in the number of Series B+ deals in the sub-sector during the second half of 2020 and first half of 2021, almost certainly due to COVID-19. This is concerning as funding for all other sub-sectors bounced back from the initial shock of the pandemic from early 2021 onwards. However, momentum is returning to Cleantech. In the second quarter of 2021, the number of Series B+ rounds reached an all-time high, a 77% increase from the same quarter in 2020. Post-money valuation increased by 23% in 2020 and by 176% in 2021.

Limited partners are also pouring money into climate-focused VC funds, suggesting a likely future spike in deal volume and amount. Long-term observers of the space observe that this funding is also flowing to a larger variety of companies, from hydrogen fuel to micronutrient fertilizer startups, rather than being concentrated in traditional areas of investor interest like renewable energy and transportation.

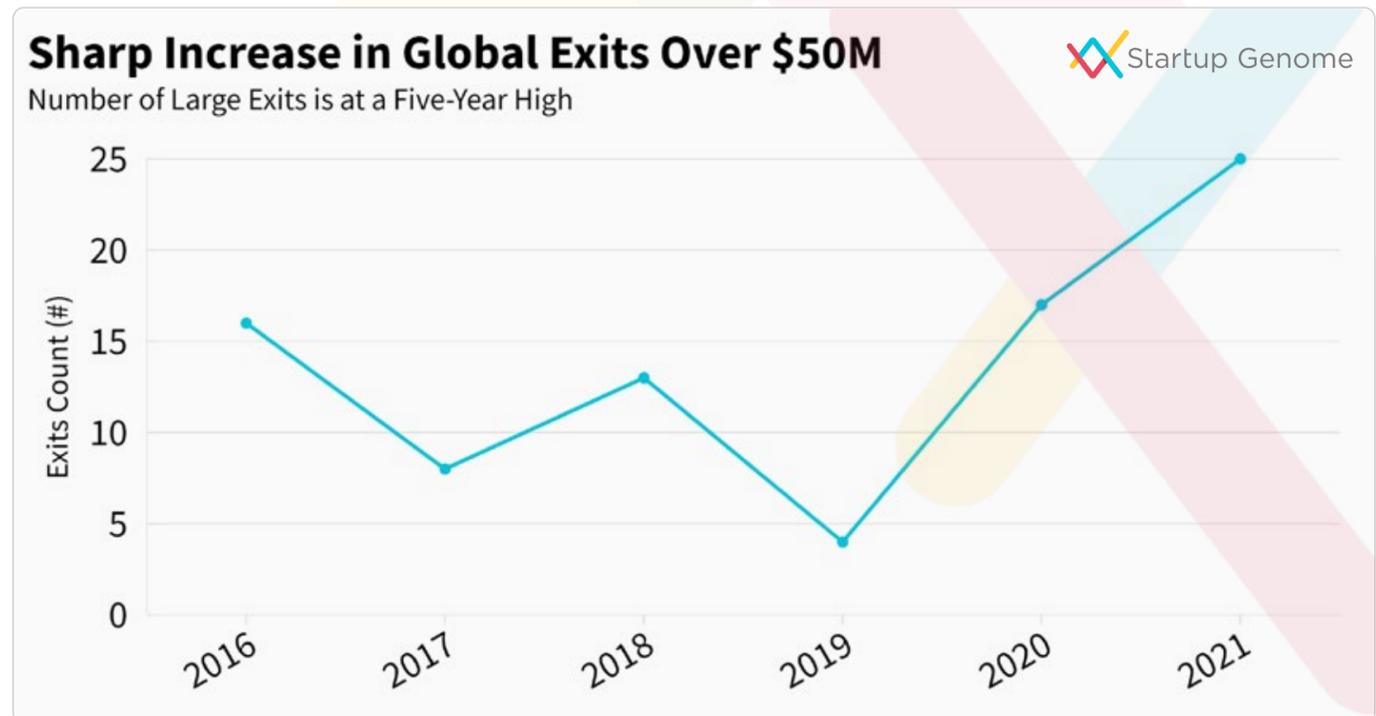
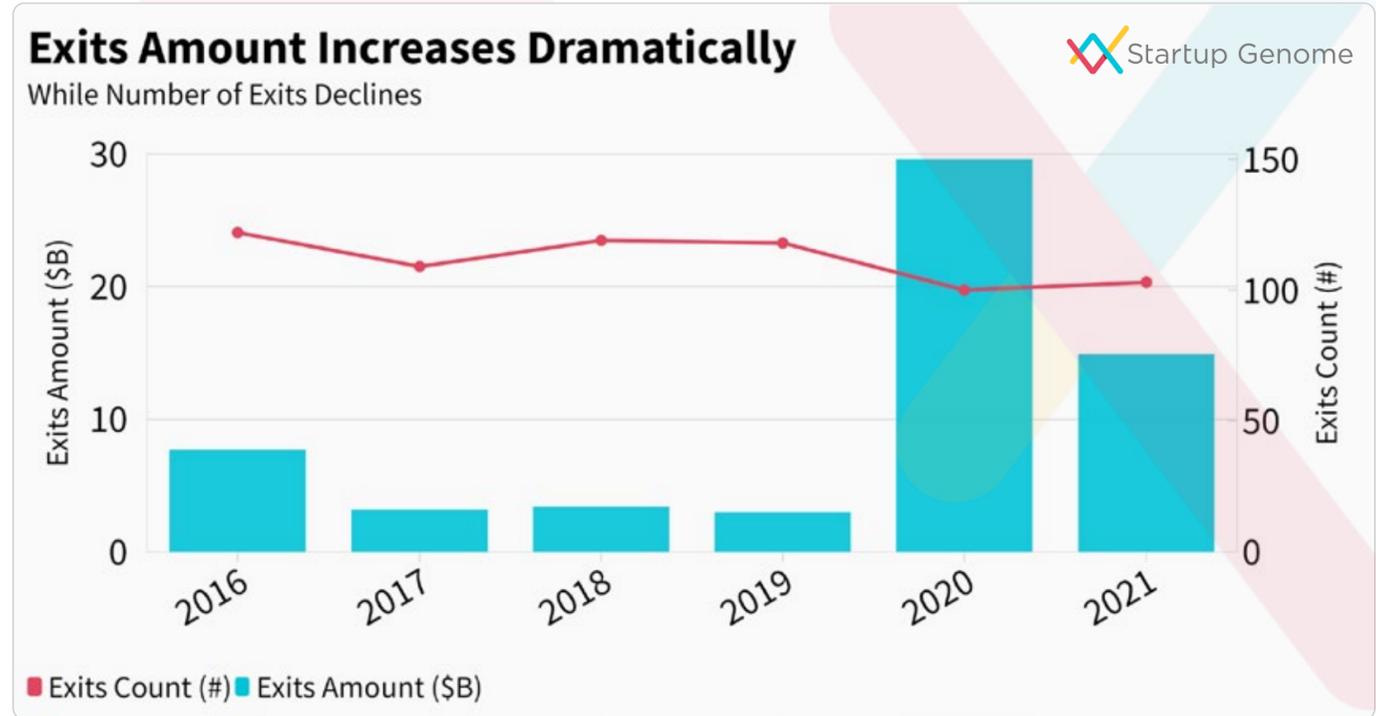
LP interest in the sub-sector is an indicator of growing excitement about Cleantech. While deal volumes appear to be increasing very modestly at every investment stage according to currently available data, the average deal size was up over the period 2016 -- 2020, with the average Series A amount increasing 69% and Series B+ amount increasing 28%.



## Cleantech Exits

The number of Cleantech exits fell to a five-year low of 100 in 2020, but the total exit amount significantly increased, from \$7.7 billion in 2016 to \$29.5 billion in 2020. This was due in part to two multi-billion dollar exits in China, both EV companies.

This rise in average exit amount is also evident in the global number of exits over \$50 million, which has increased from 16 in 2016 to 25 in 2021.



GSER: Cleantech Edition

# Deployment-Led Innovation: An Algorithm for Green Growth

**FRANS NAUTA**

Founder, ClimateLaunchpad

*Frans Nauta is founder of ClimateLaunchpad, the world's largest green business competition, and the founder and program director of Faculty of Impact, a Dutch academic program for researchers to turn their climate research into a business. He is also European VP for RedoxBlox, a thermo-chemical battery startup.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

After COP26, there is a lot of pessimism meeting the Paris goal of limiting climate change to 1.5°C. However, given the success of wind and solar energy and EVs, I argue that we can be optimistic. All we need to do is put in place frameworks that embrace policy-led innovation. An algorithm for green growth can be deciphered from the spectacular success of wind, solar, and EVs.

## Remember RE>C?

Four decades ago it seemed very unlikely that wind and solar would be the cheapest forms of energy in most places in the world. They were named “alternative energy”, implying that they would stay hippie dreams forever. Solar panels were expensive, and wind turbines were a hobby of rich and tiny Denmark.

Even as recently as 2007, the nonprofit arm of Google started a project to search for competitive alternatives to coal. It was called RE>C, and even at that time it seemed a fool's errand. Today, the world is a very different place. In 2020, around 260 GW of renewable energy was added to the grid — more than 80% of all new electricity capacity.

The same story is playing out for EVs. Sales growth of EVs in 2021 will be around 80%. Norway will be the first country where over 50% of new cars will be electric.

Every major car manufacturer is now focussing on bringing as many EVs as possible to the market as fast as possible. In the process, more than €300 billion has been invested. And all of that happened in less than 10 years.

These breakthroughs in wind, solar, and EVs are not freak accidents, but the result of intelligent policy. Let's unpack these examples a bit and see if we can discern some design principles.

## The growth of Wind, Solar, and EVs

In the 1970s, California, the Netherlands, and Denmark started experiments with wind energy. The drive was not climate change, but less dependence on fossil fuels after several OPEC oil boycotts.

By the mid 1980s, California and the Netherlands had abandoned their efforts. Denmark, however, kept going. The nation provided funding for research, generous subsidies for companies developing and deploying wind turbines, and smart ways to get citizens involved through crowdfunding. It turned its Northsea oil giant Dansk Oil og Natural Gas into Ørsted, the global powerhouse for offshore wind farms.

Thirty years of policy support created a scalable industry that has realized massive cost reductions. Wind was the first climate tech that realized the goals of RE>C, but of course Google had nothing to do with it.

Solar started out as a very expensive niche technology for military satellites. It went mainstream in the early 1990s, when Germany developed its 1,000 roofs plan, which subsidized photovoltaic systems. Later that decade, the country expanded the concept in the 100,000 roofs plan. The German feed-in tariff created the stable market conditions needed for entrepreneurs to take risk. And with every jump in scale, the cost for consumers went down. Since 1978, the price of solar panels has decreased by 99.5%.

California has supported the advent of zero-emission cars for decades. It started in 1990 with the Zero Emission Vehicle program, and was later supported with the Clean Vehicle Rebate Project.

It created the trampoline for Tesla. The company was founded in 2003, and its first car went on sale in 2008. In 2009, Tesla received a \$465 million government loan to develop its next car, the Model S. By 2014, this model had outsold the Mercedes S-class, the BMW 7 series, and the Audi A8 in California *combined*.

## An Algorithm for Green Growth Through Seven Design Principles

We can distill seven design principles from the examples of solar, wind, and EVs. Together, they form the deployment-led innovation framework.

### 1. Sales over pilots

All these successes rewarded deployment over experiments and pilots. The policies were designed to get real products into the hands of real customers. That's what Germany created with their feed-in tariff — it rewarded entrepreneurs and intrapreneurs over university researchers.

Imagine it as a 1,000 labs program instead of a 1,000 roofs program. Many things would have happened at universities, but with much less practical impact, and with much less scale. New industries are built by action-oriented people, by entrepreneurs. The lesson is to design policies that put sales to customers at the center, not research.

### 2. Create long-term markets for new solutions

A long-term perspective is crucial for new markets to develop. Entrepreneurs and investors will only enter the market if they can see an opportunity for more than

10 years, and an industry track record of even more than 10 years is needed to access capital from Wall Street and European banks and pension funds. Once there is predictable risk, a new industry can access capital at much lower interest rates — it's a big part of the explanation for the rapid cost decline of offshore wind, for instance. And the only way to have a big impact is through those huge pools of capital.

### 3. Reduce barriers to entry

To boost the influx of corporations and startups into a new market, it helps to reduce barriers to entry. The Dutch government has dramatically reduced the cost for companies to bid on tenders for offshore wind farms. It provides all of the relevant location research data publicly, at no cost, to anybody who considers a bid, and provides grid connections at sea. Similarly, Germany has reduced barriers to entry for wind and solar by making it quick and easy to get permits.

### 4. Support early adopter customers

The first solar panels, wind turbines, and EVs were bought or leased by early adopters. But early adopters take a risk. Will the wind turbine perform as promised? Is the company selling me this solar panel going to be around in three years to solve a problem under warranty? What will be the value of my Nissan Leaf in five years?

One way to reduce risk is through loan programs for new products. A second way is to make sure that infrastructure is up to speed — Norway and the Netherlands subsidized the installation of EV chargers, for instance. A third way is to give early adopters the VIP treatment. In Amsterdam, early EV owners could request a charging station in front of their house. The city would install it for them and give the owners a parking permit to boot, circumventing the waiting list.

### 5. Grow applied research funding and education

Applied research can dramatically boost the learning of industries, speed up innovation, increase efficiency, and reduce costs. Education provides a fresh talent pool for new, fast-growing industries.

It's not a coincidence that the biggest and best education programs and wind energy research groups in the world are at Danmarks Tekniske Universitet. The Danish wind cluster is a finely tuned ecosystem of big companies interwoven with supply chains, research groups, education programs, test sites for next generation turbines, dedicated policy departments at ministries, and industry groups. Amazingly, this tiny country of 5.5 million people is still the world's leading producer of wind turbines.

### 6. Boost the startup ecosystem

Startups are the turbo booster for deployment-led innovation. They supercharge change in industries by threatening existing players. The threat of Tesla achieved what 30 years of policy couldn't: it turned the car industry green.

For startups to flourish, they need a mature and rich startup ecosystem with plenty of investment funds, a good legal setup (IP, stock compensation, bankruptcy laws), infrastructure (incubators, accelerators), and easy access to university research and talent. Good government policy is crucial to creating such environments.

### 7. Play to your strengths

The last design principle is that countries and regions should play to their strengths. Wind? Denmark makes sense. Off-shore technology? What better place than the Netherlands, being 35% under water already? EVs? Silicon Valley is the best place to create a computer on wheels.

Germany is certainly not the country with the highest photovoltaic potential, and China won the race for the production of solar panels. However, what Germany does really well is engineering. A lot of the equipment that is used to produce solar panels is still dominated by German companies, even though most of the production is happening in Asia.

## Climate Tech: The Biggest Economic Opportunity of the 21st Century Design Principles

Solar, wind, and EVs have created millions of green jobs and generated billions in revenue. On top of that, millions of people get to breathe cleaner air and these technologies have prevented gigatons of CO<sub>2</sub> emissions.

Since the 1970s, the price of solar panels has come down by around 99.5%. Between 2010 and 2018, the price of Li-ion batteries came down 85%. The kilowatt/hour price of wind energy has been reduced by more than 90% between 1980 and 2020. Given enough innovation, time, learning, and scale a 90% price reduction is very much possible.

We're going to need a lot of innovation to create the clean industries of the future, and it may take 30 or 40 years, but all economic sectors will eventually have to go zero carbon. Many see it as an unsolvable political problem, but looking at it through an economic lens, the transformation to zero carbon is the biggest economic opportunity of the 21st century.

This brings endless possibilities for climate tech entrepreneurs. In this complete transformation of the global economy, some countries and regions will embrace and lead the change. They will grow into the next Denmark and Germany, becoming global leaders in climate tech and attracting motivated talent from across the globe that want to join the mission. The deployment-led innovation playbook is ready for the next chapter.

The transformation to zero carbon is the biggest economic opportunity of the 21st century.

GSER: Cleantech Edition

# In Search of the Elusive Political Entrepreneur



**MATT TONER**  
Partner, Shred Capital

*The former deputy leader of the British Columbia Green Party, Matt Toner is a serial entrepreneur and partner at Vancouver's Shred Capital.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

When we talk about making change at scale, we tend to think of entrepreneurs — sometimes socially-motivated, more often business-minded, most often technology-driven. We lionize these people with descriptors like “risk takers” or “game-changers” or “creative” or “persuasive” or “decisive.” There’s never been a better time to own a black turtleneck.

But no matter how heroic, these entrepreneurs can only impact one part of the solution set. Other entities provide the necessary education, capital, research, and infrastructure to enable innovation. Jeff Bezos once said that Amazon wouldn’t exist without the US Postal Service.

So clearly, there is an ongoing, active, and compelling role for politicians and policymakers. But you might not think that by listening to VC-Twitter or even popular discourse.

In those spaces, when people talk about those operating in the public sphere, they tend to use descriptors like “bureaucratic” or “risk averse” or “dogmatic.” We often ascribe much of their motivation to either a rigid adherence to party discipline or a laser-like focus on their re-election prospects.

But are politics and entrepreneurship actually antithetical? Hopefully not. And if we are going to create an innovation ecosystem that can successfully combat

encroaching climate change, we need political entrepreneurs as essential allies and facilitators.

## Recognizing Political Entrepreneurs

As entrepreneurs from the private sector, we need to work with, inform, and empower our political counterparts. But how do we recognize them?

There is an old joke that runs something along the lines of “How can you tell if a politician is lying? His mouth is moving.” So when we choose who to work with, we need to be discerning.

The 10 traits listed below are the hallmarks of a political entrepreneur. These have been developed by looking at number of real-world indicators, in particular the success of the so-called Sun Kings of Germany, who drove a 7x increase in that country’s solar capacity, and, in contrast, the Green Party of British Columbia, Canada, which bobbled the ball when it held the balance of power in a split provincial parliament.

Remember that the goal of the game is to quickly gain and deploy political capital to drive change. Political entrepreneurs who are equipped to do this are likely to have the following qualities.

### 1. They are recognized for their subject-matter expertise

They come to public life, possibly with some trepidation, after making an impact in another sector. They are recognized as “the energy expert” (as was the case with Germany’s Hermann Scheer) or “the IPCC guy” (as was the case with British Columbia’s Andrew Weaver). This gives them a different perspective from what we might expect from a career politician.

It may also give them a little more drive and determination to use their position to be an agent of change. Also, unlike many other career politicians, these people have other careers to go back to should their political role not work out.

### 2. They are able to stay in their lane and build credibility

Once elected into public life, there is no shortage of bright shiny things to distract the politician. But time is the most scarce resource for an entrepreneur, and those in politics recognize that retaining their focus over the short-, medium- and even long-term is what will give the stature needed to champion change.

### 3. They are neither a member of the party elite nor a back-bencher

Political entrepreneurs don’t view their time in office as a goal unto itself. Working into ministerial succession requires a rather different sort of ambition, one that runs counter to undertaking the kind of risky work that is required.

### 4. They are ready to work across party lines to build networks of allies

This aptitude is essential, especially for any politician interested in actively confronting climate change. Grant and Tilley undertook a comprehensive study of 347 elections in 32 countries over 45 years and found that green parties simply do not govern.

But where they have been successful, green politicians have developed a well-deserved reputation as credible legislators. This may be a uniquely valuable form of political capital that can be used to provide cover for green-minded politicians in the major governing parties.

### 5. They are unimpressed with party dogma, political operators and established norms

To be an entrepreneur of any stripe, a person has to have enough curiosity and competitiveness to eschew convention. If you want to exploit disequilibria, define a new market, evangelize a new idea — and cast down an established giant or two along the way — you need to enjoy coloring outside the lines. And there are

a lot of lines in politics. This isn't to say that political entrepreneurs aren't highly skilled operators — in fact, it is an essential trait to avoid being outmaneuvered, outgunned, or cast out.

### **6. They are shrewd enough to value gaining traction over ribbon cutting**

It is sometimes said that you are entitled to your own opinion but not your own data. Startups are expected to be data-driven because this basis provides guidance that is likely to be unequivocal. Political entrepreneurs understand this too, and the idea of an MVP must be a natural part of their DNA.

Hans-Josef Fell would not have convinced his peers to support the national 100,000 roofs solar program if he didn't have the data and experience from creating the smaller, hyper-local 1,000 roofs solar program.

### **7. They are detail-oriented and ready to personally follow through**

Time is always going to be at a premium for the political entrepreneur. But their ability to stay detail-focused and follow through are essential.

Radical change already faces opposition from entrenched interests within the ranks of government, the bureaucracy, and sometimes a person's own political party. Unless the political entrepreneur shows the attention to detail necessary to lock in their innovation, it can be quickly undone by overt action or quietly nipped by a thousand cuts.

In British Columbia for example, one of the Green Party's signature policy planks — the creation of an Emerging Economy Task Force intended to create a culture of innovation within government — fell apart on the launchpad because elected members failed to provide the ongoing monitoring to ensure that it was properly documented, staffed, implemented, and executed.

### **8. They are ready to be judged by results rather than take cover in committees or commissions**

This one might be the most interesting litmus test of all. While committees and commissions can be essential tools for accomplishing meaningful change, they can also be highly effective ways to demur from taking real action and instead merely be optics of change.

### **9. They are aware that timing is everything**

Like their counterparts in the private sector, political entrepreneurs understand the importance of timing. There is a different cadence to their work, and they need to be ready to move with speed. A lot can be accomplished in an objectively short window, as demonstrated by the German Sun Kings, who were able to turn their initial idea into a policy breakthrough in less than two years.

### **10. They are conscious of their limited lifespans in the public sphere**

Finally, a political entrepreneur knows that they need to seize the day. There's always an election looming, in which — unlike private sector entrepreneurs — their capital could suddenly and permanently expire.

All this is to say that if we entrepreneurs, investors, innovators, and venture capitalists are serious about launching initiatives to slow climate change — and COP26 shows that we must — we need to expand our networks one degree further. We need to include those like-minded and energetic people in policy and politics, regardless of their political stripes. We need to work with those who are risk-takers and game-changers, who are creative and persuasive and decisive, and, in their own ways, entrepreneurial. Because they remain an important piece of an otherwise unsolvable puzzle.

