

Post-COVID-19 New Normal: Implications for Startup Ecosystems

*Policy Actions for COVID-19 Economic Recovery (PACER)
Dialogues, Background Paper*

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This paper was prepared for the Asian Development Bank as background for the 8th Policy Actions for COVID-19 Economic Recovery (PACER) Dialogue on “Post-COVID-19 New Normal: Implications for Startup Ecosystems” on 4 August 2020.



1. Why Tech Startup Ecosystems Matter

The global startup economy is massive, creating nearly USD 3 trillion in value, a figure on par with the GDP of a G7 economy¹. This figure excludes the large technology behemoths whose rise was propelled by a robust startup ecosystem. When we focus on established companies, we see that seven out of the top 10 largest companies in the world are in technology — the highest concentration of any industry sector among the top global companies. Countries with highly developed startup ecosystems have succeeded in capitalizing on the high value they generate. In the UK alone, the Tech Ecosystem accounts for approx. 10% of GDP, 9% of national employment and with Tech Sector Gross Value Added (GVA) growing nearly six times as fast as that of the UK economy as a whole - £104bn in 2010 to £149bn in 2018, +43% in eight years.

1.1 How Tech Ecosystems benefit the wider economy and society

- 1. Innovation:** Startup clusters drive economic development built on innovative technologies and solutions. Innovation boosts operational productivity and competitiveness for businesses across industries
- 2. Job Creation:** The Kauffman Foundation reports that new businesses account for nearly all new net job creation and almost 20% of gross job creation. In particular, scale-up businesses are the most critical in the creation of new jobs
- 3. Culture:** Startup entrepreneurship changes the values of society and fosters a culture within wider business and society that rates knowledge and creativity
- 4. Regulatory Advancements:** A dynamic startup ecosystem is a force that drives quality changes in legislation, creating business-friendly environments. As a result, it boosts the flow of international businesses that are looking to expand in a new market. Ecosystems drive regulatory and policy competitiveness
- 5. New Sectors:** Regulatory Tech (Regtech), Insurance Tech (Insurtech), Finance Tech (Fintech) and Education Tech (Edtech) are examples of the industries created by tech entrepreneurs. Each one creates significant benefits for their respective legacy industries and the overall economy. Ecosystems help develop and futureproof the economies they operate in

¹ 2017 to first half of 2019



Asian startup ecosystems are increasingly becoming a larger part of this global value creation. The Asia-Pacific region has gone from having 20% of top ecosystems in 2012 to 30% of them today. This increased participation in the global startup ecosystem has not only driven gains in economic value and job creation, but also catalyzed local innovation, stronger regulatory frameworks, and advancements in traditional sectors of the economy.

Exhibit 1: Percent of Ecosystems amongst Top Global Ecosystems – by Continent

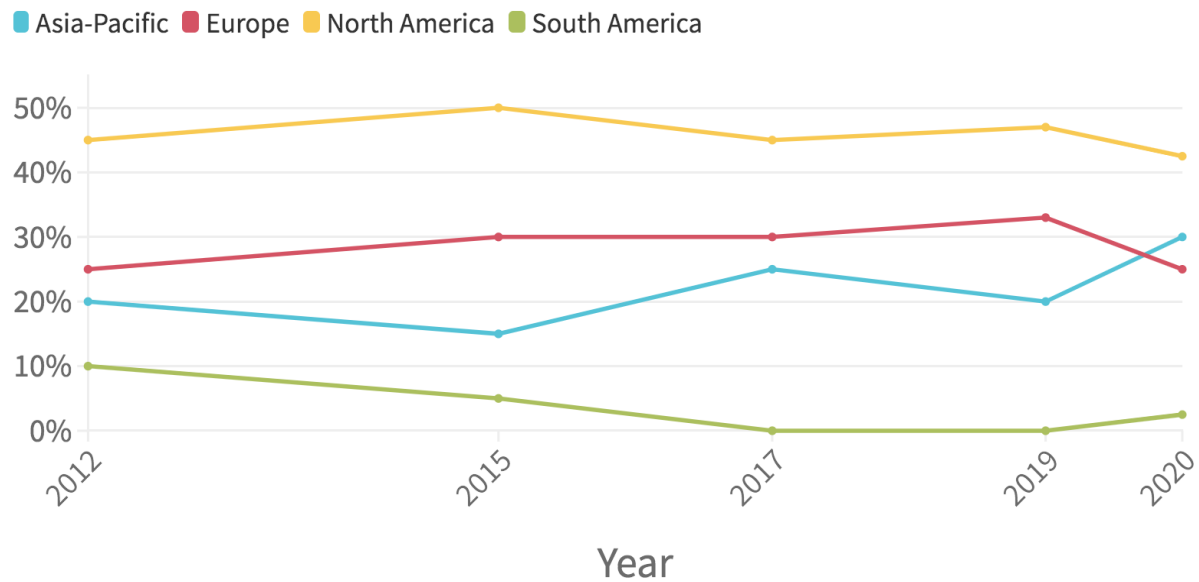




Exhibit 2: 30 % of the Top Global Ecosystems are in the Asia – Pacific Region in 2020

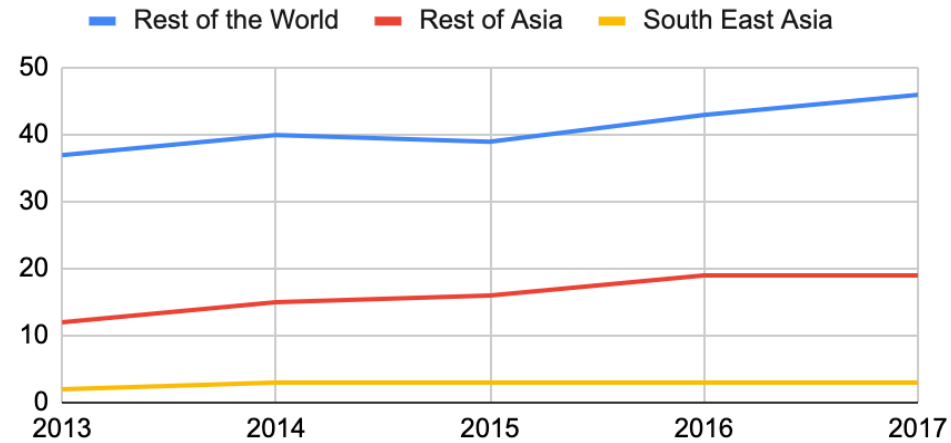
Ranking	Ecosystem	Continent
#4	Beijing	Asia-Pacific
#8	Shanghai	Asia-Pacific
#15	Tokyo	Asia-Pacific
#17	Singapore	Asia-Pacific
#20	Seoul	Asia-Pacific
#22	Shenzhen	Asia-Pacific
#26	Bangalore	Asia-Pacific
#27	Sydney	Asia-Pacific
#28	Hangzhou	Asia-Pacific
#29	Hong Kong	Asia-Pacific
#36 (ties)	Melbourne	Asia-Pacific
#36 (ties)	Delhi	Asia-Pacific

While ecosystems within the larger Asia-Pacific region have begun to rise in the rankings, many of the highly ranking ecosystems in Asia are found in China, Japan, Singapore, and South Korea. Jakarta and Kuala Lumpur have firmly entered the ranks of the emerging ecosystem tables. Given economic and population size, there is further potential for economies within Southeast Asia region to capture a larger share of value in this new global economy. The number of ecosystems within Southeast Asia that have an Ecosystem Value² of greater than USD 4 billion - a standard definition for a large and mature ecosystem - though has stayed flat in the last few years, indicating a need for further and concerted action in order for the region to fully capitalize on the economic and societal benefits outlined above.

² Ecosystem Value refers to the sum total of valuation of funded and exited startups within the ecosystem in a 30-month period



Exhibit 3: Number of Ecosystems with more than 4 Bn USD Value
(valuation within the last 2.5 years)



Within Southeast Asia, the leading ecosystem continues to be Singapore, which was ranked #17 in the Startup Genome rankings of the top 30 ecosystems globally.

Top Ecosystems Ranking 2020	Performance	Funding	Experience	Market Reach	Talent	Final Rank
Singapore	28	9	18	11	37	17



Notably, Jakarta and Kuala Lumpur are also emerging as key ecosystems to watch out for, with rankings of #2 and #11 in the GSER 2020 Emerging Ecosystem Rankings respectively.

Emerging Ecosystem 2020	Performance	Funding	Experience	Market Reach	Talent	Final Rank
Jakarta	35	45	67	25	49	2
Kuala Lumpur	43	69	96	32	23	11
Manila	95	114	133	24	42	34
Bangkok	120	94	111	115	39	54
Ho Chi Minh City	128	133	142	79	103	77

In addition, the unstoppable march of the economy becoming increasingly reliant on digital and technology products and services got accelerated by the crisis triggered by COVID-19. This means that, even more than in the previous economic moments, the tech economy will be fundamental. We see evidence of that in many ways:



- 1. First, as about a decade of research has shown, most of the net job creation in the economy comes from new young companies, especially those that scale.

Exhibit 4: Net Job Creation by firm age



Source: Arnobio Morelix, Kauffman Foundation calculations from the U.S. Census Business Dynamics Statistics



2. **Second**, when we compare dollar for dollar, startup jobs are cheaper to save than traditional small business jobs by government programs — about 41% cheaper, as we cover in a recent funding policy paper. Some governments even believe these investments can generate positive returns on taxpayer money, as does Israel now.

	Total employees	# of FTEs in 2023	Cash to save them	Months of Cash	Type	Net gain at normal VC returns	Net cost assuming -10%/yr returns	Average wage	Cost per 2023 jobs saved
Many SMEs	500	487	\$12.2 M	6 months	grant		-\$12.2 M	\$48,600	-\$24,928
10 Series A startups	500	645	\$18.3 M	6 months	equity	\$24.7 M	-\$9.5 M	\$81,237	-\$14,766

3. **Third**, in addition to creating most of the net new jobs, tech companies have impressive job multipliers. The best estimates we have suggest that for every high-technology job, five other jobs are created in the economy. This is not only because these jobs pay high wages, but also because they create new products, innovations, and are such big exporters for the economy. Notice that the tech jobs are cheaper to save through government action even without taking into consideration the employment multipliers and the higher average wages (and contribution to tax base) of tech jobs.



4. **Fourth**, in the wake of the Great Recession, startups contributed strongly to the economic recovery. By 2011, employment in the “Computer Systems Design and Related Services”³ industry was growing by 2.6% per year, while in job creation the overall economy was negative, at -1.2%. In fact, between 2007-2011, job growth in Computer Systems (a subset of the larger “Professional Services” sector) was larger than job growth in all major sectors of the economy together, including Healthcare.

Industry	Employment CAGR		
	2007-2011	2011-2015	2015-2019
TOTAL	-1.2%	1.8%	1.6%
Health Care and Social Assistance	2.2%	1.8%	2.9%
Retail Trade	-1.4%	1.6%	0.1%
Accommodation and Food Services	0.0%	3.3%	2.2%
Educational Services	0.6%	0.2%	0.8%
Manufacturing	-4.5%	1.5%	0.8%
Professional, Scientific, and Technical Services	0.1%	3.0%	2.5%
Computer Systems Design and Related Services	2.6%	5.9%	3.6%
Construction	-7.8%	3.6%	3.9%
Finance and Insurance	-2.2%	0.8%	1.3%
Wholesale Trade	-1.8%	1.3%	0.0%
Arts, Entertainment, and Recreation	-0.4%	4.3%	2.6%
Management of Companies and Enterprises	-0.1%	4.4%	2.2%

5. **Fifth**, examples from more mature ecosystems effectively demonstrate the importance of tech ecosystems for the overall economy and demonstrate what can be achieved at the national economy level. As mentioned before, the Tech Ecosystem in the UK accounts for approx. 10% of GDP, 9% of national employment and with Tech sector GVA growing nearly six times as fast as that of the UK economy as a whole - £104bn in 2010 to £149bn in 2018, +43% in eight years.

³ Computer Systems Design and Related Services classification (NAICS 5415) refers to “establishments primarily engaged in planning and designing computer systems that integrate computer hardware, software, and communication technologies”. Number for U.S. labor market



The existence of a significant and performing startup ecosystem elevates the performance of the whole economy. It does so by driving innovation and factor productivity and by attracting global knowledge and global talent and capital. The opposite also holds. A lack of access to a high performing startup ecosystem can be very damaging, even if a region produces top-level technology and patents. The universities in the Raleigh-Durham (USA) “Research Triangle,” for instance, have high levels of technology creation and are highly ranked, but they do not produce successful startup entrepreneurs like UCLA, UCSD in San Diego, Cambridge, UK, and the University of Waterloo, Canada, despite being a world-leading technology center. Our recent engagement with the Municipality of Seoul further underpins this - whilst still being the leader in tech R&D and patents globally, the system is struggling in fully converting research in viable businesses and economic impact.