GSER: Cleantech Edition

# Top Five Ecosystems by Region & Ecosystems to Watch

## NORTH AMERICA

### Top 5 Ecosystems

- Silicon Valley
- Los Angeles
- Boston
- New York City
- Washington DC

### Ecosystems to Watch

- Pittsburgh
- Calgary

## LATIN AMERICA

### Top 5 Ecosystems

- São Paulo
- Santiago-Valparaíso
- Porto Alegre
- Mexico City
- Curitiba

## EUROPE

### Top 5 Ecosystems

- Stockholm
- London
- Amsterdam-Delta
- Berlin
- Paris

### Ecosystems to Watch

- Frankfurt

## MENA

### Top 5 Ecosystems

- Tel Aviv
- Cairo
- Dubai
- Ras Al-Khaimah
- Casablanca

## AFRICA

### Top 5 Ecosystems

- Nairobi
- Lagos
- Dar es Salaam
- Cape Town
- Accra

## ASIA

### Top 5 Ecosystems

- Beijing
- Delhi
- Singapore
- Shenzhen
- Mumbai

### Ecosystems to Watch

- Sri Lanka

## OCEANIA

- Sydney
- Canberra
- Melbourne
- New Zealand
- Perth

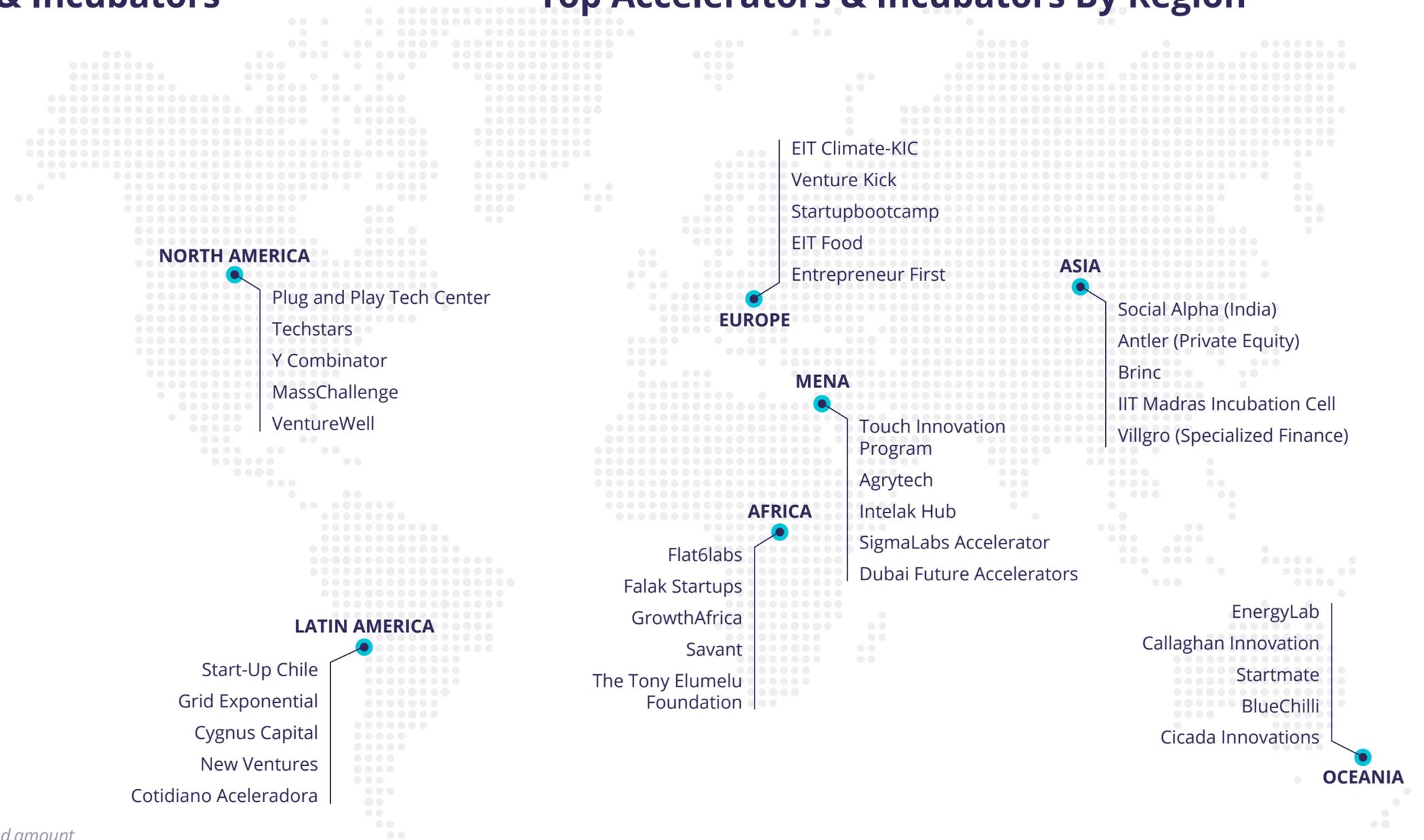
## GSER: Cleantech Edition

# Ecosystem Players

### Global Top 10 Accelerators & Incubators

- Plug and Play Tech Center
- Techstars
- EIT Climate-KIC
- Y Combinator
- MassChallenge
- VentureWell
- Elemental Exceleator
- Venture Kick
- Greentown Labs
- Startupbootcamp

### Top Accelerators & Incubators By Region



Top Ecosystem Players were determined primarily by number and amount of Series A investments in Cleantech from 2018 to September 2021.

# Global Top VC Firms and Impact Investors

- Breakthrough Energy Ventures
- EIT InnoEnergy
- Climate Capital
- IDG Capital
- Lowercarbon Capital
- Alumni Ventures Group
- GGV Capital
- Clean Energy Ventures
- Congruent Ventures
- Prelude Ventures

# Top VC Investors By Region



Top Ecosystem Players were determined primarily by number and amount of Series A investments in Cleantech from 2018 to September 2021.

GSER: Cleantech Edition

# Top 25 Ecosystems

- |    |                 |    |                  |
|----|-----------------|----|------------------|
| 39 | Silicon Valley  | 55 | Beijing          |
| 41 | Tel Aviv        | 57 | Washington, D.C. |
| 43 | Stockholm       | 59 | Berlin           |
| 45 | London          | 61 | Toronto-Waterloo |
| 47 | Los Angeles     | 63 | Paris            |
| 49 | Boston          | 65 | Seattle          |
| 51 | Amsterdam-Delta | 67 | Greater Helsinki |
| 53 | New York City   | 69 | Sydney           |



United States

# Silicon Valley - Bay Area #1



Despite rising real estate prices and increased scrutiny, Silicon Valley remains a vibrant place for startups. In fact, the external forces acting on Silicon Valley are changing how companies develop products and manage teams.

## Robert Siegel

Partner at XSeed Capital and Lecturer in Management, Stanford Graduate School of Business



### TOTAL EARLY STAGE FUNDING

# \$22 bn

GLOBAL AVG.  
\$548 m

### ECOSYSTEM VALUE

# \$1029 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

Despite an outflux of some talent thanks to the cluster’s sky-high costs and pandemic-related remote work, Silicon Valley is still home to an estimated 40,000 startups and 1,000 VC firms, as well as many iconic tech companies. A third of total venture funding in the U.S. — more than \$25 billion — flowed into the Valley in the first quarter of 2021. It is indisputably the world’s top startup ecosystem. Stanford University is the seed that spawned the Valley and it continues to play a major role in the ecosystem. Stanford alumni generate nearly \$3 trillion in economic impact each year, which amounts to approximately 4% of the world’s total GDP. Other local universities like University of California at Berkeley, San Jose State, and several community colleges contribute to the ecosystem’s dominance and staff its startups. Silicon Valley offers some of the world’s best networking. It’s successful startups, when they grow up to become corporate giants, often continue to be based in the area. This attracts not only plentiful talent but other entities as well, from corporations like Walmart to the incubators of foreign governments. This concentration of people and ideas results in an incredibly vibrant ecosystem. The area’s energy is reflected in its many startup focused events, such as TECHSPO Silicon Valley, Palo Alto meetup 106 Miles, and Startup Grind, which describes itself as a “global community for entrepreneurs” and organizes monthly events for ecosystem players.

### MEDIAN SEED ROUND

# \$1000 k

GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$8.8 m

GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$119 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### AI, Big Data & Analytics

VCs continue to pour money into Silicon Valley AI companies. SambaNova Systems, a maker of software and hardware to run AI applications, raised a \$676 million Series D round led by SoftBank Vision Fund 2 in April. The company is now worth more than \$5 billion. Threat detection and response company Vectra AI recently raised a \$130 million round, while Placer.ai raised a \$50 million Series B, also in April.

### Fintech

Both Silicon Valley behemoths and upstarts are innovating in the subsector. Google, for instance, has partnered with more than a half a dozen banks for its Cache project and is set to launch checking accounts for consumers next year. Tribal Credit, which handles payments for SMBs in emerging markets, closed a \$34.3 million round in April, while teen banking startup Step raised a \$100 million Series C also in April and boasts celebrity backers including Jared Leto and Will Smith.

### Life Sciences

Life Sciences startups continue to attract large funding rounds in Silicon Valley. Following its latest raise in July 2020, ALX Oncology has raised a total of \$166 million over 4 rounds. Drug discovery and development company Eikon Therapeutics closed a \$148 million Series A in May, and Biomea Fusion, which develops precision drugs to treat cancer, closed a \$56 million Series A round in January before raising \$153 million with its Apri IPO.

# Reasons to move your startup to Silicon Valley - Bay Area

## Legal Support

Silicon Valley has efficient laws, policies, and regulations to safeguard business interests, trade secrets, and ownership of ideas. These act as a necessary shield for tech businesses, especially the ones that are starting small.

## Easy Financing Opportunities

Silicon Valley may be a legendarily high-cost ecosystem, requiring large amounts of capital to get a startup off the ground, but it is also the worldwide epicenter of startup financing. U.S. VC funds invested \$69 billion in startups in the first quarter of 2021. Fully a third of that went to companies based in Silicon Valley or nearby San Francisco. The area also boasts the highest concentration of billionaires per capita in the world, which means startups have access to a huge range of experienced angel investors willing to bet on unique and innovative ideas.

## Startup Community

STARTUP GENOME  
PARTNERS

[Engine](#) / [GSV](#) / [Manos Accelerator](#) / [Parisoma](#) / [RocketSpace](#)

# Israel Tel Aviv #2

Ecosystem rank and metrics for Tel Aviv - Jerusalem

## MEMBERS:

Tel Aviv Global



Tel Aviv has shown tremendous growth and maturity with many startups evolving into scaleups, unicorns and public companies. As a leading global investment business, we are excited for the opportunities presented in one of the most dynamic and innovative markets in the world.

## Yifat Oron

Senior Managing Director, Blackstone . Head of Tel Aviv Office



## TOTAL EARLY STAGE FUNDING

**\$4.5 bn**

GLOBAL AVG.  
\$548 m

## ECOSYSTEM VALUE

**\$61.6 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

Tel Aviv might be of modest size but Israel's high-tech capital is one of the leading cities in the world for innovation and technology. The beating heart of the "Startup Nation" boasts one startup for every 154 residents, the world's highest ratio. Creative and experienced talent, a mix of local and international investors and 2,750 startups call this ecosystem home. The "Startup City" hosts 115 foreign R&D centers with a vast range of multinational companies using the city as a base for innovation. The well known tech giants like Google, Microsoft, Facebook, Amazon and Apple, together with Nike, Mastercard, Ford, booking.com, bosch, come for the talent and entrepreneurial spirit and benefits from the country's high expenditure on R&D - the second-highest rate of R&D spend per capita in the world. A recent surge in VC money into Tel Aviv has only improved the conditions for growing companies. The ecosystem saw a 25% increase in capital raised in 2020, with over \$6.8 billion flowing into its startups last year which doubled the number of unicorns in Tel Aviv. It is now home to more than 20 private companies worth more than \$1 billion. With rounds of \$200 or \$300 million not uncommon, local success stories are numerous and include Monday.com, which raised \$150 million from Zoom and Salesforce in June 2021 as part of its IPO, and mobility-as-a-service startup Moovit, which was acquired by Intel for \$900 million in May 2020. Notable ecosystem events include Axis Tel Aviv, DLD, Fintech Week, and CybertechGlobal which provide local entrepreneurs the opportunity to network with leading members of the international startup scene.

## MEDIAN SEED ROUND

**\$1500 k**



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

**\$5.8 m**



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

**\$90 k**



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### AI, Big Data & Analytics

Tel Aviv is seventh in the world by number of AI startups, with 714 companies and a total of \$3 billion invested in 2020. A new AI plan calls for \$1.6 billion to further grow the sub-sector over the next five years and has already unlocked initial funding of \$168.2 million. In June 2021, ZenCity, an AI solution for governments, raised \$30 million and digital adoption platform WalkMe raised \$286.75 million in an IPO.

### Cybersecurity

2020 was a record-breaking year for Tel Aviv-based Cybersecurity companies, raising \$2.9 billion in total. In just Q1 2021, the sub-sector raised \$1.5 billion across 17 deals. Three unicorns continued their growth in 2021, enterprise networking and security company Cato Networks raised a total of \$332 million, cloud infrastructure company Wiz raised a total of \$350 million and Aqua Security raised a total of \$265 million. Tel Aviv University hosts Cyber Week, one of the top cybersecurity events in the world.

# Reasons to move your startup to Tel Aviv

## Intellectual Property Incentives

A company that creates IP assets in Israel, or is willing to transfer some IP to Israel, is entitled to reduced corporate, dividend, and capital gains tax rates. The country's Angel's Law also provides tax benefits and deductions to single investors who invest in Israeli companies during their initial R&D (seed) stage.

## Employment Aid Programs

The Israeli Ministry of Economy offers wage subsidies for new employees for a specific period of up to several years depending on the program. Subsidy rates range from 10% to 40% depending on the employee's background (i.e. students, workers from minority groups), and the amount of time the employee has been already working in the position.

## R&D Grant Programs

The Innovation Authority operates more than 40 R&D grant programs for multinational companies, individual entrepreneurs, research institutions, and NGOs. The programs offer a unique, customized, and comprehensive incentive "toolbox," including Innovation Labs programs, which offer up to a 50% deduction in R&D expenses for specific sub-sectors.

## Startup Community

STARTUP GENOME  
MEMBERS

### Tel Aviv Global

MEMBER

Tel Aviv Global & Tourism is a municipal company that reports to the Mayor's Office at the Tel Aviv-Yafo Municipality. It facilitates the global quantum leap taken by the city of Tel Aviv-Yafo in creating economic and tourism growth.

STARTUP GENOME  
PARTNERS

[Future Block Coworking](#) / [Future Block Programs](#) / [Geektime](#) / [Microsoft Ventures](#) / [Microsoft for Startups](#) / [SOSA](#) / [Startup Nation Central](#) / [Techstars](#)

Sweden

# Stockholm #3



Stockholm has a mature value driven and true international startup ecosystem built on Swedish innovation excellence, equality values and pay-it-forward culture.

### Marie Wall

Startup director, Deputy director at Ministry of Enterprise, Division for Research, Innovation and Access to Finance

## Highlights

The success of Swedish startups like Spotify, Skype, and Klarna has made Stockholm a globally renowned startup hub and attracted the attention of international investors. The city now produces the most unicorns per capita after Silicon Valley and is home to more than 1,000 diverse startups with an average valuation of \$3.6 million. Local government and startup organizations are working to further improve the ecosystem and make the city even more attractive to talent. The City of Stockholm launched 'Starta eget Stockholm' in July 2020. The unique new service pairs entrepreneurs with a personalized advisor who can offer early-stage business coaching. The city covers the full cost of the program. The Stockholm Innovation Scholarship promotes innovation in the Stockholm region. Stockholm, which is home to 22 global multinational corporations, offers founders impressive opportunities for collaboration and connection as well. Kista Science City is the leading ICT cluster in Europe, housing world-leading ICT companies such as Ericsson and IBM, a range of startups, the leading universities of Stockholm, and Urban ICT Arena, a testbed for 5G and IoT technologies. New digital culture center Space will open in the heart of Stockholm in November 2021. Sthlm Fintech Week is an annual initiative focusing on building a stronger Swedish FinTech ecosystem. Notable funding news out of Stockholm includes cloud communications company Sinch's announcement in May 2021 that it had raised another \$1.1 billion in funding from Temasek and SoftBank.

### TOTAL EARLY STAGE FUNDING

# \$1 bn

GLOBAL AVG.  
\$548 m

### ECOSYSTEM VALUE

# \$46 bn

GLOBAL AVG.  
\$13.68 bn

### MEDIAN SEED ROUND

# \$640 k

GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$1.7 m

GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$58 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Cleantech

Stockholm's Climate Action Plan 2020–2023 sets out a plan to meet the city's ambitious climate goals, including becoming fossil-free and climate-positive by 2040. Eco-city Stockholm Royal Seaport is one of the biggest urban development projects in Europe. The industrial district of Högdalen is another new center for Cleantech. It houses an advanced R&D center for innovations in recycling, waste management, and energy. Nordic Cleantech Open spotlights 25 innovative Cleantech startups annually. In June 2021 lithium-ion battery maker Northvolt raised \$2.75 billion in funding.



### Life Sciences

Stockholm's Hagastaden district is a growing Life Sciences hub. The Knut and Alice Wallenberg Foundation disburses an average of US\$238 million yearly to finance research, primarily in the sub-sector. The Stockholm Life Science Conference hosts discussions of the future of Life Sciences. Investment syndicate Sciety focuses on Swedish Life Sciences. In January 2021 medtech company Capitainer raised US\$3.7 million with Sciety. Pharmaceutical company Calliditas Therapeutics IPO'ed in June 2020 at a valuation of \$935 million.

# Reasons to move your startup to Stockholm

## Tech Talent

Several prestigious colleges and universities, including the Royal Institute of Technology and the Stockholm School of Entrepreneurship, are located in Stockholm and turn out startup-ready graduates every year. The government prioritizes STEM in its education system to create a strong pool of tech talent.

## Startup Community

STARTUP GENOME  
PARTNERS

**Epicenter / Impacthub / Northzone / SUP46 / Venturecup**

## Shared Office Spaces

The introduction of new, more affordable shared office spaces has made it easier for founders to set up businesses in Stockholm, which is known for its red hot real estate market. Startups moving to Stockholm are now spoiled for choice when it comes to co-working spaces where they can launch and grow their businesses.

United Kingdom

# London #4



London has an established position at the cutting edge of tech. Previously in Fintech, but now also AI and Healthtech. It's critical we leverage this advantage — attract the best talent and build a supportive ecosystem.

## Suranga Chandratillake

Partner at Balderton Capital



### TOTAL EARLY STAGE FUNDING

# \$8.5 bn

GLOBAL AVG.  
\$548 m

### ECOSYSTEM VALUE

# \$142 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

London remains a tech powerhouse, with local startups in the British capital valued at an astronomical \$4.7 billion, but the ecosystem faced considerable headwinds this year. In addition to the global disruption caused by the pandemic, the finalization of Britain's protracted and messy breakup from the EU left many commentators wondering whether London would retain its spot near the top of startup ecosystem rankings. So far, signs are good. VC investment into Britain is the third highest in the world, after the United States and China, and hit a record high of \$15 billion in 2020. Despite the uncertainty surrounding Brexit, 63% of that funding came from overseas last year, up from 50% in 2016. Previous to Brexit, London excelled at attracting overseas talent, which led to concerns about the impact of the end of freedom of movement for Europeans. However, Britain boasts plenty of homegrown tech talent, and ecosystem insiders note that the end of the drawn-out Brexit process at least brings clarity, allowing startups to plan. Britain's new freedom to craft its own regulatory regime could potentially offer benefits to the ecosystem as well. Finally, the City of London continues in its status as a global financial hub, suggesting the greater ecosystem will retain its dominance in the Fintech sector. Edtech is a growing sub-sector in London as well. The bottom line is that the gloomiest predictions regarding the impact of Brexit on Britain's biggest startup ecosystem don't seem set to have come to pass, though London startups have faced a year of adjustment and recalibration.

### MEDIAN SEED ROUND

# \$653 k



GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$4 m



GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$76 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Fintech

Thanks to its status as a pre-eminent global financial hub, London hosts 2,183 Fintech companies, more than New York or San Francisco. Those Fintech companies raised more than £2.7 billion in investment last year, with an average early-stage investment of \$486,000 per startup, compared to a global average of \$286,000. Local success story Transferwise (now known as Wise) was founded in 2011. As of July 2020 it was valued at \$5 billion, on par with Europe's biggest Fintech companies, including Revolut and Klarna.



### Edtech

London's Edtech ecosystem is one of the largest in Europe with an estimated value of US\$3.4 billion, and London is the one European city to feature in Dealroom's global Edtech top 10 by investment. Edtech VC firm Brighteye Ventures closed its second \$54 million fund last year, bringing assets under management to more than US\$112m, while Edtech startup Kano secured US\$15.46 million in funding in March 2021.

# Reasons to move your startup to London

## Talent availability

Thanks to its proximity to world-class universities and educated, cosmopolitan workforce, London is a leading global talent hub. Of the world's top ten universities, four are located close to the city, and 54% of residents have a tertiary degree. According to Accenture's UK Tech Talent Tracker Report, there are 422,000 data analytics, artificial intelligence, blockchain, extended reality, and quantum computing professionals in the UK. About 37% of them are located in London.

## Tax incentives

While there is no difference between taxes paid by early-stage and established businesses in the UK, there are various deductions startups can use to reduce their tax bills. England also offers 24 Enterprise Zones, including the Royal Docks in southeast London, in which businesses are 100% tax exempt for their first five years (for a maximum discount of £275,000). Other schemes reduce tax on income from the development of patents and intellectual property and on UK taxpayers who invest in startups.

## Startup Community

STARTUP GENOME  
PARTNERS

**Tech Nation (formerly Tech City UK) / Accelerator Network / Balderton Capital / City of London / GEN / GSMA / KPMG / Level39 / MassChallenge / Microsoft Ventures / Microsoft for Startups / Northzone / Tech London Advocates / TechUK / Techstars London / Wayra London**

United States

# Los Angeles #5



We built a rock hard community, and seeing L.A. now, as one of the top startup cities in the world, is a testament to the power of community.

## Cam Kashani

Cofounder and CEO at COACCEL: The Human Accelerator



### TOTAL EARLY STAGE FUNDING

# \$5 bn

GLOBAL AVG.  
\$548 m

### ECOSYSTEM VALUE

# \$119 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

Long known more for movie magic than technology and overshadowed as a startup hub by Silicon Valley to the north, Los Angeles has shifted in recent years to become not just one of America’s top startup ecosystems, but a global hotspot as well. That shift has been partially driven by changes in taxation policy. Los Angeles has delivered more than \$90 million in tax relief to local businesses since 2013, which has assisted with the growth in startups of all kinds. More than 212,000 new businesses have been licensed in the city over the last five years. Despite a tumultuous year Los Angeles companies managed to land \$9 billion in VC funding in 2020. What sets the growing startup ecosystem in Los Angeles apart from many established tech hubs is its inclusivity. PledgeLA, an organization that includes more than 80 venture capitalists, entrepreneurs, mayor Eric Garcetti and the non-profit Annenberg Foundation, aims to increase diversity in the city’s tech scene. For instance, recognizing that a “friends and family round,” where wealthy personal contacts fund an entrepreneur’s earliest efforts, is often an impossibility for minority founders, PledgeLA set up a South LA Fund to distribute \$25,000 each to 20 companies led by Black or LatinX founders. Los Angeles is also amongst the top 20 cities with the highest number of female-owned businesses, which average a gross annual revenue of between \$1 billion to \$5 billion.

### MEDIAN SEED ROUND

# \$627 k

GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$5.2 m

GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$96 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Life Sciences

L.A. County receives more than \$1.15 billion in NIH funding, more than any other county in California. Appia Bio, Inc., an early-stage biotechnology company developing engineered allogeneic cell therapies for cancer patients, emerged from stealth made in May 2021 backed by \$52 million in Series A funding.



### Gaming

Los Angeles based mobile gaming unicorn Scopely raised \$340 million in Series E funding in October 2020 at a \$3.3 billion valuation, nearly double the company’s \$1.7 billion valuation from March. Meanwhile, game studio Theorycraft Games raised a \$37.5 million Series A round in March 2021, while fractional sports card trading startup Dibbs raised a \$2.8 million seed round in October 2020.



### Adtech

The pandemic made 2020 a rough year for advertising and Adtech everywhere, but with the end in sight, the sub-sector is now rebounding with 51% of digital advertisers planning to increase their ad budgets in 2021. Popcorn, an L.A.-based platform that connects brands and podcasters, was acquired for \$14.6 million by Entercom Communications in March.