Already prior to the current crisis - but certainly amplified by it - the importance of a vibrant tech startup community is evident; however, the opportunity also remains underexploited by many SEA cities and clusters



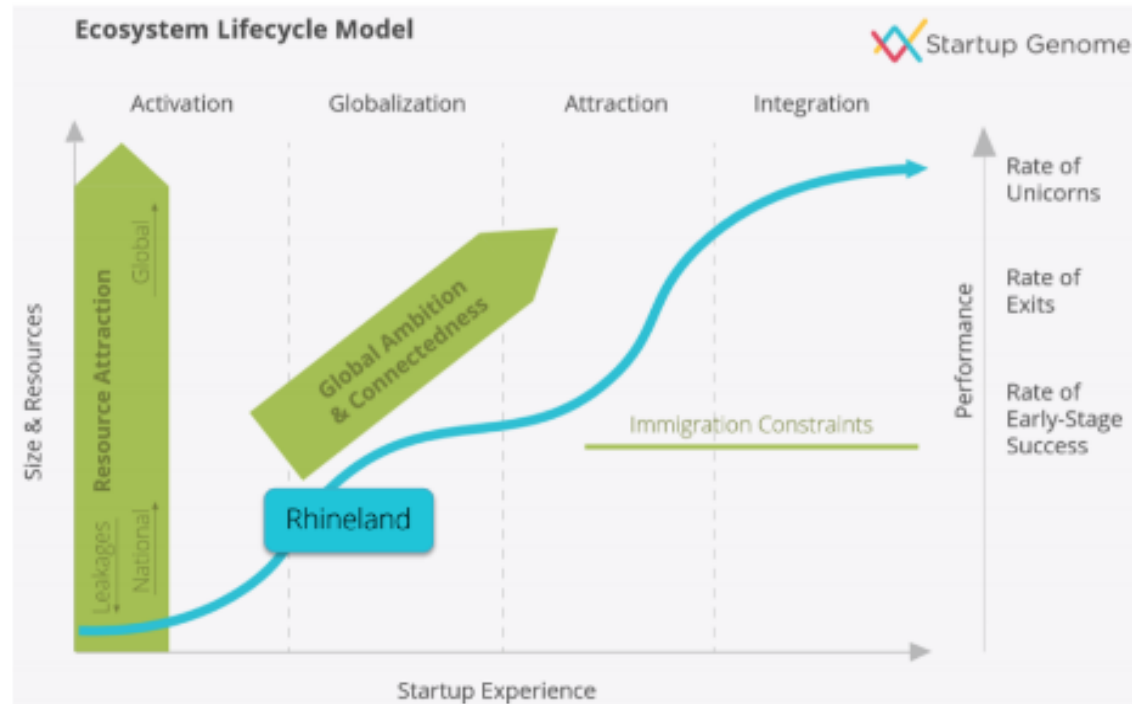
2. Building Ecosystems - Strategies for building and accelerating the growth of startup ecosystems

2.1. The Ecosystem Life Cycle Model

The development of startup ecosystems is a complex and diverse process. Like their analogies from ecology, they go through different stages, each with different characteristics. The “Ecosystem Lifecycle” model makes it clear how an ecosystem compares with others and which measures can be taken most effectively and effectively. As shown in exhibit 1 below, Startup Genome divides ecosystems into four development phases: Activation, Globalization, Attraction and Integration. Each phase has very different characteristics and impulses that enable the ecosystem to develop from one level to the next. The more startups and resources are in an ecosystem (y-axis) and the more experience (x-axis), the more advanced the ecosystem is in its development. At the same time, more mature ecosystems have a much higher rate of exits, as well as coveted “unicorns”, defined as startups with value / evaluation of over USD 1 billion.



Exhibit 5: Ecosystem Lifecycle Model



In the SEA region we classify most ecosystems in the Activation Phase of the Lifecycle Model. Given their size and rapid development, Kuala Lumpur (KL) and Jakarta already have entered the next phase of development - Globalization - requiring them to apply different strategies and initiatives to further continue their impressive growth. With a view to regional collaboration, cities in the region and within the same lifecycle phase may find an exchange of experience and knowledge valuable. Others may benefit from leveraging the insights and emerging expertise of founders and business mentors that typically are more prevalent in the further advanced ecosystems, e.g. Singapore, KL, Jakarta as well as cities in Australia and New Zealand.



2.2 Ecosystem Archetypes - charting a future strategy

Different successful ecosystem types have emerged around the world, each with distinct different characteristics. We categorize these into five schematic archetypes:

Exhibit 6: Ecosystem Archetypes



1. **The initial Founders of Tech**
(Silicon Valley, Boston, Seattle)
2. **Global Business Hubs**
(New York, London, Singapore)
3. **Technology / R&D Powerhouses**
(Tel Aviv, Waterloo, Stockholm)
4. Very **Large and Protected Markets**
(Beijing, Bangalore, Jakarta)
5. **Cosmopolitan and Creative Centers**
(Berlin, Barcelona)



Each of these archetypes is dominated by a primary dimension, has its unique potential and challenges and requires its own approach and distinct strategy for ecosystem development. For example, copying the success factors of world leading business cities such as NYC to a much less connected, more conservative but highly research focused environment such as Seoul can only be a recipe for failure.

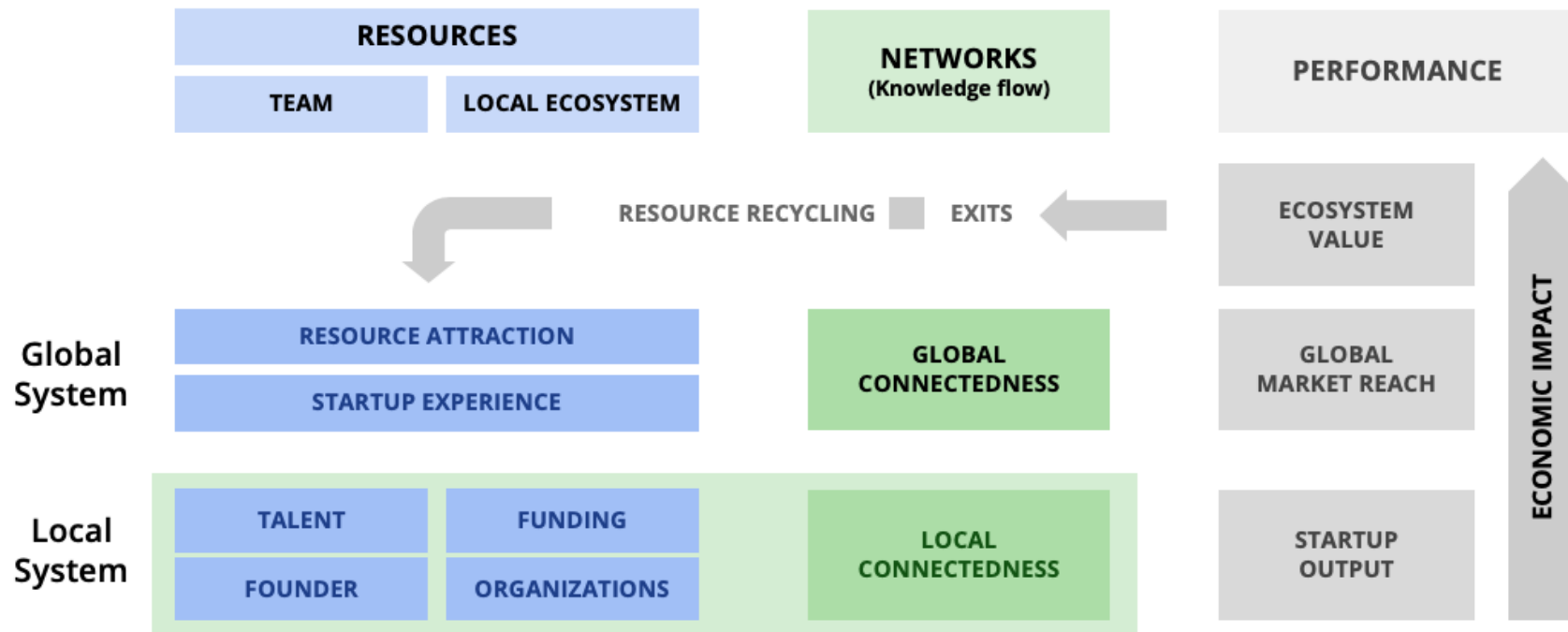
Given the diversity of Southeast Asia (SEA) and its many clusters we believe there to be a number of significantly different environments - archetypes - that require respective development strategies. Again, a regional collaboration between cities with a similar profile may prove hugely effective to create critical mass and in regard to knowledge accumulation.



2.3 Success Factor Model

Startup Genome's Success Factor Model is our principal analytical tool that measures different dimensions of the factors that support the success of local startups. This model allows us to bifurcate critical factors within both the Local Environment, where good policy and actions can be controlled by local ecosystem developers, and the global system, which is critical for the development of the desirable tech scaleup segment. Life Cycle stages allow to draw upon a set of "Norm Strategies" that have proven to be effective. They also help in determining which actions not to take and where to focus strategy development and execution.

Exhibit 7: Ecosystem Success Factor Model





Ecosystems for instance that lie in the early-Activation and mid-Activation phases of the Lifecycle Model must first focus on building robust Local Systems by focusing on strengthening local resources and the network that connects them, also known as Local Connectedness. As ecosystems move into later stages, resources within the Global System become more critical in triggering startup success. In the world of startup ecosystems, success begets success. Large startup exits and valuations in an ecosystem drive the accumulation of startup know-how and attraction of resources, which creates a virtuous cycle of ecosystem success.



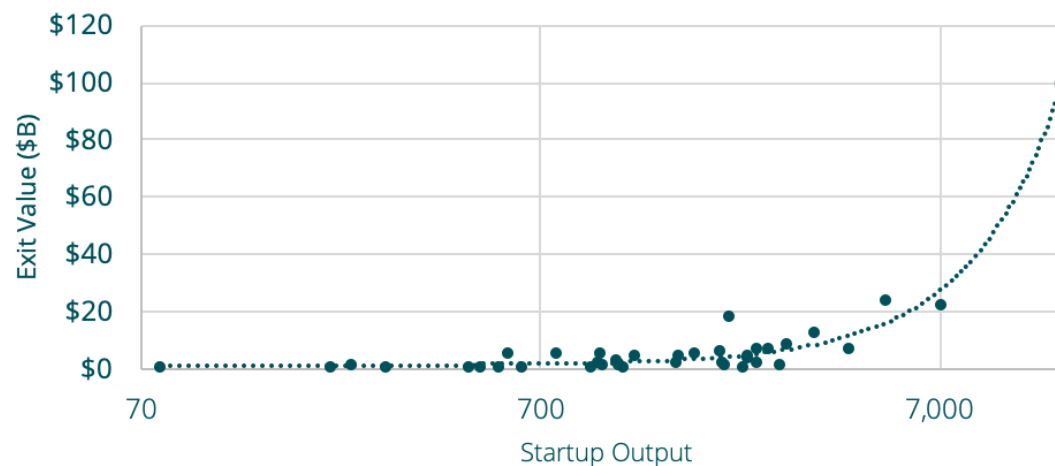
2.4 Factors behind successful startup ecosystems

2.4.1 Value creation is an exponential process

In 2008, one out of the top ten largest companies in the world was in tech. Today, it is seven out of ten. The sector went from a small part of the global value chain to the major economic powerhouse of the world. Similarly, the global startup economy continues to grow, generating USD 2.8 trillion in value from 2016-2018 and growing over 20% when compared to the previous period.

Startup ecosystems create direct value by means of high value job creation and tax revenue. They also drive innovation, competitiveness and efficiency of the industries they operate in, thus are having much larger effects on the whole economy. In terms of job creation, for example, our data show that one job created in a startup triggers the creation of an additional five jobs in the wider economy.