# Reasons to move your startup to Los Angeles

## Startup Ecosystem

Los Angeles boasts a vibrant network of local incubators and accelerators, including Bixel Exchange's Startup Launch program for emerging startups and the Tech Talent Pipeline Program for underprivileged students. SAP Next-Gen supports startups aligned with the UN Sustainable Development Goals. Make in LA (MiLA) targets hardware startups and is housed at Toolbox LA, which boasts both maker spaces and a biotech lab. MuckerLab runs a mentor network and accelerator programme. Starburst is an aerospace accelerator with a branch in L.A.

## Startup Community

STARTUP GENOME  
PARTNERS

**Bixel / Bixel Exchange / Cross Campus / Mucker Capital / WeWork**

United States

# Boston #6



Boston is home to a buzzing startup ecosystem across many sectors—cleantech, biotech, and robotics. We strongly believe that our regional community thrives because of all the stakeholders that are committed to supporting local, early-stage companies.

**Dr. Emily Reichert**

CEO at Greentown Labs



TOTAL EARLY STAGE FUNDING

**\$6.4 bn**

GLOBAL AVG.  
\$548 m

ECOSYSTEM VALUE

**\$133 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

Boston is home to exceptional tech talent and a storied history of innovation, particularly in biotech, but what really sets the city’s startup ecosystem apart is its positive climate for women. In Massachusetts generally the number of women in tech grew at a 21.4% rate between 2009 and 2013, putting the state second nationally by this measure. In Boston specifically, 29% of startup founders are female, second only to Chicago, according to the Global Startup Ecosystem Ranking report. The leaders of several local ecosystem standouts such as Care.com are female, and when a local journalist recently attempted to pull together an exhaustive list of Boston startups led by women that raised venture funding in the previous decade, the crowdsourced effort came up with 164 women at 154 companies. The prominence of female founders shows up in the statistics on where VC dollars are going. According to Alice Rossiter, founder of live stream experience startup Alice’s Table, in Boston more than 10% of companies “invested in by some top venture capital firms are women founded.” Crunchbase puts the figure at 9%. Whichever number is correct, both favorably compare to a national average of 3% of VC dollars going to female founders. Boston is also home to several women-founded venture capital firms like Boston Seed Capital, Victress Capital, and Glasswing Ventures.

MEDIAN SEED ROUND

**\$1000 k**

GLOBAL AVG.  
\$480 k

MEDIAN SERIES A ROUND

**\$6 m**

GLOBAL AVG.  
\$3 m

SOFT. ENGINEER SALARY

**\$90.8 k**

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Life Sciences

Boston has more than 1,100 Life Sciences companies, seven teaching hospitals, and five of the top six NIH-funded independent hospitals in the U.S. MLSC runs a \$1 billion Life Sciences Initiative, which provides research grants, accelerator loans, tax incentives, etc. Boston Biotech companies pulled in a little over \$616 million in total in March 2021. Notable successes include cancer early detection startup Mercy BioAnalytics’s \$27.3 million raise in January 2021, and machine learning based pharma company Reverie Labs’s \$25 million Series A round in February 2021.



### Advanced Manufacturing & Robotics

Boston has access to world-class talent from institutions like MIT and Harvard. Robotics companies employ more than 4,700 people. The city is also bringing more access to technology in classrooms through makerspaces and 3D printing facilities. The sub-sector had a strong start to the year, with Locus Robotics now a unicorn after its \$150 million Series E raised in February, followed by another \$50 million Series A round in September.

# Reasons to move your startup to Boston

## Tech Talent

The Boston region is home to around 60 colleges and universities, including world-leading institutions such as Harvard and MIT. It's no surprise then that Boston made the top 10 markets in the U.S. and Canada for technology talent, according to CBRE's annual "Scoring Tech Talent" report. The particular focus on engineering at many of these universities produces a steady flow of highly qualified engineers for area startups.

## Startup Community

STARTUP GENOME  
PARTNERS

[4GenNow](#) / [Cambridge Innovation Center](#) / [Capital network](#) / [Mass Challenge](#) / [Pitchfull](#)

## Access to Venture Capital

Boston, just behind Silicon Valley, consistently ranks towards the top of lists of most venture capital invested per capita in the U.S. The city is also home to many angel and super angel groups, creating a broad range of seed stage funding options for founders.

## Funding Research and Development

Several institutions outside of the universities also invest heavily in R&D in the Boston area. CARB-X pledged to invest up to \$550 million in antibacterial R&D between 2016 and 2021, while restaurant technology company Toast is set to invest \$1 billion in hardware and software R&D over five years.

# Amsterdam-Delta #7



In the current crisis, the world is increasingly dependent on digital and technological solutions from startups and scaleups. In the Netherlands, we understand it is more important than ever to empower our leaders in tech to futureproof the world.

## Nils Beers

Growth Expert and Entrepreneur-In-Residence, Accelerate Practice

## Highlights

In 2020, Dealroom named Amsterdam Europe's number 3 ecosystem in terms of the total value of tech companies founded in the city. The ecosystem is valued at US\$83.3 billion, up from just US\$11.1 billion in 2015. While success stories like Adyen and Takeaway.com may dominate media coverage of Amsterdam's vibrant startup scene, the city is working to make the ecosystem inclusive and ensure prosperity is broad based. In December 2020 the City of Amsterdam announced it will invest US\$856,500 in RISE – Female Hub Amsterdam to empower women entrepreneurs and tech professionals. Over a dozen partner organisations, including StartupAmsterdam, TheNextWomen, Startupbootcamp, and The Code to Change, are backing the hub. In November 2020, 2 influential tech communities, the Founder Institute and WomenTech Network, announced they are partnering to create the Female Founder Program. Aimed at bridging the gap between Silicon Valley and Europe, the program prioritizes supporting women entrepreneurs. In December 2020 the final Women in AI ACCELERATE pitch event took place in an immersive VR environment. Amsterdam's startups also benefit from access to superior facilities and support services. Product is a space for scaling stage companies, while the Amsterdam Science Park is an internationally recognised hub for research, and entrepreneurship. Incubator Viisi Labs focuses on startups that develop sustainable FinTech. Incubator and social enterprise community center, Impact Hub, offers a suite of resources for founders.

### TOTAL EARLY STAGE FUNDING

# \$1.1 bn

GLOBAL AVG.  
\$548 m

### ECOSYSTEM VALUE

# \$26.9 bn

GLOBAL AVG.  
\$13.68 bn

### MEDIAN SEED ROUND

# \$446 k

GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$2.3 m

GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$74 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Agtech & New Food

The government's Vision on Circular Agriculture sets out a vision to make the Netherlands a global leader in circular agriculture by 2030. In April 2021, leading AgTech company CropIn announced its first international office in Amsterdam. Wageningen University & Research ranks first in the world in the field of Agriculture and Forestry and regularly produces sub-sector spin-offs. AgTech smart village Hacchu Dachhu Incorporation raised €25 million/\$28.55M in January 2020. Livestock monitoring software company Connecterra raised US\$7.8 million in July 2020.



### Life Sciences

The Amsterdam Life Sciences District, centered around Amsterdam UMC and the Amsterdam Health and Technology Center (AHTC) is a magnet for talent. Healthcare incubator HealthInc offers an intensive 10-week program for early-stage Life Sciences startups at AHTC. Smart Health Amsterdam fosters collaboration between researchers, the business community, and policymakers. Drug development company NewAmsterdam Pharma raised US\$192.5 million Series A in January 2021. In September 2020 cancer therapy company Lava Therapeutics raised \$83 million in Series C funding.

# Reasons to move your startup to Amsterdam-Delta

## Welcoming International Talent

Highly skilled immigrants can qualify for the 30% tax reimbursement ruling, international graduates get one year to find work or start a business post-graduation, and there are entrepreneur visas available.

## Digital Connectedness

Amsterdam has one of the world's highest broadband concentrations and is also home to the best possible digital foundation: the Amsterdam Internet Exchange (AMS-IX) is one of the largest data transport hubs in the world.

## Tax Benefits

The government's R&D tax credit offers innovative companies compensation for part of their R&D expenditures. The Environmental Investment Deduction allows companies to deduct up to 36% of the cost for environmentally friendly investments. The Energy Investment Allowance allows companies to deduct 45.5% of the cost of energy-saving equipment, and a network of nearly 100 bilateral tax treaties helps firms avoid double taxation.

## Startup Community

FEATURED ARTICLES FROM  
LOCAL AMBASSADORS

# New York City #8

**MEMBERS:**

New York City Economic Development Corporation / Tech:NYC



The resiliency of the NYC tech ecosystem throughout the pandemic — seen through blockbuster IPOs, record fundraising rounds, and hiring commitments — proves we can stand toe-to-toe with any tech hub in the world. This report is reason to be optimistic that the entrepreneurial culture New York City is known for is stronger than ever.

**Julie Samuels**

Founder and Executive Director, Tech:NYC



**TOTAL EARLY STAGE FUNDING**

**\$10.2 bn**

GLOBAL AVG.  
\$548 m

**ECOSYSTEM VALUE**

**\$189 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

New York trails only Silicon Valley in the number of venture deals completed in 2020 with the city raking in a total of between \$12 and \$20 billion. Combine the huge range of companies closing impressive deals with the city’s traditional position as a hub for finance, fashion, media, and the arts, and it’s clear New York City is one of the world’s premier startup ecosystems. Key to New York’s success is ensuring investment is shared beyond what is seen as traditional venture opportunities. Women.nyc offers a comprehensive set of business services to women entrepreneurs from underserved communities. This year, New York City also became the largest US city to recognize LGBTQ-owned companies as minority-owned businesses, making them eligible for billions in city contracts and business support services. Additional programs to support entrepreneurs include the Entrepreneurs Roundtable Accelerator which offers seed capital, mentoring, and co-working space, and Techstars NYC which connects founders with world-class resources to help them grow and scale. NY-based companies have investor support from Primary Venture Partners, a venture capital firm focused on transformative startups that has raised \$404 million across six funds to date to invest in early- and late-stage NY-based startups, and Starta, which funds early-stage tech talent. New York City Economic Development Corporation’s \$1 billion LifeSci NYC program builds on the city’s strong foundation across life sciences and aims to solidify New York as the public health capital of the world. New Energy Nexus New York is a not-for-profit accelerator focused specifically on clean energy companies looking to scale in New York.

**MEDIAN SEED ROUND**

**\$810 k**



GLOBAL AVG.  
\$480 k

**MEDIAN SERIES A ROUND**

**\$6 m**



GLOBAL AVG.  
\$3 m

**SOFT. ENGINEER SALARY**

**\$106 k**



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### AI, Big Data & Analytics

New York is home to the AI Summit, which brings together representatives from the world’s leading organizations to discuss an AI-powered future. Real-time information discovery platform Dataminr closed a \$475 million financing round in March 2021. AI startup Verbit raised \$157 million in June 2021. AI and machine learning platform Dataiku raised a \$400 million Series E in August 2021.

### Cybersecurity

New York City Economic Development Corporation’s (NYCEDC) \$100 million Cyber NYC initiative aims to transform New York into a global hub of cybersecurity innovation. As part of the initiative, NYCEDC partnered with Israeli VC firm Jerusalem Venture Partners (JVP) to launch the JVP accelerator program with the goal of connecting entrepreneurs to investors and other major cybersecurity players. Industrial cybersecurity company Claroty raised a \$140 million Series D round in June 2021.

### Life Sciences

New York’s LifeSci NYC program will spend \$1 billion over the next five years to support Life Sciences, initiating a Request for Proposals (RFP) that invites nonprofit organizations or joint ventures led by nonprofit organizations to submit proposals for new or expanded facilities. BioLabs New York is partnering with NYU Langone Health to build biotech co-working, acceleration, and R&D facilities, to attract promising early-stage life sciences companies. Aetion, a real-world evidence (RWE) and outcomes-based analytics company, raised a \$110 Series C round in May 2021.

# Reasons to move your startup to New York City

## Ease of Doing Business

NYC Business Quick Start, a new \$11 million initiative from the Mayor's Office and the NYC Department of Small Business Services (SBS), is focused on cutting red tape to make New York City the easiest place in the United States to start a small business.

## World-class Talent

Approximately 3.2 million New Yorkers hold a bachelor's degree or higher, more than Los Angeles, San Francisco, Philadelphia, Washington DC, and Boston combined. New York is home to more than 1 million college students and some of the leading law, business, medical, engineering, maritime, design and fashion, and film schools in the country. In addition, 3.2 million immigrants from over 150 countries call New York home, broadening the skills and perspectives available to employers.

## Startup Community

### STARTUP GENOME MEMBERS

MEMBER

### New York City Economic Development Corporation

NYCEDC is the City's primary vehicle for promoting economic growth across all its neighborhoods. NYCEDC's mission is to stimulate growth through expansion and redevelopment programs that encourage investment, generate prosperity, and strengthen the City's competitive position. NYCEDC serves as an advocate to the business community by building relationships with companies that allow them to take advantage of New York City's many opportunities.

MEMBER

### Tech:NYC

Tech:NYC is an engaged network of tech leaders working to foster a dynamic, diverse, and creative New York. It brings together principled New Yorkers to support a successful technology ecosystem, attract and retain top-tier talent, and celebrate New York and the companies that call it home.

### STARTUP GENOME PARTNERS

**Starta Venture Accelerator / Blue Ridge Labs / Brooklyn Chamber of Commerce / Bunker Labs / Cela / Civic Hall / Coindesk/Consensus / Company (previously Grand Central Tech) / Entrepreneurs Roundtable Accelerator / Flatiron Partnership / Gary's Guide / Innovative Collective / Mayor's Office of International Affairs - NYC / MeetUp / New Lab / New York Angels / NY Fashion Tech Lab / NY Tech Alliance / NYC Blend / SAP / TechStars / Urban-X / VentureOut**

China

# Beijing #9

“ Beijing’s greatest innovation asset lies in its preeminent education resources. Among Beijing’s yearly 200,000 college graduates, many enter the startup scene one way or another, making this city a leading innovation highland as today.

**Jordan Zhu**

Senior Manager at Innoway in the Global Incubation Department



**TOTAL EARLY STAGE FUNDING**

**\$10.8 bn**

GLOBAL AVG.  
\$548 m

**ECOSYSTEM VALUE**

**\$445 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

Silicon Valley might be the most famous of all startup hubs, but in 2020 Beijing was actually the ecosystem with the most unicorn companies with 93 local startups valued at \$1 billion or more, including the two most valued unicorns in the world, Alibaba spin off ANT Group (valued in April at around \$200 billion) and TikTok parent company ByteDance (valued at \$140 billion). Though the coronavirus pandemic rattled the Chinese economy, particularly in early 2020, pandemic related disruptions also provided opportunities for Beijing based startups. With students pivoting to remote learning, China’s online education companies saw rapid growth. Yuanfudao, an EdTech giant based in Beijing, raised US\$1 billion in funding. Xiaomawang, a coding education company, raised US\$21.2 million. Other Chinese startups were able to thrive thanks to changing trends in consumer spending and habits driven by the pandemic. Beijing’s Calorie Technology, which operates the Keep Fitness app, surged to more than US\$1 billion in value in May 2020 and boasts 200 million registered users, for instance.

**MEDIAN SEED ROUND**

**\$1455 k**



GLOBAL AVG.  
\$480 k

**MEDIAN SERIES A ROUND**

**\$4.3 m**



GLOBAL AVG.  
\$3 m

**SOFT. ENGINEER SALARY**

**\$42 k**



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

**AI, Big Data & Analytics**

Beijing’s startup ecosystem is ruled by AI, big data and analytics, and the city houses 1,070 AI companies, more than a quarter of China’s total. Beijing tech hub Zhongguancun is home to 10 AI labs and 9,000 tech companies, including Baidu, Sina Corp and Lenovo. AI-based business risk control company Shumei Technology raised a total of \$208 million in funding over 2 rounds, the last of which was a Series D round of \$135 million in April.

**Fintech**

Beijing is a global fintech powerhouse that is home to 13 public Fintech companies worth \$16.35 billion in total and more than 60 highly well-funded Fintech startups, including JD Digits and Baidu’s fintech arm Du Xiaoman Finance, which provides short-term loans and other investment services.

# Reasons to move your startup to Beijing

## Funding Activity

Beijing is home to the greatest concentration of commercial bank headquarters in China. Incubators and accelerator programs are also plentiful and include both private and government programs. The Zhongguancun Science Park in Beijing is home to many of them, including Huailongsen International Enterprise Incubator, Innovation Works, Beijing Zhongguancun Shijingshan Science Park, Huailongsen International Enterprise Incubator, and Bo Ao Liang Chuang. Together these programs serve 3,000 startups annually, including both local and international companies.

## Startup Community

STARTUP GENOME  
PARTNERS

**91Maker / China Accelerator / Creative Young Community / Cyzone Innoway BJ / Dao Ventures / DayDay Up / Legend Star / Magma Partners / Makes-global / Noodle & Meetup / Plug and Play China / Sinavation Ventures / Startup Grind / Suhehui / Technode / Ventures Lab**

United States

# Washington, D.C. #10



Startups in Washington, D.C., have a refreshing focus on taking on significant global challenges and bringing their unique entrepreneurship lens to problems historically left to governments.

**Donna Harris**

Cofounder, 1776 General Partner, 1776 Ventures

## Highlights

Washington, D.C. may be more well known for politics than entrepreneurship, but the numbers suggest the U.S. capital is actually an undersung startup hub. The area is home to more than 1,000 tech startups, and it ranks first in the nation for growth in entrepreneurship, according to the Kauffman Foundation. Various rankings have named Washington, D.C. the third most future-ready economy among American cities, third best tech city in the nation, and the country's top city for social entrepreneurs working to solve social challenges. Washington, D.C. was ranked number 2 in North America on the 2020 Scoring Tech Talent by CBR. Local government initiative #innoMAYtion hopes to build on this momentum by encouraging local entrepreneurs to help solve the city's challenges and create opportunities for its residents. 1776's Challenge Cup, a worldwide competition organized by local startup incubator 1776, spotlights the globe's most promising startups. Finally, DC Startup Week attracts over 10,000 entrepreneurs for 5 days of connection, collaboration, and celebration. Success stories to emerge from the ecosystem include risk management firm Interos, which has raised a total of \$128.4 million over 3 rounds, and international student loan company MPOWER Financing, which has raised \$375 million over 13 rounds.

TOTAL EARLY STAGE FUNDING

**\$2.1 bn**

GLOBAL AVG.  
\$548 m

ECOSYSTEM VALUE

**\$28.9 bn**

GLOBAL AVG.  
\$13.68 bn

MEDIAN SEED ROUND

**\$625 k**

GLOBAL AVG.  
\$480 k

MEDIAN SERIES A ROUND

**\$5 m**

GLOBAL AVG.  
\$3 m

SOFT. ENGINEER SALARY

**\$96 k**

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Cybersecurity

Companies headquartered in Washington, D.C. won more than 22% of the \$656 billion the federal government awarded in prime contracts in 2020. Threat intelligence platform ThreatQuotient has raised a total of \$87.6 million in funding over 9 rounds. Cybersecurity solutions provider Two Six Technologies, which resulted from the merger of Two Six Labs and IST Research, raised \$18.9 million in February 2021. The company counts the Department of Defense and intelligence community among its clients.



### Edtech

Education is one of the most important sub-sectors in the Washington, D.C. region, accounting for \$3.9 billion of GDP and 44,000 jobs. Post-secondary education alone accounts for 27,000 jobs. Student lifecycle and retention management company Full Measure Education raised a \$10 million Series A in June 2021. Edtech company EVERFI raised a total of \$251 million before selling its higher education business to Florida's Vector Solutions for \$100 million.

# Reasons to move your startup to Washington, D.C.

## Skilled Workforce

Washington, D.C. is the most educated city in the U.S. according to the Census Bureau and ranks #1 in the country for high-tech employment concentration. Neighboring states Maryland and Virginia lead the nation in concentration of bachelor's degrees in STEM disciplines. The area is home to more than 10 colleges and universities, and 50% of residents have a college degree compared to 33% nationally.

## Startup Community

STARTUP GENOME  
PARTNERS

**1863 Ventures / Acceleprise / Beacon DC / Conservation X Labs / DC Fashion Foundation / Halcyon Incubator / PeaceTech Accelerator / Village Capital / Women's Business Center (DCWBC)**

Germany

# Berlin #11



Berlin is proud to be playing a role in fostering creativity and innovation. Together with other hubs worldwide, Berlin has always been open for thinkers and doers who work on making cities and society future proof. The Berlin Startup ecosystem welcomes you.

## Mr. Christian Rickerts

Permanent Secretary of State, Berlin

## Highlights

Berlin may be down a few places in this year's ranking, but despite this temporary blip, the city remains one of Europe's hottest startup scenes. In 2019, German startups received a total of US\$6.9 billion in investment, an all-time high. 60% of that went to Berlin-based startups, for a total of US\$4.1 billion in funding. While this year's numbers may appear down from these highs, recent, large exits are likely not yet reflected in the data. Supply chain solutions provider Forto raised a hefty US\$240 million in June 2021, and Choco raised US\$100 million in Series B funding in July. Whatever the final tally of investment flowing into the city, Berlin retains its supportive culture and many startup support initiatives. Pre-seed startup accelerator the Founder Institute helps founders from idea through to the early company stage. Silicon Allee, through its Berlin Founders Fund, offers founders over US\$28,000 in no-equity funding to develop their ideas over the course of a 1-year residency. Incubator Project Flying Elephant is also active in Berlin. Bitkom, Germany's digital association, represents more than 2,000 companies, including more than 500 startups and virtually all global players. It advocates for the digitization of the economy and society, and for faster rollout of digital infrastructure. WomenTech Network promotes gender diversity in tech and connects talent with top companies. Women Techmakers Berlin helps women learn new skills, meet fellow developers, and access coaching.

TOTAL EARLY STAGE FUNDING

**\$2.3 bn**

GLOBAL AVG.  
\$548 m

ECOSYSTEM VALUE

**\$36.9 bn**

GLOBAL AVG.  
\$13.68 bn

MEDIAN SEED ROUND

**\$1000 k**

GLOBAL AVG.  
\$480 k

MEDIAN SERIES A ROUND

**\$6.6 m**

GLOBAL AVG.  
\$3 m

SOFT. ENGINEER SALARY

**\$69 k**

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Fintech

Axel Springer Plug And Play Accelerator, which has supported more than 100 startups so far, offers entrepreneurs experienced mentors, a wide network of contacts, workshops, and office space. fintexx, a community for women in finance, provides networking opportunities and aims to raise the visibility of women in the sub-sector. Commission-free broker Trade Republic raised US\$900 million at a valuation of over US\$5 billion in May 2021. Digital insurance startup Wefox raised US\$650 million with a valuation of US\$3 billion in June 2021.



### AI, Big Data & Analytics

In June 2021 Science & Startups, an alliance of startup services from four Berlin universities, announced it had received US\$8.2 million from the German Federal Ministry for Economic Affairs and Energy and the state of Berlin to fund AI spin-offs. The KI Association connects AI and Deep Tech companies with business and politics and promotes the ethical development of AI. The Big-Data.AI-Summit, Europe's leading conference on applications of AI and big data in business, is hosted in Berlin.

# Reasons to move your startup to Berlin

## Business Infrastructure

Berlin's new international airport makes the city quick and easy to reach from across Europe and the world. Berlin also boasts an excellent public transportation system. Office space is plentiful and rents are still lower than in most European capitals, which helps attract young talent to the city. Early-stage companies can take advantage of the city's many co-working spaces.

## Startup Community

STARTUP GENOME  
PARTNERS

**Factory Berlin / Finleap / Gruenderszene / Microsoft Ventures / Project A Ventures**

## Hassle-free Relocation

Berlin makes it simple for overseas talent to relocate to the city, with both Berlin Investment Bank and Berlin Partners helping entrepreneurs and companies by offering funding programs for startups and offering guidance to founders. Municipal services for registering a business and other processes are available in English to simplify setting up a startup for non-German speakers.