Exhibit 8: Total Ecosystem Exit Value accelerates with ecosystem size





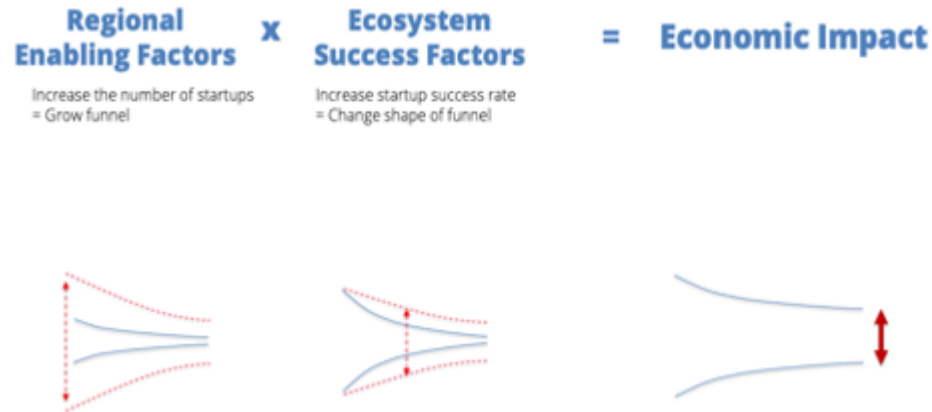
As exemplified in the graph, growth as a function is exponential: The economic value created by a startup ecosystem accelerates as the ecosystem grows. Startup Output refers to the number of startups within an ecosystem.

The role of larger scale-up companies and economic value is evident as they create many more jobs and value (using valuations and exit values as an indicator of economic value). In addition, high profile exits, and valuations are proven in their function as role models and lighthouses. They inspire entire ecosystems, e.g. with Genetic Engineering Tech (Gentech) company Illumina triggering the extraordinary rise of San Diego to rank #3 in the global Life Sciences environment, Research in Motion (RIM) providing the spark for the Toronto Waterloo innovation triangle and in Berlin Rocket Internet and Zalando being at the roots of the city's success story.

At the same time, ecosystems and their startup funnels show a very high rate of failure as many ideas are contemplated and tried by founders only to fail when exposed to clients and competitors. This is not necessarily a negative, as ideas and talent typically get recycled within the ecosystem, ultimately resulting in new and better ventures.



Exhibit 9: Building a large foundation and enabling successful scaling for economic impact

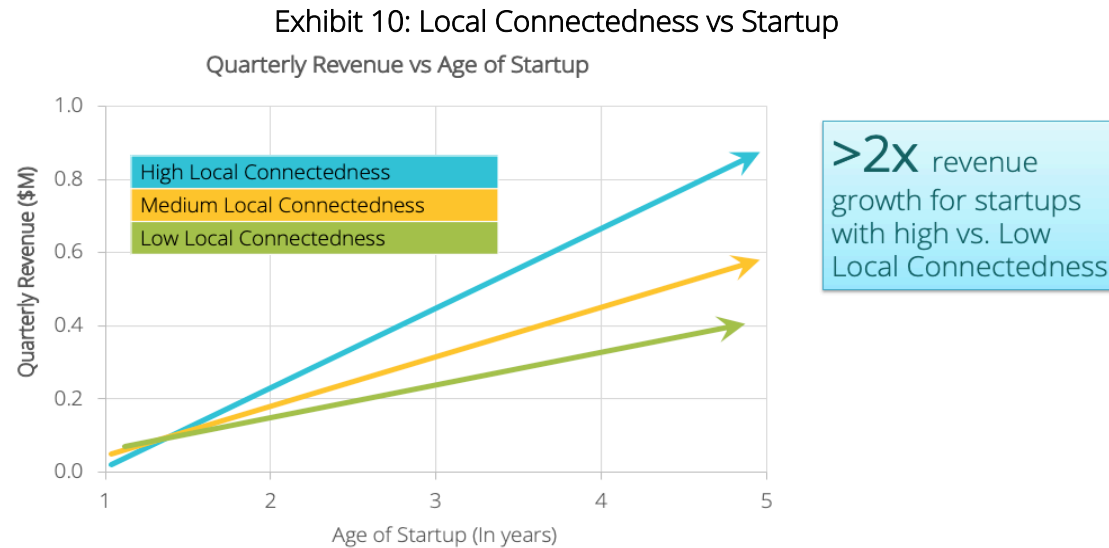


1. Growing the funnel: We need to increase the number of startups that are being founded, thus significantly increasing the chances of success in later stages (a function of sheer numbers). More startups directly translate into more chances of success.
2. Widening the shape of the funnel: We need to improve the conditions for young startups to successfully grow and to successfully master the initial phases of their scaling journey (a function of startup quality).
3. Creating economic impact: The actions mentioned here result in a powerful ecosystem with thriving scaleups. Visible valuations and exits that can serve as role models for local ecosystem participants put an ecosystem on the international talent and investor map and directly and indirectly trigger positive economic impact for the economy.



2.4.2 Local Systems: Creating a startup community

Local resources within a startup ecosystem are integral to driving economic growth and job creation. Local accessibility and quality of funding, talent, and support organizations, backed by a conducive policy framework, drive higher success rates in startup ecosystems. Local Connectedness describes the quality and quantity of relationships that exist between these resources, e.g. with regard to founders helping each other and investors and industry experts being available for founders to discuss difficult technical, regulatory or business-related issues. The quality of the community is key for ecosystem performance with our research showing that startups in highly connected ecosystems grow twice as fast as those that have to chart their own path without help from peers and experts.

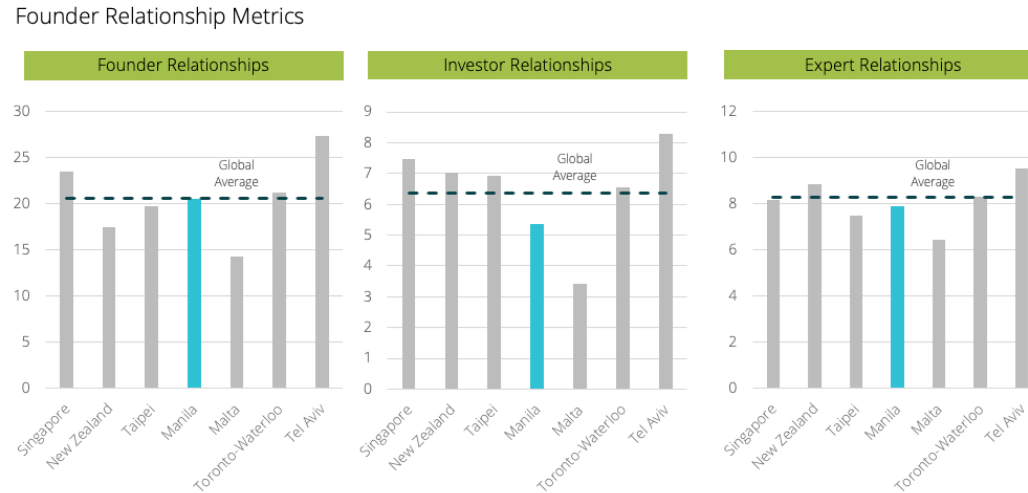


Our data for Manila (exhibit 6) shows good results for the connectivity between founders but also highlights gaps in the collaboration between startup founders and investors, industry and regulators, delivering a clear indication for



government, their ecosystem or economic development agencies and other relevant ecosystem stakeholders that targeted action is needed to encourage greater engagement. Similar findings result from our recent in-depth assessment in Kuala Lumpur.