# Toronto-Waterloo #12

## MEMBERS:

MaRS Discovery District / Communitech Corporation



The Toronto-Waterloo corridor is Tulip's home and it's been essential to our growth. The access to talent, capital, and customers is world-class — and it's a wonderful place to live.

## Ali Asaria

CEO, Tulip Retail



## TOTAL EARLY STAGE FUNDING

**\$2.3 bn**

GLOBAL AVG.  
\$548 m

## ECOSYSTEM VALUE

**\$20.8 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

The Toronto-Waterloo corridor is one of the fastest-growing and densest innovation clusters in the world. Between 2013 and 2018, the region created more tech-sector jobs than New York, Seattle and Boston combined. It is home to 20 percent of Canada's university students, many of them attending the University of Toronto and the University of Waterloo. This ecosystem is also rich with some of North America's leading innovation hubs, including MaRS and Communitech. In the face of many pandemic-related challenges, the Toronto-Waterloo corridor nevertheless excelled, attracting record investment, while also boosting the economy, relieving front-line workers and creating jobs. In 2020, the region pulled in \$4.4 billion in V.C. funding and fostered several new unicorns, such as Clearco and PointClickCare. Hundreds of the region's companies also pivoted their everyday business practices — for financial survival, but also to join the fight against COVID-19. And Toronto and Waterloo remain hotbeds for talent. With what's widely considered the most diverse population on the planet, the corridor represents 17 percent of Canada's GDP and roughly 275,000 tech workers. The result of this sustained progress is a still-thriving ecosystem. With unprecedented investment, strong public institutions, favourable immigration policies and one of the most-vaccinated citizenries on the globe, the Toronto-Waterloo corridor is well-positioned to advance the Canadian and global economies post-pandemic.

## MEDIAN SEED ROUND

**\$500 k**



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

**\$4.4 m**



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

**\$70 k**



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### AI, Big Data & Analytics

Few countries command as much trust as Canada. Global concerns about how technology is developed and used have created opportunities for Corridor tech companies to lead in sectors where trust is critical: Applied AI, fintech, cybersecurity, healthcare, sustainability and smart cities, among others. Waterloo and Toronto have pushed "Tech for Good" to the top of the country's tech agenda.

### Life Sciences

The Toronto-Waterloo corridor is home to the University of Toronto (famous for the discovery of insulin and stem cells) and the University of Waterloo, soon to be equipped with a \$35-million innovation health facility, offering wet labs, biosafety labs and product development space for 75 ventures. In the first nine months of 2020, the region's 600 life-sciences firms raised more than \$1 billion, translating to \$54 billion in annual revenue.

# Reasons to move your startup to Toronto-Waterloo

## Strong social values

Canada's quality of life and social values provide a safety net that is actually a trampoline — a jumping-off point for startups to solve big problems and capitalize on opportunities. Tobi Lütke (Shopify), Martin Basiri (ApplyBoard), Michael Katchen (Wealthsimple) and Joshua Liu (SeamlessMD) are among many who typify this ethos.

## Rich and diverse talent pools

Companies located in Toronto-Waterloo benefit from open and welcoming communities, as well as a highly diverse and talented workforce. The Universities of Toronto and Waterloo bookend the corridor, and produce some of the world's best graduates for growth companies in AI, cybersecurity, health and medical technologies, and fintech.

## Data privacy and sovereignty

Canada possesses robust and evolving data privacy and sovereignty laws making it an ideal place to build a company and store data for advanced applications. Data privacy equivalency status with key economic zones and countries continues to make Canada a compelling geographic zone for customers and businesses alike.

## Startup Community

### STARTUP GENOME MEMBERS

#### MaRS Discovery District

MEMBER

MaRS brings together the innovation community to grow the economy and make an impact. From advisory services to connections to talent, capital, customers and more, MaRS offers a range of high-value services that help high-growth companies succeed. We also provide access to the MaRS ecosystem, a curated community of entrepreneurs, investors, corporates, academics and government partners.

#### Communitech Corporation

MEMBER

Communitech was founded in 1997 by a group of entrepreneurs who came together to help one another build successful companies to help ensure the future prosperity of Canada. They created an organization to support the entire "Community of Tech" and gave us a mission to help companies start, grow and succeed.

### STARTUP GENOME PARTNERS

Brookfield Institute / Centre for Social Innovation / City of Toronto / Creative Destruction Lab / DMZ / Haltech / Innovation Factory / Invest Toronto / Next 36 / OneEleven / RIC Centre / The Founder City Project / Venture Lab / World Canada

France

# Paris #15



France has taken over Europe as the place where the most funding rounds happened in 2018. The next step is to turn our eurocentric scale-ups into global leaders.

**Nicolas Brien**

CEO at France Digitale

## Highlights

With more than 10,000 startups nationwide, France has ambitions to become Europe’s largest startup ecosystem, with the government promising to invest \$6 billion in the technology sector. One of the top attractions of Paris for startups is its central location with easy access to Europe’s most important capitals. London, Amsterdam, Berlin, Madrid, Rome, and Luxembourg are all less than 3 hours away. The city also boasts 21 of the best-ranked business schools in the world, which provide companies with a large pool of highly skilled talent. This wealth of talent also drives the ecosystem’s success as a center of innovation. Paris has the most research professionals, high-tech patents, and highest annual R&D spending in Europe. Paris is also a major business hub and hosts many corporate headquarters. Companies and labs are organized in 9 competitiveness clusters with over 4,300 members across sectors including cosmetics, high-tech healthcare, aeronautics, digital transformation, and sustainable cities. The city also hosts a number of top startup events, including Big Data & AI Paris, Hello Tomorrow Global Summit, and Viva Technology, Paris. Local success stories include online home improvement marketplace ManoMano, which has raised a total of \$705.5 million over six rounds, crypto security company Ledger, which has raised a total of \$468 million over eight rounds, and digital health insurance platform Alan, which has raised a total of \$363.9 million over six rounds.

TOTAL EARLY STAGE FUNDING

**\$3.5 bn**

GLOBAL AVG.  
\$548 m

ECOSYSTEM VALUE

**\$47.1 bn**

GLOBAL AVG.  
\$13.68 bn

MEDIAN SEED ROUND

**\$1100 k**

GLOBAL AVG.  
\$480 k

MEDIAN SERIES A ROUND

**\$3.3 m**

GLOBAL AVG.  
\$3 m

SOFT. ENGINEER SALARY

**\$64 k**

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Fintech

The Paris Fintech Forum is one of Europe’s biggest FinTech events. Paris is also home to Euronext, the EU’s biggest stock exchange by market capitalization (\$4902 billion). Top-tier financial engineering programs at Paris Dauphine, Polytechnique, HEC and ESSEC business schools provide talent to the sub-sector. October, an online marketplace for business loans, raised \$304.2 million in September 2020. AnaCap Financial Partners acquired payments platform Market Pay in a \$362.93 million deal in February 2021.



### AI, Big Data & Analytics

The Paris region’s “2021 AI plan” aims to spur investment in AI. It includes 3 AI challenges, each offering €1 million to develop innovative solutions in three fields: industry, health and citizen’s life. The plan also funds AI proofs of concept in local SMEs and mid-caps, as well as the INNOV’up program, which makes Paris-based R&D centers eligible for funding and tax credits. Digital experience analytics platform ContentSquare raised a \$500 million Series E in May 2021.

# Reasons to move your startup to Paris

## Access to Large Markets

Startups in Paris enjoy unrivaled access to one of the largest domestic markets in Europe, and easy access to a European market of more than 500 million consumers. The city is also a convenient gateway to African and Asian markets. A high-speed rail network offers fast and frequent connections to all major European cities. The area's three international airports, all connected to the city center via the underground, offer direct connections to 260 destinations in 191 countries.

## Startup Community

STARTUP GENOME  
PARTNERS

**50 Partners / France Digitale / Numa / Station F / The Family**

## Supportive Ecosystem

An extensive network of 400+ incubators, digital fabrication labs,, and coworking spaces help international startups grow and succeed. The cost of office space in Paris is also well below that of other major international cities such as London, Tokyo, and San Francisco.

United States

# Seattle #19

“ Founders appreciate the dynamic world-class tech ecosystem Seattle offers. We’re generous leaders in AI, Cloud, IoT, Robotics, Big Data, Fintech, Biotech, VR/XR, and more for you to connect with.

**Brett Greene**

CEO and Founder of New Tech Northwest



TOTAL EARLY STAGE FUNDING

## \$3 bn

GLOBAL AVG.  
\$548 m

ECOSYSTEM VALUE

## \$49 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

The home town of Amazon and Microsoft was well situated to weather the coronavirus crisis with one of the highest proportions of tech workers in the U.S. No wonder investors have been pouring money into Seattle’s vibrant startup ecosystem. Over the last two years the area’s venture capital firms have raised more than \$1 billion for their next round of early stage funds including Madrona VII (\$300 million), West River Group (\$150 million), Maveron VII (\$180 million), Frazier Healthcare IX (\$419 million), Voyager V (\$100M), and Founders’ Co-op IV (\$25M). Those new funds add to existing funds, including Ignition VI (\$200 million), Tola Capital II (\$300 million), Arch Venture Partners (\$400 million). Seattle startups brought in \$3.2 billion in venture capital through the first three quarters of 2020, according to Pitchbook, putting the city on track to easily break its previous high of \$3.6 billion in 2019. “Mega-deals” of over \$100 million are also on pace to set a record this year, with 167 deals already completed in Q1. Angel and seed deals hit a Q1 record for deal count. Seattle is also home to highly successful accelerators, including Amazon’s Alexa Accelerator, a program that connects entrepreneurs building voice-first products to the resources of Amazon’s Alexa team. The local Techstars accelerator is also the most successful city in the program’s history in terms of dollars raised by graduates, which include three unicorns: Zipline (\$1.2 billion), Outreach (\$1.1 billion), and Remitly (\$1 billion).

MEDIAN SEED ROUND

## \$1200 k

GLOBAL AVG.  
\$480 k

MEDIAN SERIES A ROUND

## \$4.5 m

GLOBAL AVG.  
\$3 m

SOFT. ENGINEER SALARY

## \$105 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### AI, Big Data & Analytics

The University of Washington, a national leader in the field of machine learning and Big Data, has helped nurture these subsectors in the Seattle area with creative programs including its Washington Fund, an early-stage venture fund that aims to invest in promising startups spinning out of local research institutions, and New Embark facility. Several startups have spun out of the university’s Computer Science department. Local machine learning startup OctoML raised a \$28 million Series B in March of this year.

### Life Sciences

Success in a particular sector tends to breed further success in the sector, with Seattle’s life sciences companies being a prime example of this virtuous cycle. After Juno Therapeutics, a developer of novel immunotherapies, was sold to Celgene for \$9 billion just five years after it spun out of the Seattle-based Fred Hutchinson Cancer Research Center, it’s co-founders reinvested some of that payday in engineered cell startup Sana Biotechnology, which recently raised over \$700 million.

# Reasons to move your startup to Seattle

## Talent

More than 130 research centers are now located in Seattle, and more than 50 percent of all new leases in the city last year were for technology companies. At the time of this writing there were more than 19,000 engineering job openings on LinkedIn within the broader area. The tech talent pool in the ecosystem is clearly broad, deep, and growing.

## University talent

The University of Washington is one of the nation's premier research universities and home to 286 specialized research centers. The school receives more than \$1 billion in total research grants and contracts each year, which means that more than 2 percent of all federal research funding currently goes to UW. In addition, the school has also benefited from private funding, including a gift of \$40 million to the university's distinguished School of Computer Science and Engineering by late Microsoft co-founder Paul Allen.

## Accelerators, incubators

There are 25 startup accelerators, incubators and other programs supporting the next wave of founders in the Seattle area. These include traditional accelerator programs like Techstars, but also newer studio models, like PSL and Madrona Venture Labs, which recruit talent from big tech companies to join growing startups.

## Startup Community

STARTUP GENOME  
PARTNERS

**ARI / Alliance of Angels / Angel Resource Institute / Fledge / Lighter Capital / MS Accelerator / Microsoft Ventures / Microsoft for Startups / New Tech Northwest / SURF Incubator / Seattle Angel Conference / Seven Peaks Ventures / Startup Grind / Startup Seattle / Techstars**

Finland

# Greater Helsinki #20

## MEMBERS:

City of Helsinki



Helsinki startup ecosystem has showed great resilience during the pandemic. Venture capital flow into Helsinki-based startups keeps growing and the message is clear - there is quality in the ecosystem.

## Marja-Leena Rinkineva

Director of Economic Development, City of Helsinki



## TOTAL EARLY STAGE FUNDING

# \$549 m

GLOBAL AVG.  
\$54.8 m

## ECOSYSTEM VALUE

# \$6.6 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

With its small population of just 5.5 million, Finland has shown an impressive ability to turn out tech and startup success stories from Nokia to Rovio to Wolt. The greater Helsinki area is the epicenter of the country’s startup scene. Helsinki’s startup conference Slush is the largest single gathering of venture capital in Europe with 1,500 investors. Helsinki has created 4 unicorns and its startups generate more than 10% of all Finland’s tech jobs. Currently the region is home to an additional 8 startups valued between \$250 million and \$1 billion that are on track to achieve unicorn status. This successful track record has attracted the interest of investors. Finnish startups receive the most venture capital per capita in Europe. Finland is also home to a large business angel network. Finland offers public funding to startups through Business Finland, Finnvera and other public sector organizations. In 2020 Finnish startups received a record \$1 billion in investments. There are several startup hubs offering support for young companies to accelerate their business, such as the “Maria 01 Campus,” which is currently home to 170+ startups and 14 VC funds. An ongoing expansion project will make it one of the largest startup campuses in Europe. Recent companies of note include food delivery platform Wolt, which raised US\$535.23 million in January 2021, putting the company’s valuation at US\$3.19 billion, mobile game studio Metacore, and PropTech company Kodit.io, which has raised a total of US\$132.2 million over 6 rounds.

## MEDIAN SEED ROUND

# \$408 k



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

# \$2.7 m



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

# \$54 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### Digital Health

Healthcare in both the public and private sector in Finland is moving towards being fully digitized, and the coverage of electronic health records (EHR) across the country is now 100%. Aiforia, a maker of software for healthcare professionals, has raised a total of \$25.57 million over 4 rounds. Health Incubator Helsinki (HIH) is a unique incubator program for research-based health sector teams and start-ups.

### AI, Big Data & Analytics

In February 2020 the Ministry of Finance launched the AuroraAI program to utilize AI to help people access government services more seamlessly. In November 2020 Finland launched an updated AI strategy to promote the development and adoption of AI technologies within local companies. Database-as-a-service platform Aiven has raised a total of \$150 million over 4 rounds. Marketing analytics startup Supermetrics has raised €43.5 million/\$49.68 million over 2 rounds.

### Gaming

In 2020 the Finnish Game Industry celebrated its 25th anniversary, an industry employing 3600 people in 200 studios with 2,4 Billion euros of total turnover. It is an international industry on creating global brands, raising several hundreds of millions capital and almost 30% of the employees comes abroad. The unique ecosystem of Finland supports the game development from Government grants to strong education with an active community.

# Reasons to move your startup to Greater Helsinki

## Access to talent

Finland's educational system is consistently ranked among the best in the world, and the greater Helsinki region consistently ranks in the European top 10 for productivity and global competitiveness. Helsinki has the second-highest concentration of commercially successful app developers globally after only Silicon Valley. The Global Talent Competitiveness Index 2020 from INSEAD, Adecco, and Google ranked Finland seventh among 132 countries globally, citing the workforce's strong technical skills among other strengths. Helsinki also invest heavily to creation of new business initiating several incubator programs with University of Helsinki.

## Startup Community

STARTUP GENOME  
MEMBERS

MEMBER

### City of Helsinki

The greater Helsinki area is comprised of three cities: Helsinki, Espoo ja Vantaa. The cities are the hotbed for world-conquering innovations and an ideal testing ground for bold new ideas. It is the perfect size for startups to test the waters and obtain first references by trying something that would not be possible elsewhere. The area provides an extremely stable and well-functioning business environment that a startup needs to be successful and a modern and attractive city for entrepreneurs to want to live and work in.

STARTUP GENOME  
PARTNERS

City of Espoo / Helsinki Think Company / City of Vantaa / Maria01 / NewCo Helsinki / Forum Virium / Arctic Startup / Business Finland / FiBan / Helsinki Partners

Australia

# Sydney #22

## MEMBERS:

Investment NSW



Sydney has the best of both worlds – world-leading economic strength and lifestyle, making it the best place in the world to grow a startup.

## Amy Brown

Chief Executive Officer, Investment NSW



## TOTAL EARLY STAGE FUNDING

# \$922 m

GLOBAL AVG.  
\$54.8 m

## ECOSYSTEM VALUE

# \$17.4 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

Anchored by business software leader Atlassian, and local unicorns Canva and Zip Co, Sydney’s startup ecosystem is growing fast. While entrepreneurs benefit from the city’s dynamic, educated workforce, what truly sets Sydney apart is its tight-knit tech community centered around a handful of innovation centers and accelerators. The Sydney Startup Hub opened in 2017 and generated more than \$280 million in investment and over 1000 jobs in its first 2 years in operation. The innovation hub functions as the nerve center of the ecosystem, so far hosting more than 1,500 events. Sydney, with its 6 local universities, is home to a cluster of quantum research groups. Since December 2020 Sydney Quantum Academy has been working to build on that strength by supporting established companies, startups like Q-CTRL, and government-backed enterprises like Silicon Quantum Computing. Significant recent activity in the ecosystem includes an announcement in July 2021 that payments company Airwallex will locate its second Australian engineering hub in Sydney. In March 2021 online HR services startup Employment Hero raised A\$45 million (\$35 million) in Series D funding, and in May 2020 ELMO Cloud HR & Payroll raised A\$70 million /~\$48.3 million. In February 2021 SIGGRAPH Asia announced that Sydney would host its 2023 conference.

## MEDIAN SEED ROUND

# \$525 k

GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

# \$4 m

GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

# \$71 k

GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### Fintech

Australia is ranked equal first in the world for technological readiness, and more than 60% of Australia’s fintech companies are headquartered in Sydney. Success stories emerging from the ecosystem include Athena Home Loans, which raised A\$90 million/~\$69.3 Series D in May 2021, and buy-now-pay-later company Zip Co, which has raised more than \$800 million to fund its international expansion.

### Digital & Creative Industries

Home to 39% of the nation’s creative businesses, 42% of creative industry jobs, and 70% of the industry exports, New South Wales (NSW) has the largest creative sector in Australia. NSW’s creative industries, including digital technologies, add significant value to other sectors, like health, tourism, retail and education. Sydney and NSW also have a strong film industry with some big movies developed in Sydney. Canva, a digital platform helping users create with custom templates and design, raised a \$71 million venture round in April 2021.

# Reasons to move your startup to Sydney

## Supportive Business Environment

NSW's long-term infrastructure investment will maximise benefits for businesses looking to launch in the state, providing \$48 million for startups and scaleups through the Tech Central initiative, and a \$20 billion commitment to the new Western Sydney Airport and nearby Aerotropolis. NSW prides itself as a cultural hub with over 200 languages spoken, rich cultures, and education and viewpoints rarely seen in one place.

## Startup Community

STARTUP GENOME  
MEMBERS

MEMBER

### Investment NSW

Investment NSW leads the economic, jobs and investment conversation across New South Wales (NSW). Its work includes boosting trade, investment and tourism, developing industry, supporting jobs growth, improving service delivery to the community and increasing living standards, now and into the future.

FEATURED ARTICLES FROM  
LOCAL AMBASSADORS

## Educated Workforce

Sydney is home to more of Australia's leading universities, research institutes, and technical colleges than any other Australian city. The city's six universities include Australia's oldest university, the University of Sydney. This means Sydney boasts a young, diverse, highly educated workforce for companies seeking talent.

GSER: Cleantech Edition

# Ecosystems To Watch



72 Pittsburgh

74 Calgary

76 Frankfurt

78 Sri Lanka

80 Singapore

United States

# Pittsburgh

## MEMBERS:

InnovatePGH Partnership / Pittsburgh Regional Alliance / Innovation Works



Duolingo was founded in Pittsburgh due to talent, technology, and lifestyle. It's a great place to start a business, and a great place to live once the workday is done.

## Luis von Ahn

CEO & Co-Founder at Duolingo



## TOTAL EARLY STAGE FUNDING

# \$180 m

GLOBAL AVG.  
\$54.8 m

## ECOSYSTEM VALUE

# \$5.2 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

Pittsburgh is leveraging its technical strength in AI and autonomous systems to build a dynamic and diverse startup ecosystem. The birthplace of AI, Carnegie Mellon University, and regional partners are driving the future of AI across all innovation sectors. The city's many notable companies include Aurora Innovation — the \$10B autonomous vehicle startup that acquired Uber ATG — as well as home-grown startup Argo AI, Motional, Waymo, and a dozen other mobility companies who have put down roots to solidify Pittsburgh as a global hub for self-driving technology. It's also home to AI XPrize finalist Marinus Analytics, a women-founded startup that uses facial recognition to disrupt human trafficking and cyber fraud. Pittsburgh is growing its startup ecosystem with a focus on inclusion, widening the tech talent pipeline to ensure more women and people of color can access careers in tech. Black Tech Nation (BTN) also offers education and funding for Black technologists to create a more welcoming, inclusive community. VCs are doing their part, too. Innovation Works, Magarac Venture Partners, and BTN Ventures are all prioritizing investment in diverse founders. Entrepreneurs are inspired in an ecosystem alongside Duolingo — a language learning app that IPO'd in August 2021 at \$6.5B — as well as R&D offices for tech giants that choose Pittsburgh for their most challenging projects: Facebook Reality Labs, Amazon Alexa, and Google Cloud. Pittsburgh's startup ecosystem makes you part of a community of purpose-driven builders, makers, and innovators who work local but have global impact.

## MEDIAN SEED ROUND

# \$75 k



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

# \$3.4 m



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

# \$81 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Advanced Manufacturing & Robotics

Corporate innovation and academic R&D collide in Pittsburgh's 20+ robotics research centers to commercialize advanced technologies. Robotics leads the local investment scene, accounting for over half of all investments in 2020. Success stories include RE2 Robotics, a maker of robotic tech that improves workers' safety and efficiency; and Gecko Robotics, which raised a \$40 million Series B round to develop robots for inspecting utilities. The Pittsburgh Robotics Network includes over 100 regional robotics companies.



### Life Sciences

Home to over 150 life sciences companies, multiple accelerators, and two major healthcare systems driving commercialization, Pittsburgh provides startups with access to world-class research through the University of Pittsburgh and Carnegie Mellon University. Gene therapy company Krystal Biotech raised \$125.12 million in its second public offering in May 2020; immunotherapy startup BlueSphere Bio raised \$105 million in a tranching Series B investment after spinning out of UPMC Enterprises.



### Cleantech

Pittsburgh is home to a UN Center of Excellence on High Performance Buildings and was the second city globally to commit to the UN Sustainable Development Goals. A founding member of the 2030 District Network to reduce energy use and carbon emissions, Pittsburgh has 73 cleantech companies, 35,000 employed in the region's energy industry, and over \$103 million invested by the Department of Energy in university-based R&D in the last 5 years.

# Reasons to move your startup to Pittsburgh

## High-quality tech talent

Pittsburgh startups have access to a robust talent pool of 142,000 working in tech, advanced manufacturing, and life sciences companies. A pipeline of nearly 21,000 graduates with degrees in those fields stems from the 96 colleges, universities, and post-secondary institutions in the greater region, including three R-1 research universities.

## The Pittsburgh Innovation District

Defined in part by the overlapping campuses and historic collaboration of four research anchors — Carnegie Mellon, the University of Pittsburgh, Carlow University, and UPMC — the Innovation District is among the top 10 concentrations of R&D spending in the US and a premier source of talent, investment, research, and startup assets.

## COVID-19 Policy

In 2020, Governor Wolf allocated \$225 million in CARES Act funding for small businesses in Pennsylvania through Community Development Financial Institutions (CDFIs) in addition to available federal resources. With the passage of the American Rescue Plan, there will be another \$7.25 billion available in the U.S. through the Paycheck Protection Program and \$15 billion in Targeted Economic Injury Disaster Loan Payments.

## Startup Community

STARTUP GENOME  
MEMBERS

MEMBER

### InnovatePGH Partnership

InnovatePGH is a next-generation public/private partnership built to accelerate Pittsburgh's status as a global innovation leader. Powered by a coalition of civic, university, and business leaders, the partnership is Pittsburgh's platform to rapidly translate the city's R&D strengths into a high-growth, inclusive, and equitable tech-based economy.

MEMBER

### Pittsburgh Regional Alliance

The Pittsburgh Regional Alliance (PRA) is the economic development affiliate of the Allegheny Conference on Community Development. The PRA attracts strategic investment opportunities and diverse talent to the 10-county southwestern Pennsylvania region and supports the growth of existing regional businesses.

MEMBER

### Innovation Works

Innovation Works (IW) is one of the top US investors in early-stage technology startups and supports the startup & entrepreneurial ecosystem within Southwestern Pennsylvania. IW provides the investment, programing – including software, hardware, and life science accelerators – and critical resources startups need to reach the next stage of growth in Pittsburgh.

Canada

# Calgary

## MEMBERS:

Platform Calgary / Calgary Economic Development



As someone who has been on the leadership team of three Calgary tech unicorns while also bringing up my young family, I can vouch for this city as a great place to start and grow your business!

### Kelly Schmitt

CEO of Benevity



### TOTAL EARLY STAGE FUNDING

# \$172 m

GLOBAL AVG.  
\$54.8 m

### ECOSYSTEM VALUE

# \$1.5 bn

GLOBAL AVG.  
\$13.68 bn

## Highlights

Calgary, Canada’s capital of energy and entrepreneurship, is rapidly transforming into a global tech hub. In 2020, Alberta tech startups attracted a record \$455M in venture capital -- a 100 per cent increase from the previous year. Of that total, Calgary companies captured \$353M over 33 venture deals. Calgary’s business community is also actively investing in the city’s digital transformation. Between 2021 to 2024, local companies are forecasted to spend \$7.5 billion on innovation infrastructure. Much of this explains why the CBRE Scoring Tech Talent report recently ranked Calgary as one of the fastest growing tech talent pools in North America. Our startup support ecosystem collaborates extensively, rallying around a collective goal to triple the size of the tech sector to create 30,000 new jobs by 2031. The innovation ecosystem is further strengthened by the clear support of all orders of government through investments in the acceleration of the ecosystem, the creation of collaborative programming, and the development of a provincial innovation strategy. Ongoing partnerships between government, industry, and non-profits continue to make Calgary a business-friendly city that welcomes the world. Anchored by the new Platform Innovation Centre in the city’s core, Calgary’s innovation district is now the home of the city’s startup community and the catalyst ensuring Calgary’s innovation future.

### MEDIAN SEED ROUND

# \$762 k



GLOBAL AVG.  
\$480 k

### MEDIAN SERIES A ROUND

# \$2.4 m



GLOBAL AVG.  
\$3 m

### SOFT. ENGINEER SALARY

# \$73 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### Cleantech

Home to Canada’s energy sector, Calgary is a premier North American green energy hub and one of the top 15 cleantech markets globally. It also houses over 70% of Alberta’s cleantech firms which are backed by progressive government policy and grants to build innovations that reduce the environmental footprint of various industries. Summit Nanotech recently closed a US\$10 million Series A financing, while geothermal startup Eavor raised \$40 million in March, with investments from BP and Chevron.

### Fintech

Calgary is a fast-growing fintech hub, developing solutions in debt management, insurtech, and paytech that attract capital and world-class talent. Building on the momentum of the \$1B acquisition of Solium Capital by Morgan Stanley Shareworks, recent narwhal Symend and challenger bank Neo Financial have raised over \$145M combined, breaking Series A and B funding records and cementing Calgary’s opportunity to grow and scale fintech startups.

# Reasons to move your startup to Calgary

## Low cost of doing business

Calgary is a transportation hub with connections to global markets and offers cost advantages like the lowest corporate tax rate in Canada, no payroll tax, health care premiums or provincial sales tax. Energy and real estate cost far less than in other large Canadian cities. The City also waived or froze business and development permit fees until 2023, as part of the Council's plan to provide CAD 30 million in relief for businesses.

## Welcoming global talent

Calgary, the 3rd most multicultural city in Canada, attracts and retains top minds. Federal programs including the Global Talent Stream designed to expedite visas, and the Startup Visa program, combined with livability, helped Calgary welcome newcomers from 150 countries in the last decade and enabled growth-stage startups to move to Calgary and scale globally.

## Startup Community

### STARTUP GENOME MEMBERS

#### Platform Calgary

MEMBER

We're building shared prosperity by working to engage, activate and globalize Calgary's innovation ecosystem - building upon our city's potential to become a global hub for startups and innovation.

#### Calgary Economic Development

MEMBER

Calgary Economic Development works with business, government and community partners to position Calgary as the location of choice for the purpose of attracting business investment, fostering trade and growing Calgary's workforce.

### STARTUP GENOME PARTNERS

**A100 / Alberta Enterprise Corporation / Alberta Innovation Corridor / Bow Valley College / Calgary Innovation Coalition / Creative Destruction Lab - Rockies / Innovate Calgary / Mount Royal University, Institute for Innovation and Entrepreneurship / National Angel Capital Organization / Rainforest Alberta / Southern Alberta Institute of Technology (SAIT) / Startup Calgary / University of Calgary, Hunter Hub for Entrepreneurial Thinking / Venture Capital Association of Alberta**

Germany

# Frankfurt

## MEMBERS:

TechQuartier / StartHub Hessen



Frankfurt, recognized as one of the world’s leading financial centres and home to numerous exciting fintech startups in its dynamic ecosystem, is not only an economic powerhouse but also a beautiful region.

## Dr. Philipp Nimmermann

State Secretary, Ministry for Economic Affairs, Energy, Transport and Housing – State of Hessen



## TOTAL EARLY STAGE FUNDING

# \$146.6 m

GLOBAL AVG.  
\$54.8 m

## ECOSYSTEM VALUE

# \$5.45 b

GLOBAL AVG.  
\$13.68 bn

## Highlights

This year the whole world has benefitted from one of the Frankfurt ecosystem’s greatest success stories. BioNTech SE, the German company which along with its partner Pfizer, developed one of the first, highly effective vaccines against Covid-19 was founded by immigrants and is based in the nearby city of Mainz. The company’s immigrant roots and cutting-edge innovation are emblematic of the best of the growing Frankfurt startup scene. A diverse, cosmopolitan city, Frankfurt attracts international talent whose entrepreneurial efforts are supported by a range of government and university programs. The Frankfurt Startup Fund has provided more than 120 local companies with loans of up to €50,000 for startup capital. A new statewide initiative, StartHub Hessen, aims to bring together players in the ecosystem, from companies to investors to mentors. The Frankfurt School of Finance & Management supports and trains local founders through its Centre for Research on Entrepreneurship and Mittelstand (CREAM), while its Blockchain Center is an internationally recognized pioneer in the space. Frankfurt also hosts a number of prominent industry and startup events including the Frankfurt CIO Summit for IT leaders, the International Conference on Green Energy Technologies, SafariFRM, Frankfurt Digital Finance and the Frankfurt Euro Finance Summit, which plays to Frankfurt’s traditional strength as a financial hub. These efforts have paid off with significant recent successes for local companies. Mattress retailer Emma has been one of the fastest growing companies in Europe, while in January 2021, digital insurance platform Clark raised a €69M Series C round. Drone startup Wingcopter also raised a \$22 million Series A to expand internationally.

## MEDIAN SEED ROUND

# \$882 k



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

# \$2.3 m



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

# \$61.2 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Fintech

Frankfurt is an international financial hub that is home to outstanding universities and a high concentration of financial and tech talent. The FinTech Digital Hub Frankfurt builds upon these strengths, bringing together talent from the financial and startup sectors. Well known local fintech companies include Clark, Thinksurance, Fincite, United Signals, CrowdDesk and creditshelf.



### Cybersecurity

Digital Hub Cybersecurity based in Darmstadt is linked to the Fraunhofer SIT and Germany’s National Center for Applied Research ATHENE, Europe’s largest cluster for applied cybersecurity. Incubation and funding programs such as StartUpSecure|ATHENE have contributed to growth in the number of startups in the last three years. The city also hosts the European Cyber Security Summit.

### Greentech

Frankfurt is home to a prominent hub for Greentech talent and companies. The Green and Sustainable Finance Cluster Germany, co-managed by The Frankfurt School, brings together key players in the sub-sector. Piloted by Commerzbank’s Main Incubator, the Impact Festival, the city’s first large-scale event focused on Sustainability, was launched in 2021.

# Reasons to move your startup to Frankfurt

## It's all about collaboration

Frankfurt is tapping into the power of synergy by building bridges with nearby startup clusters and talent pools. For example, neighboring cities Frankfurt and Darmstadt, both home to renowned universities and a strong financial sector, joined forces to create a tech hub to connect technical talent with the banking industry. Frankfurt's central location in Europe also makes it a logistics hub, with data, people and physical goods streaming through the city continually.

## Startup Community

STARTUP GENOME  
MEMBERS

### TechQuartier

MEMBER

Located in the heart of Frankfurt, TechQuartier is a cross-industry innovation brokerage that brings together startups, companies and emerging talent to learn from each other. TechQuartier not only offers an inspiring place to work and collaborate, but is one of Germany's largest digital hubs shaping Hessen's startup infrastructure.

### StartHub Hessen

MEMBER

StartHub Hessen aims towards bringing an already thriving ecosystem even closer together and setting the ideal ground for founding and growth. Benefitting from a large network of companies, start-up centers, mentors and universities, founders are offered one-to-one consulting sessions, a database for easy access to public funding as well as deep insights into the ecosystem and its members. StartHub was initiated by the State of Hessen in 2020.

STARTUP GENOME  
PARTNERS

Frankfurt Economic Development / Goethe University Frankfurt / Hessen Trade & Invest (HTAI) / Hessian Ministry of Economics, Energy, Transport and Housing / HIGHEST TU Darmstadt / ING-DiBa / Station FRM / WIBank

# Sri Lanka

## MEMBERS:

Information and Communication Technology Agency of Sri Lanka



Sri Lanka's Startup Development Strategy boasts of state-of-the-art technology parks, startup-friendly policies, a venture fund, and an entrepreneur visa, to name a few initiatives in our holistic approach to develop our startup ecosystem.

## Jayantha De Silva

Secretary, Ministry of Technology



## TOTAL EARLY STAGE FUNDING

<\$50 m

GLOBAL AVG.  
\$54.8 m

## ECOSYSTEM VALUE

\$132 m

GLOBAL AVG.  
\$13.68 bn

## Highlights

Sri Lanka's innovation ecosystem is evolving rapidly as the government and other players look to nurture local talent, improve the business climate, and foster international connections. These efforts began to bear fruit when Sri Lanka was ranked in the top 20 Asian Economies on the Global Innovation Index in 2020. Sri Lanka ranks second in the region for ease of starting a business. A tropical paradise, the country also offers entrepreneurs a home base with a high quality of life that serves as a convenient entry point to massive neighboring economies. New laws recently designated Colombo Port City as a Special Economic Zone, making it an internationally focused business hub that offers incentives for companies to do business in Sri Lanka. The Ministry of Technology has commissioned five new technology parks in the country which will include incubator facilities for the establishment of startups and for creating high-income-generating jobs for youth by supporting technology-focused businesses. The identified cities include Galle, Kandy, Nuwara Eliya, and Kurunegala. An initiative to bolster ties between Sri Lanka and the EU got underway in 2020 with a series of meetings between European experts on innovation networks, incubation and acceleration, and startup funding and Sri Lankan stakeholders to identify collaboration opportunities between European and Sri Lankan startups. Notable companies emerging from the ecosystem include blockchain-as-a-service company NIFTRON, which recently raised over \$100,000 in angel funding in April 2021 and nCinga, an enterprise solutions software company, had an exit of \$15.5 million in 2019.

## MEDIAN SEED ROUND

\$50 k



GLOBAL AVG.  
\$480 k

## MEDIAN SERIES A ROUND

\$1.06 m



GLOBAL AVG.  
\$3 m

## SOFT. ENGINEER SALARY

\$6 k



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths

### CleanTech

Sri Lanka is aiming to become an energy self-sufficient nation by 2030 by increasing the country's power generation capacity from 4,043 MW to 6,900 MW by 2025 with a focus on renewable energy. Proposed incentives for offshore wind and solar power plants, a 7-year tax holiday on renewable energy projects, and investment in sustainable energy projects are poised to further boost the sub-sector. Sri Lanka's current grid connectivity of 98% is high by regional standards. The Green Energy Champion is an advanced accelerator program for sustainable businesses.

### Agtech & New Food

In 2021, ICTA Sri Lanka and enpact e.V, Germany signed an MoU for knowledge-sharing activities and encouraging technology-focused investments and related services in Agtech and Watertech. Entrepreneurship support in this sub-sector include the Good Life Accelerator, and the ecosystem has seen recent successes in companies building cutting-edge technology in Agtech. Sensz Agro, a leading AgriTech startup, raised \$50K in a seed round in Jan 2020. The startup was named a Top 5 Irrigation Solution impacting the Agricultural Sector by StartUs Insights.

# Reasons to move your startup to Sri Lanka

## Tax Incentives

Sri Lanka offers a 5 to 10-year tax holiday to private companies in certain sectors, and maintains a 0% corporate tax rate for the tech sector. There is zero capital gains and zero dividend withholding tax for foreigners. ICTA and PwC Sri Lanka, partnered recently to introduce an alternate Credit Evaluation Framework specifically for tech companies to expand their financing opportunities through local financial institutions.

## Startup Community

STARTUP GENOME  
MEMBERS

MEMBER

### Information and Communication Technology Agency of Sri Lanka

The Information and Communication Technology Agency is the lead agency in Sri Lanka for implementation of information and communications technology initiatives by the Government of Sri Lanka. It was established to develop the economy of Sri Lanka through ICT.

## Startup Friendly Government

In October 2020, the Ministry of Finance introduced a procurement policy that requires any application software bids for the government under a value of LKR 2 million to exclusively go to tech startups. In 2021 the Digital Nomad visa program was introduced, enabling foreign individuals to work remotely from Sri Lanka for 1 year.

Singapore

# Singapore

**MEMBERS:**

Enterprise Singapore



As the gateway to SE Asia, with the rise of Grab, Sea, GoTo and the GSG alumni network, Singapore’s ecosystem is set to accelerate. It also has the right elements to be a hub for deep tech startups.

**Lim Ee-Ling**

Regional Director, Asia Pacific, 500 Startups



**TOTAL EARLY STAGE FUNDING**

**\$2 bn**

GLOBAL AVG.  
\$548 m

**ECOSYSTEM VALUE**

**\$22.5 bn**

GLOBAL AVG.  
\$13.68 bn

## Highlights

Singapore, a vibrant commercial hub ranked the most innovative city in Asia by Bloomberg and Insead, is a natural magnet for entrepreneurial talent and is now home to over 3,800 tech-enabled startups. The government has continually supported this growing ecosystem with programs and funding, especially for nascent deep tech sectors. The Singaporean government works closely with ecosystem players including universities, 190 accelerators/incubators and over 200 investors to provide all-rounded support including financing, mentorship and talent. With Singapore’s strong foundation in science and technology, the Government has doubled its efforts to support deep tech startups in Singapore, including additional S\$300mil to catalyse investments and increased its co-investment ceiling to S\$4million for early stage deep tech startups. To actively facilitate international connections, the Open Innovation Network was launched to facilitate the co-development of innovative solutions between the startup community and the wider innovation ecosystem while the Global Innovation Alliance supports business internationalisation. Such efforts have propelled several startups to attain unicorn status. Notable unicorns include Carro and Patsnap, who secured US\$360 million in June 2021 and US\$300 million in March 2021 respectively.

**MEDIAN SEED ROUND**

**\$600 k**



GLOBAL AVG.  
\$480 k

**MEDIAN SERIES A ROUND**

**\$4.8 m**



GLOBAL AVG.  
\$3 m

**SOFT. ENGINEER SALARY**

**\$48 k**



GLOBAL AVG.  
\$44 k

## Sub-sector Strengths



### Fintech

The Monetary Authority of Singapore (MAS) announced a S\$125 million support package to sustain the growth of financial institutions and fintech firms amidst COVID-19. In efforts to further liberalize the financial industry, MAS has awarded licenses for digital banks, which include awardees in the startup space: Sea Group and Grab-Singtel consortium.



### Cleantech

Under the Singapore Green Plan 2030, the government has identified S\$19 billion of green projects to be funded by green bonds. The sector is supported by various incubators and accelerator programs, such as Sustaintech Xcelerator which was launched by Temasek and other partners to identify and nurture climate innovators.



### Agtech & New Food

To enhance national food security, the government is investing S\$144 million in research for urban agriculture, cultured meat and microbial protein production. It was also the world’s first country to approve cell-cultured meat for human consumption in December 2020. As an emergent sector, more than 15 alternative protein startups have anchored themselves in Singapore.

# Reasons to move your startup to Singapore

## Government support

The Singaporean government backs entrepreneurship with startup-friendly policies in various aspects including grants for first-time entrepreneurs, talent placements and co-investments. To support growth in deep tech sectors, the government has earmarked S\$25 billion for research and development investments in strategic domains as part of the Research, Innovation and Enterprise (RIE) 2025 plan.

## Talent development and attraction

Singapore welcomes entrepreneurs and tech talent to anchor themselves in Singapore with talent initiatives like Entrepass visas for foreign entrepreneurs while Tech@SG and TechPass provide visas for Singapore-based startups to hire foreign tech talents who are strategic to the startup's growth.

## Startup Community

STARTUP GENOME  
MEMBERS

MEMBER

### Enterprise Singapore

Enterprise Singapore is the government agency championing enterprise development. We work with committed companies to build capabilities, innovate and internationalise. We also support the growth of Singapore as a hub for global trading and startups.

STARTUP GENOME  
PARTNERS

Action Community for Entrepreneurship (ACE) / 500 Startups / FocusTech Ventures / Starburst Accelerator / 500 Ecosystems Singapore PTE. LTD. / Startup X PTE. LTD. / Trendlines Medical Singapore

GSER: Cleantech Edition

# Individuals Can't Solve the Climate Crisis, But Clusters Can

**BIANCA DRAGOMIR**

CEO, Cleantech Cluster Valencia Region

*The first woman to be awarded Cluster Manager of the Year by the European Commission, Bianca Dragomir was appointed as ambassador to all 2500+ clusters in Europe. Her work has taken her from the trenches of cluster management to advising the highest levels of European government on a €1 trillion funding opportunity for industries meeting the SDGs.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

Climate change is exceedingly complex, affected both by factors in natural ecosystems — like glacial melt, ocean currents, and forest cover — and human ecosystems, like public policy and technological innovation. A problem this multi-dimensional and interdependent demands a response that's equally multi-dimensional and interdependent. Systemic problems require systemic solutions.

## There Are No Single-Point Solutions in Cleantech

Unfortunately, traditional responses to climate change have too often been one-dimensional. Governments offer subsidies, scientists conduct studies in research centers, and VCs fund startups. These separate efforts towards Cleantech innovation, however bold and well intentioned, are siloed and inward looking, limiting their impact.

For Cleantech innovation to make an impact, it must scale up. And in Cleantech, scaling up requires coordination. Startups need to connect with investors and with corporations who have the reach to multiply the impact of new technologies. They need governments to create policies that enable new solutions, invest in essential infrastructure, and support bottom-up innovation.

Even a relatively straightforward technology like electric scooters must address issues of infrastructure, architecture, and human behavior to reach market. There are no single-point solutions in Cleantech. Making a dent requires multiple stakeholders, multiple funding streams, and sophisticated strategy.

## Clusters Accelerate Impact

At AVAENSEN, Spain's leading Cleantech cluster in Valencia, we believe the best way to truly move the needle on the climate crisis is by creating clusters co-leading the change, driven by innovation and purpose. At AVAENSEN we put startups at the core of Cleantech innovation, but also weave 300 public and private stakeholders — from government and academia to innovators and investors — into one vibrant ecosystem. The approach is outward-focused, interconnected, and diversified, uniting all players to co-create innovative ventures that can actually move us toward a net-zero economy.

Our results show that collaboration multiplies impact. In 2020, we worked with three different ministries to shape policies that will create 3,500 green jobs and attract €5 billion in investments over the next five years. A few years ago, in partnership with two cities, investors, universities, and corporations, we launched the first climate accelerator in Spain, creating a ripple effect that's seen the formula expand across 12 countries. We've grown more than 400 startups, which we then connected with cities, industries and investors. In the past two years, we have co-created sustainable energy plans for small and medium towns in the region and mobilized tenders of more than €168 million in new clean energy projects by linking municipalities, solution providers, venture capitalists, and business angels.

And AVAENSEN is far from the only cluster catalyzing results. Some 3,000 other clusters across Europe, and 7,000 globally, are executing similar strategies in a variety of sub-sectors from plastics to automotive. Their multi-dimensional approach turns these Cleantech clusters into engines of growth. They create more jobs that pay

higher-than-average salaries, and bring more innovation to market. Productivity in clusters is 25% higher than average. This translates not just to local economic gains but, most importantly, to accelerated progress toward a net-zero economy.

## Individuals Won't Save Us From the Climate Crisis

This progress is already impressive, but it is only the beginning. The need for Cleantech clusters is set to grow rapidly. The European Union has set a target to become the first climate-neutral continent by 2050. China is aiming for 2060, and India for 2070, to reach the same goal. In light of this commitment, the EU has allocated massive funds for climate change projects — a third of €1.8 trillion over the next seven years.

Meeting these ambitious targets is not just a matter of funding, will, and technological breakthroughs. It's also a matter of execution capacity. To reach our goals, we will need speed, scale, and impact like never before. The only way to achieve it is to build clusters that are open, collaborative, globally interconnected, cross-sectoral, and mission-oriented.

We are all living through a turning point in human history. Whether we turn towards disaster or away from it, is under our control. We can innovate our way out of the climate crisis, but we can't do it as individuals. Meeting this challenge requires the best in us. It requires us to elevate ourselves through meaningful collaboration. The only way we will rise to meet the biggest challenge of our time is if we do it together, making the most of our clusters and innovation ecosystems.

GSER: Cleantech Edition

# Collaborating to Accelerate Canadian Cleantech



**JEANETTE JACKSON**  
CEO, Foresight Canada

*Jeanette is a CEO and entrepreneur with broad experience in technology, business development, marketing, and operations. Prior to joining Foresight, she was founding CEO of Light-Based Technologies, which she built into a thriving enterprise with venture capital support and a successful personal exit in 2011.*

*This contributed article was prepared by the author in a personal capacity. The opinions expressed in this article are the author's own and do not necessarily reflect the views or position of Startup Genome.*

There's an argument to be made that Canadians are particularly motivated to create, promote, and adopt climate solutions. Anyone who has experienced our country's natural beauty can easily understand why we protect it so fiercely.