Exhibit 11: Local Connectedness and Relationship factors – example Manila





2.4.3 Creating Focus and Density

Michael Porter's theory of Clusters and the New Economics of Competition as well as our density model demonstrate the advantages of specialization and the development of highly dense clusters in which industry actors - research, corporations, entrepreneurs and their financiers - can have collisions, exchange knowledge and collaborate. Earlier-stage ecosystems can create such density by focusing on a few select startup sub-sector specialties—building on local and regional strengths—where the ecosystem stands a chance to develop a relevant and internationally competitive position. These specialties may be based on existing industry sectors, existing startup clusters, and the specific talent of the workforce or even the brand of a city or country. For ecosystem development strategies outside of the largest tech hubs in the world, it increasingly seems important to build respective focus, a respective brand proposition and an alignment of resource and investment.

Example: Switzerland

Switzerland is renowned for Financial Services and the proverbial Swiss quality in engineering. In our previous work for digitalswitzerland, we translated the Swiss brand into FinTech, InsurTech and Robotics as first areas of focus for their entrepreneurial ecosystem. A clear focus where the country was able to achieve an internationally competitive position and “punch above its weight”.

Example: Frankfurt, Germany

Frankfurt is not known as an epicenter of digital tech and the startup scene and long has stood in the shadow of the more attractive and larger community in the capital city Berlin. Building upon its natural strengths as a European Financial Center, hosting the European Central Bank, Germany's Financial Markets Authority and German Bourse, ecosystem leaders jointly with more established FSIs have taken deliberate steps to build a highly effective Fintech ecosystem. Today Frankfurt rightfully can claim its place as one of the leading FinTech centers in Europe with more than 400 Fintech startups operating in the ecosystem.

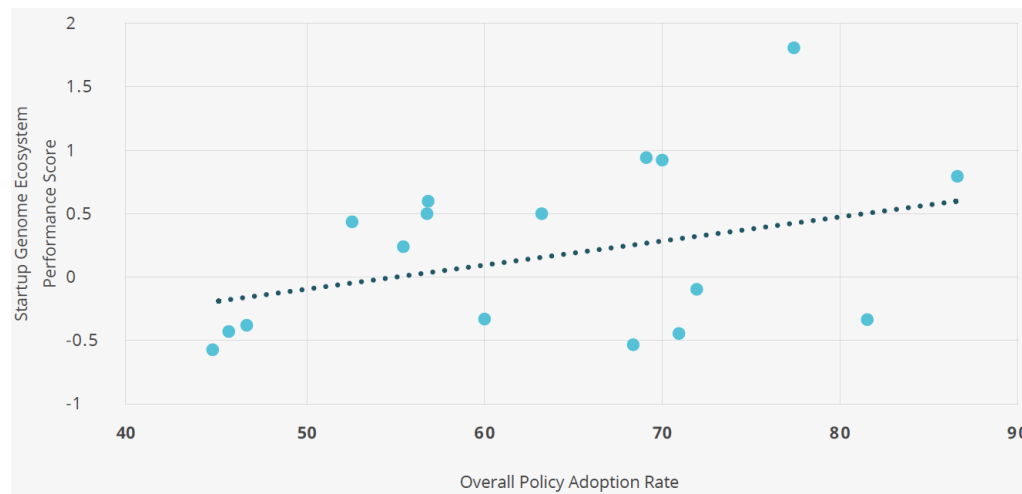


2.4.4 Policy as an enabler and growth driver

A conducive legislative and regulatory environment undoubtedly is a critical success factor for ecosystems to thrive, as are supporting policies, e.g. with respect to funding, talent development and international attraction. The opposite also frequently holds true when regulation, established decades ago and in a different industrial age, becomes a bottleneck for new technology solutions and business models, not the least a problem evident in highly regulated sectors such as Financial Markets, Health or Professional Services.

At a high level our research indicates that more active policy makers in aggregate prove to be more successful, likely as they are more willing and able to quickly modernize and to adapt existing frameworks as conditions and requirements evolve. At the same time, we are aware of environments that place overly much focus on policy only, running the risk of overinvesting to the detriment of other supporting factors and of creating increasingly diminishing returns on government action.

Exhibit 12: Ecosystem Performance vs. Policy Adoption Rates





Global research also indicates the areas where policy makers are most active, e.g. starting with Funding Policies, financial support to Startup Support Organizations and Programs (SSOPs), Doing Business In, Entrepreneurship Visa schemes for fast track immigration and support in trading in other markets. From our perspective there are a number of policy areas though that frequently seem less developed albeit being highly potent, e.g.:

Exhibit 13: Frequency of Policy Action

Policy Action Taken	Intensity of Actions
Funding/Access to Capital	High
SSOP Support	High
Immigration	Medium-High
Go-Global Support	Medium-High
Entrepreneurship Education	Medium-High
Taxes	Medium-High
Univ. Commercialization	Medium
Cultural Support	Medium
Regulatory Sandbox	Medium
Scaleup Support	Medium-Low
Entrep. In Residence	Medium-Low
Regulatory Reform	Medium-Low
Procurement	Medium-Low
Diversity & Inclusion	Medium-Low
Bankruptcy	Medium-Low

1. Tax policy that can drive private sector capital attraction.
2. Regulatory reviews aimed at levelling the playing field between incumbent industry and tech challengers, incl. Regulatory Sandboxes and other provisions that allow to quickly and safely pilot new technologies and business models in those sectors where the cluster seeks to create a competitive advantage.
3. Public Procurement that can provide real world challenges to entrepreneurs, sparks innovation and that can replace diminished private demand in times of economic crisis.
4. Bankruptcy laws and provisions for second chances that allow entrepreneurs to take risk, to fail and to retry without fearing for reputational, financial or even criminal consequences.



For a comprehensive ecosystem strategy, legislative and regulatory reviews are highly recommendable and best practices and promising initiatives are to be found in many jurisdictions. We would encourage SEA policy makers to align their policy initiatives with overall ecosystem development and specialization strategies to ensure maximum impact.