A clear goal was set in 2021, when the Government of Canada committed to reducing greenhouse gas (GHG) emissions by 40-45% below 2005 levels by 2030 and achieving net-zero emissions by 2050. Combined with a number of extreme weather events and attention garnered by the UN Climate Change Conference (COP26) the same year, there is renewed commitment to climate solutions among individuals, investors, the business community, academia, and government.

Canadian Cleantech is maturing at just the right time. More innovators are launching ventures with problem-driven Cleantech solutions. More Canadian ventures are scaling and connecting with global markets. More industry players are increasing transparency on innovation gaps to reach net-zero climate targets. And there was a distinct uptick in capital raised by Cleantech companies in the past year.

Foresight provides support for Cleantech ventures at every stage, from startup to scale-up. In addition to structured training programs and learning from peers in their cohort, ventures get coaching and connections from highly experienced Executives in Residence and mentors.

## Beyond Acceleration

Building on success with acceleration programs, Foresight has introduced initiatives that expand the adoption of Cleantech to help reach critical net-zero targets.

- **Industry challenges:** Startups tell us they have difficulty connecting with industry to establish pilot programs; industry often can't find the sustainability solutions they require. Our "reverse pitch" challenges feature corporate leaders outlining their needs to innovators. From mining to wind turbine blade recycling, we've facilitated valuable connections that are advancing cleantech.
- **Sector-specific initiatives:** Cleantech involves numerous sectors, often with distinct needs. By creating sector-specific initiatives such as waterNEXT and carbonNEXT, we bring together relevant stakeholders to advance solutions in their sector.
- **Events:** Foresight is a trusted partner to create and execute conferences, webinars, and meetings that encourage learning and connections. In 2021, we hosted 50 events, drawing more than 7,000 people from across Canada and globally.
- **Research:** Knowledge sharing is a critical element in accelerating Cleantech development and adoption. Foresight partners with leading academic institutions and industry organizations to create sector roadmaps, regional research, and international business development strategies. It's all publicly available.

## Canada's Clusters

In a country as large and diverse as Canada, there are distinctive Cleantech hubs. This cluster-based approach to economic development builds on regional concentrations of related industries. Clusters have been shown to increase productivity, stimulate partnerships, and expand opportunities for entrepreneurial activity.

Ranked as #16 in this report's global Cleantech ranking, Vancouver is well known in

Canada for being a hub for Cleantech. From carbon capture and water solutions for mining, from hydrogen solutions to renewables, the region has a vibrant ecosystem.

Emerging ventures in British Columbia benefit from a range of support from Innovate BC, a Crown agency of the provincial government. Innovate BC delivers cost-effective, high-impact programs to address the biggest pain points of BC businesses. This means helping entrepreneurs access resources to help them start and scale their companies — and stay in BC.

Besides the ongoing impact of the COVID-19 pandemic, climate change is one of the most critical issues we face globally, according to Raghwa Gopal, President and CEO of Innovate BC.

"With the record heat last summer and the storms and flooding that continue to impact communities across British Columbia, we've seen first-hand the impact of climate change — which will only escalate if we don't get the situation under control," he says. "Innovate BC is committed to supporting innovators that are working on climate solutions through our various funding and mentorship programs."

Through the BC Fast Program, Innovate BC provides grants to companies who already have a product and need funding to create a pilot demonstration of their technology. Innovate BC delivers this critical program in partnership with the National Research Council of Canada Industrial Research Assistance Program (NRC IRAP).

This grant provided a valuable boost to Open Ocean Robotics, a venture that created the first solar-powered uncrewed surface vehicle for seafloor mapping. This technology is revolutionizing the way hydrographic data is collected in coastal areas and lakes through the use of a zero-emission autonomous vessel for work that is typically done using a crewed boat. The advantages include no GHG emissions, increased safety for crew, reduced cost, and faster results.

Innovate BC's Ignite program is an R&D grant that is awarded to academic and industry partnerships to help them commercialize their innovative new technologies. This

program provided valuable support to Terramera, a plant intelligence company that is making a safer generation of plant-based pesticides. Its breakthrough technology, which enables environmentally friendly pesticides to outperform their synthetic chemical counterparts, is a significant climate solution that could have global impact.

Calgary, recognized as an Cleantech ecosystem to watch in this report, is a vibrant green energy hub. Nearly three-quarters of Alberta Cleantech companies sell to the oil and gas industry, according to Alberta Cleantech Report 2021. It is a growing and optimistic sector: more than 80% of ventures surveyed stated they have a moderately or substantially better outlook for the coming year.

## The Toronto-Waterloo Tech Corridor

Toronto-Waterloo in Ontario is an established tech startup ecosystem. Listed among the global top performers in Cleantech in this report, the Toronto-Waterloo region corridor is the largest tech cluster in North America outside of Silicon Valley. The region's post-secondary institutions are a significant source of innovation. The University of Waterloo produces some of the world's most talented engineering and computer science graduates.

Nearby, Innovation Guelph provides acceleration programs for high-potential emerging ventures. It also serves as the point of entry to a provincewide network of regional innovation centers. Not far down the highway, Toronto is a global finance and business hub. It's also the base for the Centre for Social Innovation (CSI), which leads the commercialization of climate solutions. CSI and Foresight are partners in Climate Ventures, which fast-tracks the success of early-stage innovators developing solutions to the climate crisis.

There's a lot of brainpower, ingenuity, and potential packed into that Toronto-Waterloo corridor!

## Committing to Collaboration

With so many players in the Cleantech space, it's essential that we don't try to tackle this massive challenge in isolation. Foresight is highly collaborative. We tear down silos and question the status quo. If a resource, partnership, or program doesn't exist, we create it.

Foresight's work is guided by the Helix-5 model of engagement. This is a framework for interactions among the following five groups: innovators, industry, investors, government, and academia. This also includes associations, service providers, municipal leaders and Indigenous leadership.

Collaboration is surprisingly simple when you approach it with an urgent goal and multiple partner groups in mind, along with a true belief in synergy. The commercialization and adoption of Cleantech in Canada is accelerating because of the willingness of partners to work together, share resources, and move forward with the same goal in mind: grow a thriving green economy.

And we're only getting started. Cleantech innovation starts here!

## GSER: Cleantech Edition



# Methodology, References, & Acknowledgments

88 Methodology

92 References

108 Acknowledgments & Partners

## GSER: Cleantech Edition

# Methodology

The Startup Genome quantitative data infrastructure includes data on over 3 million companies, 280+ ecosystems, and survey data from more than 10,000 startup executives across the globe.

These are the main datasets that make up this data science infrastructure:

- Startup Genome proprietary data:
  - Interviews with 100+ experts
  - 2017–2021 Startup Ecosystem Survey with more than 10,000 participants per year
- Crunchbase: global dataset on funding, exits, and locations of startups and investors
- Dealroom: global dataset on funding, exits, and locations of startups and investors
- PitchBook: private capital market data provider
- Local partners (accelerators, incubators, startup hubs, investors):
  - list of startups
  - list of local exits and funding events
- CB Insights: global dataset on unicorns

## Sub-Sector Definition

Cleantech consists of sustainable solutions in the fields of Energy, Water, Transportation, Agriculture, and Manufacturing that include advanced materials, smart grids, water treatment, efficient energy storage, and distributed energy systems.

## Data Sources

### Primary Data Sources

- Startup Genome LLC (2017-2021). StartupGenome.com Database
- Dealroom.co BV. (2017-2021). Dealroom.co Database
- Crunchbase (2017-2021). Crunchbase.com Database
- CB Insights (2019-2021). CBInsights.com Database
- PitchBook (2018-2021), a private capital market data provider Database

### Secondary Data Sources

- Forbes 2000
- International IP Index
- Shanghai Rankings
- USPTO
- WIPO

## Cleantech Sub-Sectors Ranking Methodology (For Top Ecosystems)

### Overall Ranking

The overall global ecosystem ranking is a weighted average of the following factor scores:

- Performance: 25%
- Funding: 20%
- Startup Experience: 15%
- Knowledge: 10%
- Talent: 5%
- Focus: 25%

The success factors are weighted by the above percentages to establish the overall rank of each ecosystem.

The weights of the factors were determined from research and experience. This method takes into account what is deemed to be of importance in ecosystem mapping and analysis overall and across all ecosystem sizes. We have used our research in the period of 2009-2020 and correlation analysis and modeling work based on linear regression analyses, using factor indexes as independent variables with the performance index as dependent variable.

Adding the actual Performance Index to the ranking formula serves to include the influence of unobserved factors on the performance of an ecosystem.

## Ranking Details

### Performance

Captures the actual leading, current, and lagging indicators of ecosystem performance.

- 50% number of exits of \$50M+ in time period of July 1, 2016 to June 30, 2021
- 25% number of exits all in time period of July 1, 2016 to June 30, 2021
- 25% log of Output (number of startups in Cleantech) in the time period of July 01, 2016 to June 30, 2021.

### Funding

Quantifies funding metrics important to the success of early-stage startups.

- 90% log of number of early-stage funding deals in the time period of July 1, 2016 to June 30, 2021
- 10% log of number of Series B funding deals in the time period of July 1, 2016 to June 30, 2021.

### Knowledge

- 50% Tech Potential, a measure calculated at the technology class level globally and calculated for each ecosystem based on the technologies it produces
  - 20% Complexity of Technology Class, based on a PageRank algorithm
  - 30% Global Growth of Technology Class
  - 50% Size of Technology Class (log of number of global patents in class)

- 40% Ecosystem Knowledge Space Complexity, a measure of the capacity of the ecosystem for producing patent in complex technology classes, based on a PageRank algorithm<sup>3</sup>
- 10% Patents (log of number of patents related to the sub-sector)

### Talent

Assesses the talent Cleantech startups have access to. For this Factor, we analyzed all subjects included in Shanghai Rankings and matched to the relevant Startup Sub-Sectors to calculate the following metrics:

- 30% Average of CNCI score from Shanghai Rankings
- 40% Average of TOP score from Shanghai Rankings
- 30% Average Q1 Score from Shanghai Rankings

### Experience

- 90% Venture A Funding (log of number of historical Series A funding deals, as a proxy for number of teams that raised funds in the ecosystem in the time period of July 01, 2011 to June 30, 2021).
- 10% Exits (log of number of historical \$50M+ exits, as a proxy for number of scaled teams in the ecosystem in the time period of July 01, 2011 to June 30, 2021).

### Legacy

- 50% Number of Employees (log of number of employees in Forbes 2000 companies related to the sub-sector)
- 50% Market Cap (log of sum of market value of Forbes 2000 companies related to the sub-sector)

## Focus

- % share of startups in the sub-sector.

## Key Concepts & Definitions

### Ranking Score

The ranking is primarily driven by one question: In which ecosystems can early-stage startups have the best chance of building global success?

### Startup

A technology-enabled business that is less than 10 years old. Steve Blank defines a startup as a “temporary organization in search of a repeatable and scalable business Model. We use this definition to look across sectors and sub-sectors, including software, hardware, health, energy, and others, and we use these parameters for data collection purposes.

### Startup Ecosystem

A shared pool of resources, generally located within a 60-mile (100-kilometer) radius around a center point in a given region, with a few exceptions based on local realities.

Resources typically include policymakers, accelerators, incubators, coworking spaces, educational institutions and funding groups.

### Ecosystem Success Factors Model

Our principal analytical tool, this measures different dimensions that support the performance of local startups. We look at multiple factors for our rankings:

one measuring actual performance, with other Success Factors associated with performance, each comprising sub-factors and metrics. These factors are highlighted in our Ranking Methodology section, as well as in each rankings section.

- **Performance:** A combination of leading, lagging, and current indicators that capture economic outcomes in a startup ecosystem.
- **Funding:** The level and growth of early-stage funding, looking at both access and quality.
- **Startup Experience:** The depth and diversity of the pool of prior startup experience in an ecosystem.
- **Talent:** Measures the accessibility, quality, and cost of software engineering expertise.

## GSER: Cleantech Edition

# References

UK Science & Innovation Network Country Snapshot: Sweden, UK Science & Innovation Network, [assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1019265/Sweden\\_SI\\_Country\\_Snapshot\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1019265/Sweden_SI_Country_Snapshot_2021.pdf)

“Catering to cleantech: How Israel is evolving into a sustainability pioneer,” Times of Israel, [blogs.timesofisrael.com/catering-to-cleantech-how-israel-is-evolving-into-a-sustainability-pioneer](https://blogs.timesofisrael.com/catering-to-cleantech-how-israel-is-evolving-into-a-sustainability-pioneer)

“Cleantech Investing Is Back. Will This Time Be Different?,” Forbes, [forbes.com/sites/robday/2020/08/17/cleantech-investing-is-back-will-this-time-be-different/?sh=42c5e32267dc](https://forbes.com/sites/robday/2020/08/17/cleantech-investing-is-back-will-this-time-be-different/?sh=42c5e32267dc)

“This time is different: the resurgence of clean tech VC funding,” Fortune, [fortune.com/2021/09/28/this-time-is-different-the-resurgence-of-cleantech-vc-funding](https://fortune.com/2021/09/28/this-time-is-different-the-resurgence-of-cleantech-vc-funding)

“Venture Capital Firms Are Fighting to Throw Money at Cleantech,” Bloomberg, [bloomberg.com/news/articles/2021-09-02/climate-startups-are-booming-as-vcs-throw-money-at-cleantech](https://bloomberg.com/news/articles/2021-09-02/climate-startups-are-booming-as-vcs-throw-money-at-cleantech)

“Better Future: A Route Map to Creating a Cleantech Cluster in London,” London Sustainable Development Commission, [london.gov.uk/sites/default/files/lcdc\\_-\\_better\\_future\\_report\\_2016.pdf](https://london.gov.uk/sites/default/files/lcdc_-_better_future_report_2016.pdf)

Rao, Madanmohan. “Silicon Valley and beyond – how these startup insights can help entrepreneurs around the world,” Yourstory, 25 November 2020, <https://your-story.com/2020/11/startups-entrepreneurship-innovation-alexandre-lazarow/amp>

“Where Business, Tech and Innovation Collide in Silicon Valley!,” Techspo Silicon Valley 2022, <https://techsposv.com/>

“The Silicon Valley Startup Guide,” Rocket Space, <https://www.rocket-space.com/the-silicon-valley-startup-guide-download>

“Why Silicon Valley is a model entrepreneurship ecosystem,” Startup Kosova, 27 November 2020, <https://startupkosovo.org/why-silicon-valley-is-a-model-entrepreneurship-ecosystem/>

Alton, Larry. “The Secrets of Successful Silicon Valley Startups,” The balance small business, 2 December 2018, <https://www.thebalancesmb.com/silicon-valleys-success-in-startups-4056396>

Pardes, Arielle. “Is Silicon Valley Dead? Not According to Venture Dollars,” Wired, 14 April 2021, <https://www.wired.com/story/silicon-valley-dead-not-according-to-venture-capital/>

“SambaNova Systems Nabs \$676M Series D,” VC News Daily, 13 April 2021, <https://vcnewsdaily.com/sambanova-systems/venture-capital-funding/qcnrgbbqxy>

“SambaNova Systems Raises \$676M in Series D, Surpasses \$5B Valuation and Becomes World’s Best-Funded AI Startup,” Vcaonline, 13 April 2021, <https://www.vca-online.com/news/news.asp?ID=2021041301#.YTXA250zbIV>

Anderson, Dan. “Vectra AI: \$130 Million Funding And \$1.2 Billion Valuation,” Pulse 2.0, 16 May 2021, <https://pulse2.com/vectra-ai-130-million-funding-and-1-2-billion-valuation/>

Shu, Catherine. “Location data analytics startup Placer.ai raises \$50M Series B,” Tech Crunch, 27 April 2021, <https://techcrunch.com/2021/04/27/location-data-analytics-startup-placer-ai-raises-50m-series-b/>

Rudegear, Peter. Hoffman, Liz. “Next in Google’s Quest for Consumer Dominance: Banking,” The Wall Street Journal, 13 November 2019, <https://www.wsj.com/articles/next-in-googles-quest-for-consumer-dominancebanking-11573644601>

“Tribal Credit raises USD 34.3 mln to fuel growth,” The Paypers, 23 April 2021, <https://thepappers.com/payments-general/tribal-credit-raises-usd-343-mln-to-fuel-growth--1248560>

“The Briefing: Kry Raises \$317M, Current Picks Up \$220M, And More,” Crunchbase News, 27 April 2021, <https://news.crunchbase.com/news/briefing-4-27-21/>

Hayward, Calif. “Eikon Therapeutics Closes \$148 Million Series A Financing to Develop High-Throughput, Super-Resolution Microscopy for Drug Discovery,” Bio Space, 5 May 2021, <https://www.biospace.com/article/releases/eikon-therapeutics-closes-148-million-series-a-financing-to-develop-high-throughput-super-resolution-microscopy-for-drug-discovery/>

“Biomea Fusion Raises \$56 Million to Bring First Irreversible Menin Inhibitor into the Clinic and Advance Two Additional Irreversible Preclinical Programs,” Biomea Fusion, 6 January 2021, <https://biomeafusion.com/press-release-biomea-fusion-raises-56-million/>

Seth, Shobhit. “Why Is Silicon Valley A Startup Heaven?,” Investopedia, 10 June 2021, <https://www.investopedia.com/articles/personal-finance/061115/why-silicon-valley-startup-heaven.asp>

Santosdiaz, Richie. “A 101 of The Startup Nation: Israel’s Startup and Fintech Landscape,” The Fintech Times, 13 February 2021, <https://thefintechtimes.com/a-101-of-the-startup-nation-israels-startup-and-fintech-landscape/>

Ravat, Hagar. Orbach, Meir. “The 50 Most Promising Israeli Startups - 2021,” CTECH, 14 March 2021, <https://www.calcalistech.com/ctech/articles/0,7340,L-3904570,00.html>

Solomon, Shoshanna. “Israeli shares traded on Wall Street reach massive \$300 billion valuation,” Times of Israel, 17 June 2021, <https://www.timesofisrael.com/israeli-shares-traded-on-wall-street-reach-massive-300-billion-valuation/>

Ziv, Amitai. “Israel Is Lagging on AI. It Will Now Invest Billions to Bridge the Gap,” Haaretz, 12 April 2021, <https://www.haaretz.com/israel-news/tech-news/.premium-the-ai-nation-israel-to-appoint-artificial-intelligence-czar-1.9703391>

Hurst, Aaron. “The countries and startups leading in AI revealed by RS Components,” Information Age, 7 August 2020, <https://www.information-age.com/countries-startups-leading-ai-revealed-by-rs-components-123490800/>

“EQT makes its first investment in Israel with \$100m capital injection to CYE,” Alt Assets, 12 February, 2021, <https://www.altassets.net/private-equity-news/by-news-type/deal-news/eqt-makes-its-first-investment-in-israel-with-100m-capital-injection-to-cye.html>

Press Sarah, Viva. “Global Community Eyes Israeli Cybersecurity Solutions For 2021 As Attacks Spike,” No Camels, 6 April 2021, <https://nocamels.com/2021/04/global-israeli-cybersecurity-solutions-attacks/>

“About Us,” Cyber Week, <https://cyberweek.tau.ac.il/2020/About-Us>

“Incentives and Benefits,” Tel Aviv Yafo, <https://www.tel-aviv.gov.il/en/WorkAndStudy/Pages/Incentives-and-Benefits.aspx>

“Stockholm Innovation Scholarship,” Visit Stockholm, <https://www.visitstockholm.com/o/stockholm-innovation-scholarship/>

“About Us,” Sthlm Fintech Week, <https://sthlmfintechweek.com/about-us/>

“Stockholm launches unique new business advisory service,” Invest Stockholm, <https://www.investstockholm.com/news/stockholm-launches-unique-new-business-advisory-service-starta-eget/>

“Stockholm as a global force,” Invest Stockholm, 2020, [https://www.investstockholm.com/globalassets/invest/reports/hq\\_report\\_2020.pdf](https://www.investstockholm.com/globalassets/invest/reports/hq_report_2020.pdf)

“Welcome to Kista Science City,” Kista Science City, <https://kista.com/english/>

Lunden, Ingrid. "Sinch, a Swedish customer engagement giant, raises \$1.1B, SoftBank and Temasek participating," Tech Crunch, 25 May 2021, <https://techcrunch.com/2021/05/25/sinch-a-swedish-customer-engagement-giant-raises-1-1b-soft-bank-and-temasek-participating/>

"Climate Action Plan 2020-2023," Stockholms Stad, 25 May 2020, <https://vaxer.stockholm/globalassets/tema/klimat-och-miljo/climate-action-plan-2020-2023.pdf>

"Cleantech Innovation in Stockholm," New European Economy, <https://neweuropeaneconomy.com/fdi/cleantech-innovation-in-stockholm/>

"Nordic Cleantech Open 2021," North Sweden Cleantech, 24 January 2021, <https://www.northswedencleantech.se/en/news/nordic-cleantech-open-2021/>

Mukherjee, Supantha. Ringstrom, Anna. "Sweden's Northvolt raises \$2.8 bln to supercharge EV battery output," Reuters, 9 June 2021, <https://www.reuters.com/business/energy/battery-maker-northvolt-raises-275-bln-expand-factory-2021-06-09/>

"Life Science in Stockholm," Invest Stockholm, [https://www.investstockholm.com/investment\\_opportunities/lifescience/](https://www.investstockholm.com/investment_opportunities/lifescience/)

Lonn, Maria. "Stockholm Life Science Conference 2021," Stockholm Science City, 9 June 2021, <https://ssci.se/en/news/stockholm-life-science-conference-2021>

"The Society syndicate invests MSEK 31 in Capitainer," Society, 18 January 2021, <https://society.com/the-society-syndicate-invests-msek-31-in-capitainer/>

"Welcome to the Stockholm region," Invest Stockholm, <https://www.investstockholm.com/>

"Moving to Stockholm – A Guide for Startups and Entrepreneurs," HexGn, 2 May 2019, <https://hexgn.com/moving-to-stockholm-a-guide-for-startups-and-entrepreneurs/>

Riabtsev, Alex. "Startup ecosystem of London," Startup Jedi, 24 November 2020, <https://startupjedi.vc/content/startup-ecosystem-london>

"London for fintech," London & Partners, <https://www.business.london/invest/sectors/tech/fintech#ref1>

Basul, Alara. "London leads European Edtech revolution," UKTN, 7 September 2020, <https://www.uktech.news/news/london-leads-european-edtech-revolution-20200907>

"Best in Class: Global Trends in EdTech from a London Perspective," Dealroom, London & Partners, September 2020, <https://dealroom.co/uploaded/2021/04/Ed-Tech-vFINAL.pdf>

Shakesby, Chloe. "London edtech fund raises \$54m for investment in new companies," Bdaily News, 15 October 2020, <https://bdaily.co.uk/articles/2020/10/15/london-edtech-fund-raises-54m-for-investment-in-new-companies>

Blakely, Lindsay. "4 Reasons the L.A. Startup Ecosystem Will Thrive Post-Covid," Inc., 17 December 2020, <https://www.inc.com/lindsay-blakely/los-angeles-startup-ecosystem-post-covid.html>

Smith, Eric. "The State of Startup Ecosystem in Los Angeles," Rodeo Apps, 22 April 2019, <https://www.rodeoapps.com/blog/startup-ecosystem-in-los-angeles>

“About,” Biocom California, <https://www.biocom.org/about-biocom-california/locations/tokyo/about/>

“Appia Bio Launches With \$52 Million Series A Financing and Establishes Scientific Advisory Board,” BioSpace, 11 May 2021, <https://www.biospace.com/article/releases/appia-bio-launches-with-52-million-series-a-financing-and-establishes-scientific-advisory-board/>

Bergman, Ben. “What Are LA’s Hottest Startups? We Asked Top VCs to Rank Them,” dot.LA, 4 January 2021, <https://dot.la/startups-in-los-angeles-2649633594.html>

Howarth, Josh. “25 Booming AdTech Startups To Watch In 2021,” Exploding Topics, 20 March 2021, <https://explodingtopics.com/blog/adtech-startups>

Bizjournals.com, [www.bizjournals.com/boston/inno/stories/roundups/2021/03/02/vc-funding-boston-startups-tech-february-2021.html](http://www.bizjournals.com/boston/inno/stories/roundups/2021/03/02/vc-funding-boston-startups-tech-february-2021.html).

“Advanced Search: Companies.” Crunchbase, [www.crunchbase.com/discover/organization.companies/30e23e3a2fcbc9d3708f1524221d86a6](http://www.crunchbase.com/discover/organization.companies/30e23e3a2fcbc9d3708f1524221d86a6).

“Boston 3D Printing Company Acquires Additive Manufacturing Pioneer with Strong Intellectual Property.” Thomasnet® - Product Sourcing and Supplier Discovery Platform - Find North American Manufacturers, Suppliers and Industrial Companies, [www.thomasnet.com/insights/boston-3d-printing-company-acquires-additive-manufacturing-pioneer-with-strong-intellectual-property/](http://www.thomasnet.com/insights/boston-3d-printing-company-acquires-additive-manufacturing-pioneer-with-strong-intellectual-property/).

“Fortify - Funding, Financials, Valuation & Investors.” Crunchbase, [www.crunchbase.com/organization/3dfortify/company\\_financials](http://www.crunchbase.com/organization/3dfortify/company_financials).

“A Guide to Boston Startups.” A Guide to Boston Startups | Lesley University, [lesley.edu/article/a-guide-to-boston-startups](http://lesley.edu/article/a-guide-to-boston-startups).

Kirsner, Scott. “Life Sciences Is Poised to Be Boston’s Dominant Industry. Has the Area Become the Silicon Valley of Biotech? - The Boston Globe.” BostonGlobe.com, The Boston Globe, 16 June 2021, [www.bostonglobe.com/2021/06/15/business/has-boston-become-silicon-valley-biotech/](http://www.bostonglobe.com/2021/06/15/business/has-boston-become-silicon-valley-biotech/).

“Realtime Robotics - Funding, Financials, Valuation & Investors.” Crunchbase, [www.crunchbase.com/organization/realtime-robotics-inc/company\\_financials](http://www.crunchbase.com/organization/realtime-robotics-inc/company_financials).

“TetraScience - Funding, Financials, Valuation & Investors.” Crunchbase, [www.crunchbase.com/organization/tetrascience-inc-/company\\_financials](http://www.crunchbase.com/organization/tetrascience-inc-/company_financials).

“RISE – Female Hub Amsterdam receives €750,000 to support women entrepreneurs,” I Amsterdam, 3 December 2020, <https://www.iamsterdam.com/en/business/news-and-insights/news/2020/rise-female-hub-amsterdam-supports-women-entrepreneurs>

“Women entrepreneurs and founders recognised at AI event,” I Amsterdam, 16 December 2020, <https://www.iamsterdam.com/en/business/news-and-insights/news/2020/women-recognised-at-ai-event>

“Female Founder Program seeks to bridge the gap between Amsterdam and Silicon Valley,” I Amsterdam, 18 November 2020, <https://www.iamsterdam.com/en/business/news-and-insights/news/2020/female-founder-program>

“New Dealroom report names Amsterdam as one of Europe’s most valuable tech ecosystems,” I Amsterdam, 8 September 2020, <https://www.iamsterdam.com/en/business/startupamsterdam/news/2020/dealroom-report-amsterdam-tech-ecosystem>

“Visii Labs,” I Amsterdam, <https://www.iamsterdam.com/en/business/startupamsterdam/hubs/accelerators-and-incubators/viisi-labs>

“Prodock,” I Amsterdam, <https://www.iamsterdam.com/en/business/startupamsterdam/hubs/coworking-spaces/prodock>

“Amsterdam Science Park,” I Amsterdam, <https://www.iamsterdam.com/en/business/key-sectors/life-sciences-and-health/amsterdam-science-park>

“Impact Hub,” I Amsterdam, <https://www.iamsterdam.com/en/business/startupamsterdam/hubs/coworking-spaces/impact-hub>

“Plan of action - supporting the transition to circular agriculture,” Government of Netherlands, 30 November 2019, <https://www.government.nl/ministries/ministry-of-agriculture-nature-and-food-quality/documents/policy-notes/2019/11/30/plan-of-action---supporting-transition-to-circular-agriculture>

“CROPIN EXPANDS WITH A PERMANENT ADDRESS IN AMSTERDAM,” Cropin, 5 April 2021, <https://www.cropin.com/news/cropin-expands-with-a-permanent-address-in-amsterdam/>

“Health Inv,” I Amsterdam, <https://www.iamsterdam.com/en/business/startupamsterdam/hubs/accelerators-and-incubators/healthinc>

“Amsterdam’s life sciences & healthcare industry,” Smart Health Amsterdam, <https://smarthealthamsterdam.com/p/innovation-districts>

“Novo, Sanofi lead \$83m round for Lava Therapeutics,” Unquote, 17 September 2020, <https://www.unquote.com/dach/official-record/3021060/novo-sanofi-lead-usd83m-round-for-lava-therapeutics>

“10 reasons startups love Amsterdam,” I Amsterdam, <https://www.iamsterdam.com/en/business/startupamsterdam/news/featured/top-10-reasons-startups-love-amsterdam>

“Incentives and Tax,” Invest In Holland, <https://investinholland.com/why-invest/incentives-taxes/>

“WE NYC:Description & History,” NYC Service, <https://www.nycservice.org/organizations/3461>

Avery, Dan. “N.Y.C. now largest U.S. city to grant LGBTQ businesses access to minority contracts,” NBC News, 20 January 2021, <https://www.nbcnews.com/feature/nbc-out/n-y-c-now-largest-u-s-city-grant-lgbtq-n1254782>

“START-UP NY program,” Department of Taxation and Finance New York State, <https://www.tax.ny.gov/pit/sny/>

“New York.” New Energy Nexus, [www.newenergynexus.com/region/new-york/](http://www.newenergynexus.com/region/new-york/).

“WHY ERA,” Entrepreneurs Roundtable Accelerator, <https://www.eranyc.com/why-era/>

“Techstars New York City Accelerator,” Techstars, <https://www.techstars.com/accelerators/nyc>

“Blockchain Initiative,” NYC EDC, <https://edc.nyc/program/blockchain-initiative>

Chowdhry, Amit. “Dataminr: \$475 Million Funding And \$4.1 Billion Valuation,” Pulse 2.0, 2 April 2021, <https://pulse2.com/dataminr-475-million-funding-and-4-1-billion-valuation/>

Ben-Hutta, Gabriella. “WorkFusion raises \$220 million,” Coverager, 10 March 2021, <https://coverager.com/workfusion-raises-220-million/>

Duetscher, Maria. “New \$120M round doubles AI startup ASAPP’s valuation to \$1.6B,” Silicon Angle, 19 May 2021, <https://siliconangle.com/2021/05/19/new-120m-round-doubles-ai-startup-asapps-valuation-1-6b/>

“AI Summit New York 2021,” IBM, <https://www.ibm.com/events/QDQS45ES>

“SecurityScorecard Raises \$180 Million in Series E Financing Round to Make Security Ratings Mainstream,” CISION, 18 March 2021, <https://www.prnewswire.com/news-releases/securityscorecard-raises-180-million-in-series-e-financing-round-to-make-security-ratings-mainstream-301249868.html>

“NYCEDC and Jerusalem Venture Partners Launch Accelerator Program positioning New York City as the Global Capital for Cyber Innovation,” NYC EDC, 3 February 2020, <https://edc.nyc/press-release/nycedc-and-jerusalem-venture-partners-launch-accelerator-program-positioning>

“NYC Doubles Life Sciences Bet to \$1B,” Genetic Engineering and Biotechnology News, 11 June 2021, <https://www.genengnews.com/news/nyc-doubles-life-sciences-bet-to-1b/>

“Build an Empire State of Mind,” Biolabs, <https://www.biolabs.io/nyulangone>

Ayers, Rebecca. “Payment technology company DailyPay nabs \$500M capital,” FinLedger, 19 May 2021, <https://finledger.com/2021/05/19/payment-technology-company-dailypay-nabs-500m-capital/>

“Paxos Raises \$300M in Series D Funding; at \$2.4 Billion Valuation,” Startup Around , 30 April 2021, [https://startuparound.com/read/1619750428.3810096/Paxos-Raises-\\$300M-in-Series-D-Funding;-at-\\$2.4-Billion-Valuation](https://startuparound.com/read/1619750428.3810096/Paxos-Raises-$300M-in-Series-D-Funding;-at-$2.4-Billion-Valuation)

“New York barclays Accelerator Powered By Techstars,” Techstars, <https://www.techstars.com/accelerators/barclays-new-york>

“Redefining the Future of Fintech,” FinTech Innovation Lab, <https://www.fintechinnovationlab.com/>

“A Recovery for All of Us: New York City Announces Concierge Service to Slash Red Tape for Small Businesses,” nyc.gov, 21 June 2021, <https://www1.nyc.gov/office-of-the-mayor/news/456-21/recovery-all-us-new-york-city-concierge-service-slash-red-tape-small>

“NYC Is Talent,” NYC EDC, 12 April 2021, <https://edc.nyc/article/nyc-talent>

“Emerging Tech,” NYC EDC, <https://edc.nyc/industry/emerging-tech>

Pascual, Rex. "BEIJING HAS MOST UNICORN COMPANIES IN THE WORLD WITH 93 – AN OVERVIEW OF CHINA'S UNICORNS IN 2020," Outsourcing Portal International, 25 March 2021, <http://www.outsourcingportal.eu/en/beijing-has-most-unicorn-companies-in-the-world-with-93-an-overview-of-china-s-unicorns-in-2020>

"Chinese Startup Ecosystem – Exclusive Year End Analysis – 2020 – All You Need To Know!," AsiaTechDaily, 22 December 2020, <https://www.asiatechdaily.com/chinese-startup-ecosystem-exclusive-year-end-analysis-2020-all-you-need-to-know/>

"Moving to Beijing – A Guide for Startups and Entrepreneurs," HexGN, 2 May 2019, <https://hexgn.com/moving-to-beijing-a-guide-for-startups-and-entrepreneurs/>

"TORONTO IS A PLACE TO SCALE.," Startup Here Toronto, <https://startupheretoronto.com/why-here/why-toronto/>

"Entrepreneurship funds and resources for people under 30," Ontario, 30 July 2021, <https://www.ontario.ca/page/entrepreneurship-funds-and-resources-people-under-30>

"ACCELERATORS AND INCUBATORS," Startup Here Toronto, <https://startupheretoronto.com/support-category/accelerators-and-incubators/>

"COWORKING SPACES," Startup Here Toronto, <https://startupheretoronto.com/support-category/coworking-spaces/>

Li, Tom. "Google announces startup accelerator in Waterloo and new office in Toronto," IT World Canada, 7 February 2020, <https://www.itworldcanada.com/article/google-announces-startup-accelerator-and-new-offices-in-toronto/427021>

Zarzycki, Nick. "9 Toronto tech conferences to look out for in 2020," Mars, 30 January 2020, <https://www.marsdd.com/news/9-toronto-tech-conferences-to-look-out-for-in-2020/>

"Shape AI into a force for good – from Ontario," Invest Ontario, 27 May 2021, <https://www.investontario.ca/artificial-intelligence>

"Landmark \$100-million gift to the University of Toronto from Gerald Schwartz and Heather Reisman will power Canadian innovation and help researchers explore the intersection of technology and society," University of Toronto, 25 March 2019, <https://www.utoronto.ca/news/landmark-100-million-gift-university-toronto-gerald-schwartz-and-heather-reisman-will-power>

Landau, Jack. "Construction Begins for U of T's Schwartz Reisman Innovation Centre," Urban Toronto, 22 May 2020, <https://urbantoronto.ca/news/2020/05/construction-begins-u-ts-schwartz-reisman-innovation-centre>

"WATERLOO TECH EVENTS," Techspo Toronto 2022, <https://techspotoronto.ca/waterloo-tech-events/>

"Roche Canada Makes Landmark Investment of \$500 Million in New Operations Hub in Mississauga," Invest Ontario, 16 October 2020, <https://www.investontario.ca/press-release/ontario-canada-supports-innovation-and-job-creation-life-sciences-sector>

"Life Sciences," Invest Ontario, 24 June 2021, <https://www.investontario.ca/life-sciences#research>

MacLennan, Robin. "Roche Canada investing \$500 million to build new Operations Hub in Mississauga," Ontario Construction News, 21 October 2020, <https://ontarioconstructionnews.com/roche-canada-investing-500-million-to-build-new-operations-hub-in-mississauga/>

"TOP 6 REASONS COMPANIES ARE MOVING TO WATERLOO REGION," Perspective, 26 May 2020, <https://perspective.ca/reasons-why-companies-move-waterloo-region/>

Gold, Riva. "What makes Toronto such a powerful startup hub? Here's what the local scene is saying.," LinkedIn, 22 September 2020, <https://www.linkedin.com/pulse/what-makes-toronto-powerful-startup-hub-heres-local-scene-riva-gold/>

"Waterloo tops CBRE list of North American emerging tech talent markets," WaterlooEDC, 16 July 2020, <https://blog.waterlootedc.ca/waterloo-north-america-emerging-talent-cbre>

"Why France," Young Enterprise Initiative, <https://www.yeifrance.com/why-france.html>

Riabtsev, Alex. "Startup ecosystem of Paris," Startup Jedi, 5 January 2021, <https://startupjedi.vc/content/startup-ecosystem-paris>

"An Innovation Powerhouse," Choose Paris Region, <https://www.chooseparisregion.org/why-paris-region/An-innovation-powerhouse>

"Why is Paris a great place for business and work opportunities?," Paris Attitude, 15 February 2019, <https://blog.parisattitude.com/en/paris-great-place-business>

Fauvel, Thomas. "Digital and Artificial Intelligence," Choose Paris Region, <https://www.chooseparisregion.org/industries/digital-artificial-intelligence>

Chevalier, Claude. "FinTech," Choose Paris Region, <https://www.chooseparisregion.org/industries/FinTech>

"Contentsquare Lands \$500M Series E Investment Led by SoftBank Vision Fund 2 To Fuel Rapid Global Expansion and AI-Driven Digital Experience Innovation," Content Square, 25 May 2021, <https://contentsquare.com/blog/contentsquare-500m-series-e-investment/>

"Your Business Hub In Europe," Choose Paris Region, <https://www.chooseparisregion.org/why-paris-region/your-business-hub-in-europe>

J.Ryan, Kevin. "4 Trends Behind Seattle's Booming Startup Scene," Inc., 4 February 2021, <https://www.inc.com/kevin-j-ryan/seattle-surge-cities-covid.html>

Soper, Taylor. "Funding to Seattle-area startups hit new Q1 record with \$1.6B invested — here were the top deals," GeekWire, 13 April 2021, <https://www.geekwire.com/2021/funding-seattle-area-startups-hit-new-record-q1-1-6b-invested-top-deals/>

Colker, Jacob. Etzioni, Oren. "Analysis: Seattle startup ecosystem poised for unprecedented acceleration of company creation," GeekWire, 18 October 2019, <https://www.geekwire.com/2019/analysis-seattle-startup-ecosystem-poised-unprecedented-acceleration-company-creation/>

"5 Things To Know About Seattle Startup Ecosystem 2019," Huntertech, 19 May 2019, <http://huntertechglobal.com/2019/05/19/5-things-know-seattle-startup-ecosystem-2019-tech-companies-in-seattle/>

“About The Fund,” W Fund, <http://www.thewfund.com/about/>

Terry, Mark. “Top Life Sciences Startups to Watch in 2021,” Bio Space, 6 January 2021, <https://www.biospace.com/article/top-life-sciences-startups-to-watch-in-2021/>

Butcher, Mike. “Helsinki rides the Slush wave toward a booming startup future,” Tech Crunch, 7 October 2020, <https://techcrunch.com/2020/10/06/helsinki-rides-the-slush-wave-toward-a-booming-startup-future/>

“Helsinki,” Scale Cities, <https://scalecities.com/cities/helsinki/>

“Metacore secures \$179.9M in credit from Supercell for casual games” Tech Investor News, 5 May 2021, <https://www.techinvestornews.com/Tech-News/Tech-Bloggers/metacore-secures-179.9m-in-credit-from-supercell-for-casual-games>

“VIBRANT STARTUP ECOSYSTEM IN AN OPEN BUSINESS ENVIRONMENT,” Business Finland, <https://www.businessfinland.fi/en/do-business-with-finland/startup-in-finland/startup-environment>

“Helsinki Startup Ecosystem Report 2021,” NewCo Helsinki, 2021, <https://newcohelsinki.fi/wp-content/uploads/Helsinki-Startup-Ecosystem-Report-2021.pdf>

“Digitalising the healthcare ecosystem in the European Union,” Health Europa, 25 June 2020, <https://www.healtheuropa.eu/DIGITALISING-THE-HEALTHCARE-ECOSYSTEM-IN-THE-EUROPEAN-UNION/>

Fourtane, Susan. “AuroraAI: Finland’s National Artificial Intelligence Program,” Interesting Engineering, 9 July 2020, <https://interestingengineering.com/auroraai-finlands-national-artificial-intelligence-program>

“Finland AI Strategy Report,” European Commission, [https://knowledge4policy.ec.europa.eu/ai-watch/finland-ai-strategy-report\\_en](https://knowledge4policy.ec.europa.eu/ai-watch/finland-ai-strategy-report_en)

“The Global Talent Competitiveness Index 2020,” Insead, <https://www.insead.edu/sites/default/files/assets/dept/globalindices/docs/GTCI-2020-report.pdf>

“Welcome to the Sydney Startup Hub,” Sydney Startup Hub, <https://sydneystartupphub.com/about>

“Sydney Startup Hub celebrates two years of success,” Sydney Startup Hub, 25 June 2020, <https://sydneystartupphub.com/whats-happening/news/sydney-startup-hub-celebrates-two-years-of-success>

“Meet The Fempowered Cohort Of 2020!,” Fishburners, <https://fishburners.org/startup-blog/meet-the-fempowered-cohort-of-2020/>

“Ensuring Sydney’s place as a global hub for quantum technology,” The University of Sydney, 7 December 2020, <https://www.sydney.edu.au/news-opinion/news/2020/12/07/sydney-quantum-academy-ensuring-sydney-as-global-hub-quantum-tech.html>

Withers, Stephen. “Airwallex plans Sydney engineering hub,” iTWire, 6 July 2021, <https://itwire.com/strategy/airwallex-plans-sydney-engineering-hub.html>

Thomsen, Simon. “Australia’s new biggest VC fund is worth \$500 million,” Startup Daily, 4 August 2020, <https://www.startupdaily.net/2020/08/australias-new-biggest-vc-fund-is-worth-500-million/>

Burroughs, Tim. "Australia's Employment Hero gets \$35m Series D," AVCJ, 2 March 2021, <https://www.avcj.com/avcj/news/3023052/australias-employment-hero-gets-usd35m-series-d>

Tore, Ozgur. "Sydney Wins to Host A Tech Event in 2023," FTN News, 17 February 2021, <https://ftnnews.com/mice/41245-sydney-wins-to-host-a-tech-event-in-2023>

Thomsen, Simon. "Fintech lender Athena banks \$90 million series D," Startup Daily, 11 May 2021, <https://www.startupdaily.net/2021/05/fintech-lender-athena-banks-90-million-series-d/>

"Graphic Design Platform Canva Reaches \$15 Billion Valuation," Lexology, 23 June 2021, <https://www.lexology.com/library/detail.aspx?g=395c7e20-dcda-4527-a27d-d3d1f-101d8ad>

Riley, Duncan. "Australian enterprise cybersecurity firm Kasada raises \$10M," Silicon Angle, 16 June 2020, <https://siliconangle.com/2020/06/16/australian-enterprise-cybersecurity-firm-kasada-raises-10m/>

Sadler, Denham. "NSW budget underpins a tech-led recovery plan" Innovation Aus, 18 November 2020, <https://www.innovationaus.com/nsw-budget-underpins-a-tech-led-recovery-plan/>

"Affordable rentals set to increase in Sydney," NSW Government News, 24 May 2021, <https://www.nsw.gov.au/news/affordable-rentals-set-to-increase-sydney>

"Sydney facts," NSW Government, <https://invest.nsw.gov.au/why-nsw/sydney-facts>

"Talented workforce" NSW Government, <https://invest.nsw.gov.au/why-nsw/talented-workforce>

Bursztynsky, Jessica. "Uber sells its self-driving unit to Aurora," CNBC News, 7 December 2020, <https://www.cnbc.com/2020/12/07/uber-sells-atg-self-driving-unit-to-aurora.html>

"OUR MISSION," Marinus Analytics, <https://www.marinusanalytics.com/about>

Machosky, Michael. "Pittsburgh-based Astrobotic awarded \$199.5 million to deliver NASA rover to the moon," NEXT Pittsburgh, 12 June 2020, <https://nextpittsburgh.com/latest-news/pittsburgh-based-astrobotic-awarded-199-5-million-to-deliver-nasa-rover-to-the-moon/>

Machosky, Micheal. "15 Pittsburgh tech companies to watch in 2021," NEXT Pittsburgh, 4 January 2021, <https://nextpittsburgh.com/features/15-pittsburgh-tech-companies-to-watch-in-2021/>

"The Pittsburgh Technology Council's Tech 50 Awards honors technology innovation in our region," Pittsburgh Technology Council, <https://www.pghtech.org/events>

"Black Tech Nation Ventures," Black Tech Nation, <http://btn.vc/>

"The Birthplace of AI," Pittsburgh Region, <https://pittsburghregion.org/key-industries/artificial-intelligence/>

Wiggers, Kyle. "Argo closes \$2.6 billion round from VW at a \$7.25 billion valuation," Venture Beat, 1 June 2020, <https://venturebeat.com/2020/06/01/argo-closes-2-6-billion-round-from-vw-at-a-7-25-billion-valuation/>

“Robotics,” Pittsburgh Region, <https://pittsburghregion.org/key-industries/robotics/>

“The State of Climate Tech 2020,” Pwc, <https://www.pwc.com/gx/en/services/sustainability/assets/pwc-the-state-of-climate-tech-2020.pdf>

“Pittsburgh + Energy,” Pittsburgh Region, <https://pittsburghregion.org/key-industries/energy/>

“CALGARY ECONOMIC DEVELOPMENT 2020 HIGHLIGHTS,” Calgary Economic Development, 2020, <https://calgaryeconomicdevelopment.com/assets/2020-Annual-Report/2020-CED-Highlights.pdf>

“Calgary in the New Economy ,” Calgary Economic Development, September 2019, <https://calgaryeconomicdevelopment.com/assets/Calgary-in-the-New-Economy/Calgary-in-the-New-Economy-Sept-2019.pdf>