2.4.5. Scaling and the importance of Global Connectedness and Global Market Reach

One of the main acceleration factors for the growth of an ecosystem are impressive USD 100 million plus exits, which shine like a lighthouse far beyond the region and thus attract resources such as capital and talent. They also represent a high motivation for potential newcomers, providing for inspirational “Heroes” to follow. Hence, the political “exit” goal at this stage should be to produce a series of valuations and exits over USD 100M that position the ecosystem nationally or regionally as an outstanding place to start and scale a business, and thus start a cycle of positive reinforcement and the attraction of outside capital and knowledge.

A scaleup segment may be a direct function of capital and indeed on the surface, our data in regard to large scaling rounds - that is funding above USD 10M per round - seems to correlate strongly with USD 100M exits and the aspirational unicorn club.

The data on funding as well as inputs from qualitative interviews suggest that addressing the late stage funding gaps might be the silver lining solution for the ecosystem. And indeed, the famous Yozma program in Israel is an example for a public private partnership that sought to address funding issues and to this day is seen as a key enabler of the Israeli success story. Yozma not only made seed and scaling capital available, it also triggered the massive influx of private foreign Venture Capitalist (VC) capital, lifting the entire ecosystem dramatically.

When looking at more recent examples though, the direct correlation may not hold. Public sector interventions into the late stage VC funnel in the last decade, both in Hong Kong and in Melbourne, resulted in distorted ecosystem funnels and a generally inefficient capital allocation rather than in overall scaling success. And even in a world leading ecosystem such as Singapore with its abundance of late stage capital, unicorns remain a rare species to this day.

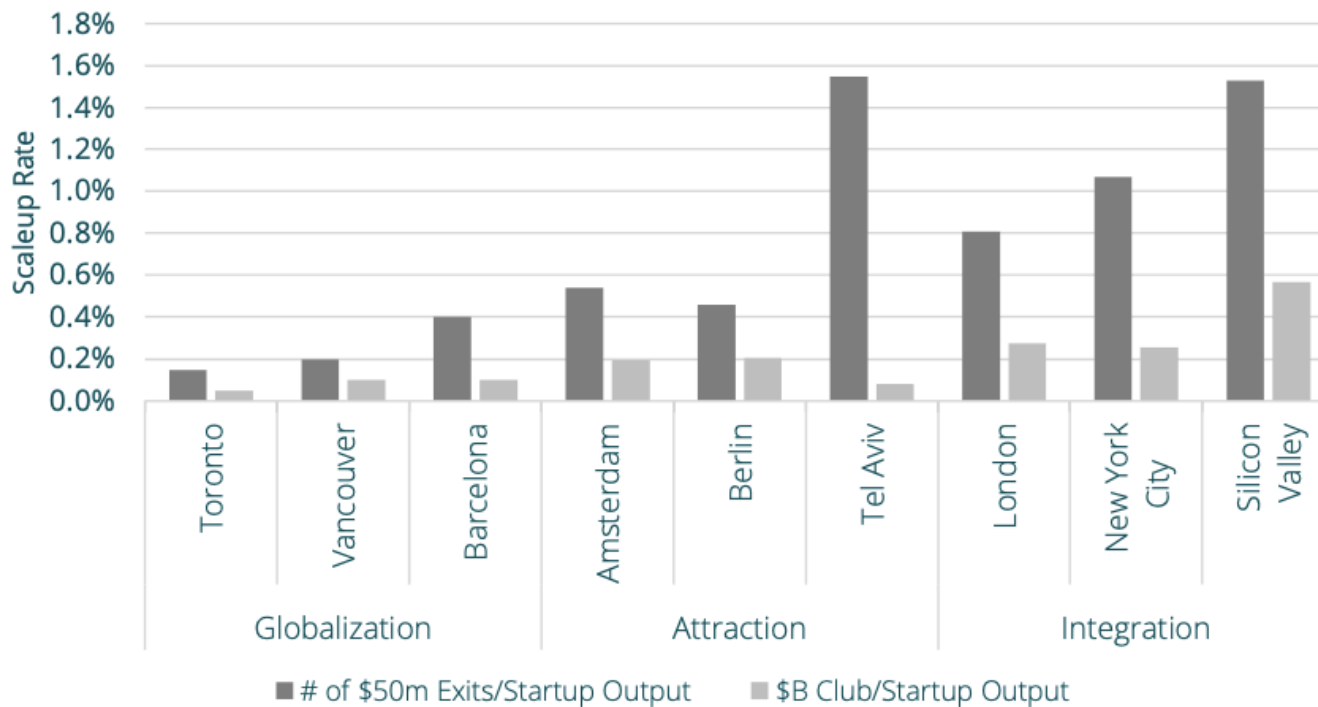


Furthermore, late stage capital in our experience is much less local as opposed to earlier funding rounds with late stage international VCs investing wherever a company meets its expectations for quality and investment thesis and where legal framework conditions are sound.

Scaling is the result of a system of success factors

Whilst we do not negate the necessity and impact of the availability of capital for a scaleup segment, data shows that larger ecosystems that combine more resources and startup experience create scaleups at significantly higher rates.

Exhibit 14: Rate of Production of \$50m+ exits and \$B Club (unicorns and billion dollar exits)

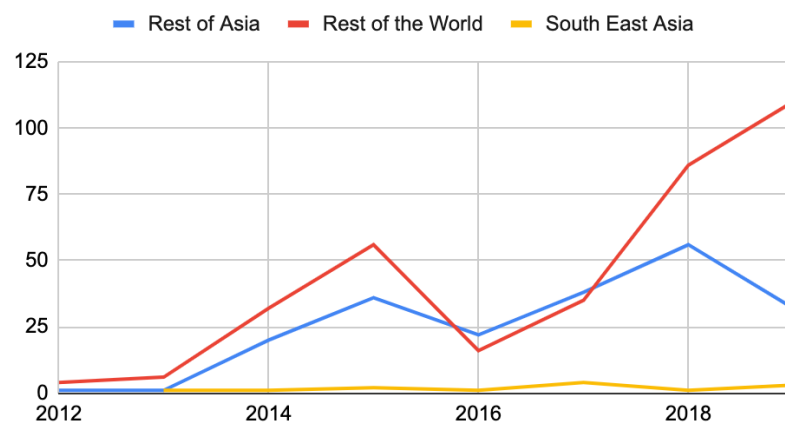




When dissecting the individual success factors, it becomes clear that scaleup success is a system of factors rather than a function of capital alone, with attributes such as Global Market Reach, Access to Talent and Startup / Growth Experience being equally important factors as funding.