“OCIF invests in SAIT Digital Transformation (DX) Talent Hub,” Calgary Economic Development, 9 September 2020, <https://calgaryeconomicdevelopment.com/newsroom/ocif-addresses-tech-talent-challenge-with-investment-in-sait-digital-transformation-dx-talent-hub/>

“WELCOME TO INVENTURES 2021,” Inventures Canada, <https://inventurescanada.com/>

“The 21st International Conference on Computational Science and its Applications,” ICCSA 2021, <https://iccsa.org/>

“Canadian Digital Oilfields Conference 2021,” Canadian Digital Oilfields 2021, <https://www.canada.digital-oilfields-conference.com/index#>

“ ABOUT THE GLOBAL ENERGY SHOW,” Global Energy Show, <https://www.globaleneryshow.com/about/>

“Life Sciences Fellowship,” University of Calgary, <https://innovatecalgary.com/life-sciences-fellowship/>

“Medventions Internship ,” University of Calgary, <https://innovatecalgary.com/medventions/>

Pike, Helen. “Calgary life science hub gives companies space to succeed,” CBC News, 28 May 2021, <https://www.cbc.ca/news/canada/calgary/biohubx-calgary-life-science-innovation-hub-startup-biomedical-pharmaceutical-1.6043309>

“GrinSTEM Fellowship ,” University of Calgary, <https://innovatecalgary.com/grin-stem-fellowship/>

“Up to \$55 million boost for Alberta businesses to improve energy efficiency,” Intrado, 2 November 2020, <https://www.globenewswire.com/en/news-release/2020/11/02/2118851/0/en/Up-to-55-million-boost-for-Alberta-businesses-to-improve-energy-efficiency.html>

“\$58millionannouncedfornaturalgasinnovationsworth\$155million,”Intrado,21July2020, <https://www.globenewswire.com/en/news-release/2020/07/21/2065101/0/en/58-million-announced-for-natural-gas-innovations-worth-155-million.html>

Savilow, Madison. “Canada’s Cleantech Future,” TheFutureEconomy.ca, 2 December 2020, <https://thefutureeconomy.ca/spotlights/spotlight-on-calgarys-edge-on-investment/canadas-cleantech-future/>

“Summit Nanotech announces opening of \$ US 10M Series A raise, and signs an LOI with UK-Based CleanTech Lithium to join Summit’s multi-client pilot program in Chile,” Finanzen.at, 17 May 2021, [https://www.finanzen.at/nachrichten/aktien/summit-nanotech-announces-opening-of-\\$us-10m-series-a-raise-and-signs-an-loi-with-uk-based-cleantech-lithium-to-join-summits-multi-client-pilot-program-in-chile-1030436853](https://www.finanzen.at/nachrichten/aktien/summit-nanotech-announces-opening-of-$us-10m-series-a-raise-and-signs-an-loi-with-uk-based-cleantech-lithium-to-join-summits-multi-client-pilot-program-in-chile-1030436853)

Marsh, Jane. “A deeper dive into BP and Chevron’s backing of a Canada-based geothermal startup,” Renewable Energy World, 3 August 2021, <https://www.renewableenergyworld.com/baseload/a-deeper-dive-into-bp-and-chevrons-backing-of-a-canada-based-geothermal-startup/#gref>

“Digital transformation opportunities set to drive economic boost for Calgary,” Tech Crunch, <https://techcrunch.com/sponsor/calgary-economic-development/digital-transformation-opportunities-set-to-drive-economic-boost-for-calgary/>

“Symend to Accelerate Global Expansion by Bringing Total Funding to-date to Over US\$100 Million Following US\$43 Million Series B Extension ,” Symend, 9 February 2021, <https://symend.com/blog/symend-to-accelerate-global-expansion-by-bringing-total-funding-to-date-to-over-100-million/>

“Collaborating to win in Canada’s Fintech ecosystem:Accenture 2021 Canadian Fintech report,” Accenture, 2021, [https://www.accenture.com/\\_acnmedia/PDF-149/Accenture-Fintech-report-2020.pdf](https://www.accenture.com/_acnmedia/PDF-149/Accenture-Fintech-report-2020.pdf)

“NeoFinancial Raises \$50 Million in Series A Funding and Debt Financing,” BusinessWire, 16 December 2020, <https://www.businesswire.com/news/home/20201216005309/en/Neo-Financial-Raises-50-Million-in-Series-A-Funding-and-Debt-Financing>

Giurescu, Dan. “The Future of Calgary’s Tech Scene,” TheFutureEconomy.ca, 2 December 2020, <https://thefutureeconomy.ca/spotlights/spotlight-on-calgarys-edge-on-investment/future-of-calgarys-tech-scene/>

“Startup Visa (SUV),” Platform Calgary, <https://www.platformcalgary.com/programs-and-events/suv/>

“The Alberta Foreign Graduate Start-up Visa,” Moving2Canada, <https://moving2canada.com/alberta-foreign-graduate-start-up-visa/>

“Becoming an entrepreneur in Germany,” I AM EXPAT, <https://www.iamexpat.de/career/entrepreneur-germany>

“FRANKFURT START UP FUND,” FS Impact Finance, <https://www.fs-finance.com/financesolution/frankfurt-start-up-fund/>

“Entrepreneurship@FS Innovative Solutions for a Changing Market,” Frankfurt School of Finance and Management, <https://www.frankfurt-school.de/en/home/about/entrepreneurship>

“Welcome to ICGET 2021,” ICGET 2021, <http://www.icget.org/>

“#SafariFRM,” Startup Safari Frankfurt, <https://frankfurt.startupsafari.com/>

“Frankfurt Euro Finance Summit,” dfv-Euro Finance Group, <https://www.dfv-eurofinance.com/konferenzen/frankfurt-euro-finance-summit-2021/facts-figures>

“Deutsche Börse and Commerzbank jointly invest in new digital marketplaces of the future” Deutsche Borse Group, 29 April 2021, <https://deutsche-boerse.com/dbg-en/media/press-releases/Deutsche-B-rse-and-Commerzbank-jointly-invest-in-new-digital-marketplaces-of-the-future-2629326>

Hamilton, Alex. “Deutsche Börse and Commerzbank team up to support DLT firm 360X,” Fintech Futures, 4 May 2021, <https://www.fintechfutures.com/2021/05/deutsche-borse-and-commerzbank-team-up-to-support-dlt-firm-360x/>

“FINTECH & CYBERSECURITY,” De-Hub, Digital Ecosystems, <https://www.de-hub.de/en/the-hubs/frankfurtdarmstadt/#startpage>

“CrowdDesk closes Series A for EUR 8.5 million,” Frankfurt Valley, 31 May 2021, <https://frankfurtvalley.app/2021/05/31/crowddesk-closes-series-a-for-eur-8-5-million/>

“Frankfurt-Europe’s Business Hub,” Wirtschafts Foerderung Frankfurt, <https://frankfurt-business.net/standort-frankfurt/branchenfokus/finanz-versicherungswirtschaft/fintech-hub/>

“Six startups and accelerators you should know in Darmstadt,” Frankfurt Valley, 1 November 2020, <https://frankfurtvalley.app/2020/11/01/six-startups-and-accelerators-you-should-know-in-darmstadt/>

“European Cybersecurity Summit 2021,” Cloud Expo Europe, <https://www.cloudexpo-europe.de/ceefsecurity>

“Launch of GreenTech Hub powered by TechQuartier and Finance in Motion” Tech Quartier, 27 June 2018, <https://techquartier.medium.com/launch-of-greentech-hub-powered-by-techquartier-and-finance-in-motion-373938ff1145>

“Green and Sustainable Finance Cluster Germany e.V,” Frankfurt School of Finance and Management, <https://www.frankfurt-school.de/en/home/international-advisory-services/region/europe/green-sustainable-finance-cluster>

“node.energy Secures €775K Financing,” FINSMES, 15 December 2017, <https://www.finsmes.com/2017/12/node-energy-secures-e775k-financing.html>

“Launch of GreenTech Hub” Station FrankfurtRheinMain, 27 June 2018, <https://station-frankfurt.de/2018/06/27/launch-of-greentech-hub/>

Hak, Andrea. “5 reasons why Germany is the best country for startups,” TNW News, 9 July 2020, <https://thenextweb.com/news/5-reasons-why-germany-is-the-best-country-for-startups>

Menninger, Jörn. Herwarth, von Bittenfeld Paul. and Ferreira, Pedro. “The Complete Frankfurt Startup City Guide,” Start Us Magazine, 29 November 2017, <https://magazine.startus.cc/complete-frankfurt-startup-city-guide/>

Jogner Berlin, Zazkia. “DID YOU KNOW? SRI LANKA IS A MAJOR INNOVATION AND STARTUP HUB,” Renaissance Sri Lanka, 28 April 2021, <https://www.renasl.org/3776/did-you-know-episode-3-the-rise%E2%80%AFof-innovation-and-start-up-culture-in-sri-lanka%E2%80%AF%E2%80%AF/>

“EU supports Sri Lanka’s innovation and startup ecosystem,” Colombo Page, 3 March 2020, [http://www.colombopage.com/archive\\_20A/Mar03\\_1583212171CH.php](http://www.colombopage.com/archive_20A/Mar03_1583212171CH.php)

“Why Sri Lanka,” Invest Sri Lanka, <https://www.invest-srilanka.lk/about/WhySriLanka>

“Why you should attend,” Invest Sri Lanka, <https://www.invest-srilanka.lk/about/WhyAttend>

“Sri Lanka - Country Commercial Guide,” International Trade Administration Of Sri Lanka, 15 March 2021, <https://www.trade.gov/country-commercial-guides/sri-lanka-energy>

“Budget Highlights 2021,” Deloitte, 17 November 2020, <https://www2.deloitte.com/content/dam/Deloitte/lk/Documents/tax/sl-tax-report-budget-2020-noexp.pdf>

Hathurusinghe, Sanuj. “For a Better, Greener Future,” Ceylon Today, 8 May 2021, <https://ceylontoday.lk/news/for-a-better-greener-future>

“Social Enterprise Ecosystems in South Asian Associations for Regional Cooperation Countries,” World Bank Group, May 2017, [https://www.innovationpolicyplatform.org/www.innovationpolicyplatform.org/system/files/SAARC%20ecosystem%20report\\_May15/index.pdf](https://www.innovationpolicyplatform.org/www.innovationpolicyplatform.org/system/files/SAARC%20ecosystem%20report_May15/index.pdf)

Paulis, Nadeesha. “Hatch and LAN launches ‘HatchX’ Sri Lanka’s first fintech accelerator,” Hatch, 24 April 2020, <https://medium.com/hatchworks/hatch-and-lan-launches-hatchx-sri-lanka-s-first-fintech-accelerator-60db88820af7>

Hamza, Mahadivya. “Sri Lanka fintech start-ups seek funding in virtual pitch,” Economy Next, 15 September 2020, <https://economynext.com/sri-lanka-fintech-start-ups-seek-funding-in-virtual-pitch-73922/>

“Sri Lanka Investment Forum 2021,” Invest Sri Lanka, [https://www.oav.de/fileadmin/user\\_upload/2\\_Termine/1\\_Externe\\_Termine/SLIF\\_International\\_Brochure.pdf](https://www.oav.de/fileadmin/user_upload/2_Termine/1_Externe_Termine/SLIF_International_Brochure.pdf)

Fetalvero, Nathaniel. “The startup investment deals that shaped 2020,” Tech In Asia, 26 December 2020, <https://www.techinasia.com/startup-investment-deals-shaped-2020>

“Japan’s largest bank invests over \$700 million in Grab,” 19 February 2020, <https://www.americanbanker.com/payments/articles/japans-largest-bank-invests-over-700-million-in-grab>

“INTRODUCTION TO SINGAPORE’S STARTUP LANDSCAPE,” Enterprise Singapore, [https://www.bvmw.de/fileadmin/03-Themen/Aussenwirtschaft/ASEAN-Desk/Dateien/Singapur\\_Delegation/Introduction\\_to\\_Singapore\\_s\\_Startup\\_Landscape\\_08052019\\_.pdf](https://www.bvmw.de/fileadmin/03-Themen/Aussenwirtschaft/ASEAN-Desk/Dateien/Singapur_Delegation/Introduction_to_Singapore_s_Startup_Landscape_08052019_.pdf)

“Startup SG Founder,” Startup SG, 8 July 2021, <https://www.startupsg.gov.sg/programmes/4894/startup-sg-founder>

“Singapore Startup Ecosystem – Exclusive Year End Analysis – 2020 – All You Need To Know!,” Asia Tech Daily, 4 January 2021, <https://www.asiatechdaily.com/singapore-startup-ecosystem-exclusive-year-end-analysis-2020/>

“SINGAPORE FINTECH FESTIVAL 8 - 12 NOV 2021,” Singapore Fintech Festival, <https://www.fintechfestival.sg/>

“Thunes gets USD 60 mln funding round from Insight Partners,” The Paypers, 19 May 2021, <https://thepappers.com/online-payments/thunes-gets-usd-60-mln-funding-round-from-insight-partners--1249122>

“COVID-19 Support Package for FinTechs,” Monetary Authority Of Singapore, 30 April 2021, <https://www.mas.gov.sg/development/fintech/covid-19-support-package-for-fintechs>

“Innovation & Enterprise Cluster Fund,” National Research Foundation, Prime Minister’s Office, Singapore, 20 February 2021, <https://www.nrf.gov.sg/innovation-enterprise>

“Innovation,” EDB Singapore, 21 June 202, <https://www.edb.gov.sg/en/our-industries/innovation.html>

“Growing a Vibrant National Innovation System,” National Research Foundation, Prime Minister’s Office, Singapore, 20 February 2021, <https://www.nrf.gov.sg/rie2025-plan/growing-a-vibrant-national-innovation-system>

O’Callaghan, Liam. “Green Tech Farm settles on Singapore,” Asia Fruit, 19 November 2020, <http://www.fruitnet.com/asiafruit/article/183566/green-tech-farm-settles-on-singapore>

Mulia, Khamila. “With new national plan, Singapore leads region’s sustainable green tech innovations,” KrASIA, 19 February 2021, <https://kr-asia.com/with-new-national-plan-singapore-leads-regions-sustainable-green-tech-innovations>

“How Singapore is cementing its position as Southeast Asia’s fintech hub.,” Tech Collective, 3 December 2020, <https://techcollectivesea.com/2020/12/03/how-singapore-is-cementing-its-position-as-southeast-asias-fintech-hub/>

“Singapore FinTech Report 2021,” Fintech Singapore, <https://fintechnews.sg/wp-content/uploads/2021/01/Singapore-Fintech-Report-2021-Alibaba-Cloud-Fintech-News-SG-.pdf>

“What’s Next For Digital Insurer Singlife After Its Merger With Aviva?,” FinTech News Singapore, 28 January 2021, <https://fintechnews.sg/47574/insurtech/whats-next-for-digital-insurer-singlife-after-its-merger-with-aviva/>

“Budget 2021: Building a sustainable Singapore,” gov.sg, 17 February 2021, <https://www.gov.sg/article/budget-2021-building-a-sustainable-singapore>

“About AI Singapore,” AI Singapore, <https://aisingapore.org/about-us/>

Tay, Shirley. “How Singapore is building AI for predictive healthcare,” GovInsider, 18 September 2020, <https://govinsider.asia/vision/how-singapore-is-building-ai-for-predictive-healthcare-nuhs/>

Fetalvero, Nathaniel. “Deep Dive: How PatSnap joined the unicorn club,” Tech In Asia, 16 April 2021, <https://www.techinasia.com/deep-dive-patsnap-joined-unicorn-club>

Basu, Medha. “Woodlands Health Campus to use AI and robotics for patient care,” GovInsider, <https://govinsider.asia/innovation/woodlands-health-campus-to-use-ai-and-robotics-for-patient-care/>

Rohaidi, Nurfilzah. Basu, Medha. “Exclusive: Tan Tock Seng Hospital builds “artificial brain” to manage services,” GovInsider, <https://govinsider.asia/smart-gov/exclusive-tan-tock-seng-hospital-builds-artificial-brain-to-manage-services/>

“Singapore Startup Ecosystem: An Entrepreneurs’ Paradise?,” EHL Insights, <https://hospitalityinsights.ehl.edu/bridging-valley-death-singapore>

“Early Stage Venture Fund,” , National Research Foundation, Prime Minister’s Office, Singapore, 20 February 2021, <https://www.nrf.gov.sg/funding-grants/early-stage-venture-fund>

“Entrepreneur Pass in Singapore,” Startup Decisions, <https://www.startupdecisions.com.sg/singapore/relocation/entrepass/>

GSER: Cleantech Edition

# Acknowledgments & Partners

A project like the Global Startup Ecosystem Report can only be realized with an enormous effort from both the project team and external supporters. Several partners have invested significant resources into the project. Numerous advisors, founders, investors, and industry experts have given us access to their knowledge, networks, and time because they support our vision and want to move their ecosystem and the whole startup sector forward. Startup Genome and Global Entrepreneurship Network (GEN) would like to express our deep gratitude and appreciation to everyone who contributed towards making this project possible.

## Startup Genome Authors

JF Gauthier, Chief Executive Officer

Marc Penzel, President

Stephan Kuester, Head of Ecosystem Strategy

Hazel Boydell, Editor-in-Chief

## External Authors

Bianca Dragomir, CEO, Valencia Cleantech Cluster

Patrick Gagné, CEO, EcoFuel

Frans Nauta, Founder, ClimateLaunchpad

Matt Toner, Partner, Shred Capital

Fred Walti, CEO, NGIN

## Project Team

### Startup Genome

JF Gauthier, Chief Executive Officer

Marc Penzel, President

Stephan Keuster, Head of Ecosystem Strategy

Tricia Whitlock, Chief Operations Officer

Hazel Boydell, Editor-in-Chief

Rahul Chatterjee, Director of Operations

Adam Bregu, Director of Business Development & Partnerships

Farshad Fahimi, Director of Data Strategy

Pranav Arya, Senior Consultant

Akshat Agarwal, Manager, Research

Ethan Webster, Innovation Policy Specialist

Sama Siddiqui, Member Relationship Lead

Utkarsh Jain, Manager, Research

Shreesh Dubey, Senior Operations Coordinator

Poorva Mendiratta, Senior Analyst

Anshika Gandhi, Business Analyst

Parshant Sharma, Project Manager - Data Science

Rahul Kumar, Data Analyst

Tushar Jain, Data Analyst

Whitney Messervy, Marketing Expert

Janice Venable, PR & Events Expert

Hana Javurkova, PR & Events Expert

Pavan Kumar, Manager of Sales Operations & CRM Administrator

Shekhar Parihar, Process Lead of Lead Generation & CRM Support

Neha Thapliyal, Business Development Assistant

Ana Lucia Osorio, Executive Assistant to the CEO

Parisaa Tripathi, Research & Consulting Intern

Riddhi Sehgal, Operations Intern

Aman Bansal, Data Science Intern

Vasken Spuru, Data Science Intern

Marsbased, Website Development

Kritivity Web Solutions, Design

Jessica Stillman, Writer

## Global Entrepreneurship Network

Jonathan Ortman, President

Mark Marich, Executive Vice President

Buke Cuhadar, Vice President for Global Operations

Cristina Fernandez, Vice President for Policy and Research

Peter Komives, Vice President for Strategic Development

Susan Amat, Vice President for Education

## Startup Genome Network Members

### Abu Dhabi

Abu Dhabi Global Market

### Amsterdam, Netherlands

Techleap

### Bahrain

Tamkeen

### Belgrade & Novi Sad, Serbia

Cabinet of the Minister for Innovation and Technological Development

Digital Serbia Initiative

### Biscay Startup Bay

Diputación Foral de Bizkaia

### Bogotá

iNNpulsa

District Secretariat of Economic Development (DSED)

Invest in Bogota

### Budapest

National Research, Development and Innovation Office

Ministry of Innovation and Technology

### Cairo, Egypt

Information Technology Industry Development Agency

### Calgary, Canada

Platform Calgary

Calgary Economic Development

### Cape Town

City of Cape Town

WESGRO

Silicon Cape for Cape Town

**Copenhagen, Denmark**

Digital Hub Denmark

**Doha**

Qatar Development Bank

**Dubai**

District2020

**Edmonton, Canada**

City of Edmonton

**Frankfurt, Germany**

TechQuartier

StartHub Hessen

**Gambia**

International Trade Centre, United Nations

**Greater Helsinki**

City of Helsinki

**Hesse, Germany**

Hessian Ministry for Economic Affairs, Energy, Transport and Housing

**Houston, United States**

Houston Exponential

**Indiana**

Indiana Economic Development Corporation

**Istanbul**

Istanbul Development Agency

Presidency of the Republic of Turkey, Investment Office

**Bangalore - Karnataka**

Karnataka Innovation and Technology Society

Bangalore Bioinnovation Centre

**Kerala**

Kerala Startup Mission

**Kuala Lumpur**

Malaysia Digital Economy Corporation (MDEC)

**Kyoto**

Japan External Trade Organization (JETRO)

**London, United Kingdom**

Tech Nation (formerly Tech City UK)

### **Manila, Philippines**

Department of Trade and Industry

### **Melbourne, Australia**

LaunchVic

### **Miami, United States**

Knight Foundation

### **Mid-East Region Ireland**

Meath Enterprise

### **Mississippi**

Mississippi Development Authority

### **Moldova**

Moldovan Association of ICT Companies

### **Montreal, Canada**

Bonjour Startup Montréal

Centech

Montréal International

Real Investment Management Inc.

Ville de Montréal

### **New South Wales**

Investment NSW

### **New York City, United States**

New York City Economic Development Corporation

Tech:NYC

### **Ontario**

Government of Ontario

### **Philadelphia**

Ben Franklin Technology Partners

University City Science Center

Drexel University

### **Pittsburgh**

InnovatePGH Partnership

Pittsburgh Regional Alliance

Innovation Works

### **Portugal**

Startup Portugal

**Québec City, Canada**

Québec International

**Ras Al Khaimah**

Office of Strategic Studies, Government of Ras Al Khaimah

**Rhineland, Germany**

Ministry for Economy, Innovation, Digitization and Energy of the State of North Rhine-Westphalia

**Riyadh**

Saudi VC and PE Association (SVCPEA)

General Authority for Small and Medium Enterprises (Monsha'at)

**Santiago-Valparaíso**

Corporación de Fomento de la Producción de Chile (CORFO)

**São Paulo**

Abstartups

**Seoul, South Korea**

Seoul Business Agency

Seoul Metropolitan Government

**Sharjah, United Arab Emirates**

Sharjah Entrepreneurship Center (Sheraa)

**Singapore**

Enterprise Singapore

**Sri Lanka**

Information and Communication Technology Agency of Sri Lanka

**Sweden**

Vinnova

**Tel Aviv, Israel**

Tel Aviv Global

**Telangana, India**

T-Hub Foundation

**Tokyo, Japan**

Tokyo Metropolitan Government

Deloitte Japan

**Toronto-Waterloo**

MaRS Discovery District

Communtech Corporation

## **Tunisia**

Smart Capital

CDC

## **Turin**

Intesa Sanpaolo Innovation Center

Fondazione Compagnia di San Paolo

## **Western Balkan Region**

German Society for International Cooperation (GIZ)

## **Western Denmark, Denmark**

Digital Hub Denmark



Copyright © 2022 Startup Genome LLC ([www.startupgenome.com](http://www.startupgenome.com)), All Rights Reserved. You agree not to reproduce nor distribute the report, either by email, website download, or any other electronic or physical means without the prior written authorization of Startup Genome. This material has been prepared for general informational purposes only and is not intended to be relied upon as professional advice.