While Jakarta and Singapore have seen some successes in the development of a larger scaleup segment, most ecosystems within Southeast Asia are not yet fully participating in this value creation. The chart below shows the number of unicorns produced over the last few years in the region compared to others and serves as a proxy for tracking progress in the development of a scaleup segment.

Exhibit 15: Number of Unicorn valuations since 2012 and by continent



While the region has seen some initial successes, we believe there is more potential for Southeast Asian ecosystems to develop the scaling segment and create a higher volume of globally recognized success stories, triggering all the beneficial effects that a scaleup segment and visible exits entail. In our experience, the introduction of highly focused scaling program, high quality mentorship sourced from all over the world (virtually) and peer-to-peer learning experiences for entrepreneurs that begin their journey towards a scaling company are critical success factors (SEA examples either exist (Singapore) or are under consideration (MDEC – Kuala



Lumpur). Internationally there are highly acclaimed and best practice examples with probably the most successful program being the **UK's Future Fifty initiative** that has helped develop a most significant scaleup segment for the country and propelled the UK ecosystem to be the undisputed leader in Europe.

Example: Tech Nation's Future Fifty

Objective: To accelerate the growth of a highly select group of growth stage digital UK startups, aiming for an exit within a 24 months period (IPO or M&A).

Short description: Future Fifty is a mid to late stage growth program, which unites the UK's most successful tech companies in building a powerful network of highly experienced entrepreneurs. Its key characteristics include:

- o Knowledge Transfer: Cohort based groups of founders interact with serial entrepreneurs that have successfully built one or more businesses, transferring unique insights and knowledge. This mentorship component forms the backbone of the program's success. Additional technical topics complement the curriculum, e.g. in regard to specific legal or regulatory challenges.
- o Specific topics: International Expansion, Finance and Public Markets, Regulatory, HR
- o Peer2Peer learning: The program convenes founders on a regular basis for them to share their challenges and experiences amongst their own peer group. This mechanism is replicated for key management functions, e.g. with CTO, CFO, HR Directors and CMO groups.
- o Length: The program spans 24 months, reflective of the time most high growth companies require to get IPO or M&A ready.
- o Alumni: Tech Nation facilitates a vibrant Alumni network, again providing the connection between current cohort participants and those "who have done it before".
- o Promotion and Brand: Program participants receive significant media opportunities. The program itself has been positioned as a brand that speaks for unique quality to late stage investors all over the globe.
- o Talent: The program connects directly with Tech Nation Visa, a scheme that allows the organization to recommend and fast-track foreign talent for TIER-1 VISA.

Selection criteria: Tech Nation facilitates an annual selection process and respective selection jury. The jury consists of serial entrepreneurs and VC partners only. Applicants need to have raised Series B+, generating £5m+, and be growing at a rate of approx. 50% year-on-year.

KPIs:

- o Size: 25 companies annually, cohort size 50 / Mentorship: Access to approx. 100 mentors (serial entrepreneurs)
- o Population: 127 companies since its launch in 2014 / Funding: 8B GBP in combined funding received / Exits: 9 IPOs, 30 M&A exits



Toronto Waterloo - with its Lazaridis Institute - offers another globally leading practice for effective scaling programs. Selection criteria are similarly elite as in the London programs; however, there is a much stronger focus on technology companies and Deep Tech solutions. What both programs clearly have in common is a large bench of highly experienced entrepreneurs that act as program mentors.

Example: The Lazaridis Institute, Toronto-Waterloo, Canada

Objective: The Institute combines scholarly research, real-world market analysis, and industry best practices to identify obstacles to global competitiveness and optimize the management of high-growth technology companies.

Short description: The Lazaridis ScaleUp Program helps high-potential, fast-growing Canadian tech companies scale and compete internationally by providing the expert support they need to achieve global success.

The ScaleUp Program includes a series of expert-led, multi-day workshops on Leadership, People Management, Product, Finance, Global Growth and Sales & Marketing. The workshops are accompanied by 12 months of personalized, one-on-one expert mentoring, including Scaling professionals from Adobe, Apple, Eventbrite, Facebook, IBM, LinkedIn, Nest, Salesforce, Shopify, SurveyMonkey, Twitter and Yelp. There is no cost or equity required to participate for selected companies.

Selection criteria: 2 - 20 M in annual revenue, >50% year-on-year growth, funded for fast growth and the potential to become a global category leader. The program is highly selective and admits on average 5% of its applicants.

More than 50 companies have scaled at Lazaridis since its inception in 2015.



The Netherlands offer another best practice example with a special focus on the combination of Social and Economic impact. It also provides an example for a scaling program that is selective in regard to industrial subsectors.

Example: Scaleup Nation, Amsterdam, The Netherlands

Objective: Large societal challenges are equally large entrepreneurial opportunities. But to move the needle in terms of impact, enterprises must scale. ScaleUpNation supports entrepreneurs in mastering the art of scaling.

Short description: With its Runway and Flight programs, Scaleup Nation provides a comprehensive curriculum of Scaleup Skill development in compressed workshop sessions. An additional Board program caters to the increased demand for experienced board members (NEDs) resulting from a growing scaleup segment.

Different to other programs, Scaleup Nation focuses on for-profit but impact scaleups. The current portfolio is reflective of this strategy, addressing 11 of the UN's Sustainable Development Goals. In this regard the addition of an AgTech and New Food program complements the strategic focus.

Selection criteria: are less quantified than in other programs; however, focused on both, social impact as well as economic potential, including characteristics such as significant financial runway and at minimum 15 - 100 full time staff.

KPIs: More than 125 scaleup founders have participated since the program's inception, all with a sector focus in AgTech, Health, Smart Cities or the Circular Economy.



2.4.6 Building Focus and the rise of Deep Tech

Our research and in-depth knowledge have allowed us to classify ecosystems as Ecosystem Archetypes based on their primary dimensions. One of the most recent and key trends is the accelerated growth of R&D powerhouse ecosystems, e.g. with Seoul, Tokyo, Shenzhen and Hangzhou entering the Top30 of Startup Genome's global ecosystem ranking based on their profound deep tech and R&D expertise. The aforementioned cities as well as smaller but highly successful clusters such as Stockholm or Waterloo-Canada all have few things in common. These ecosystems have all had many unicorns and billion-dollar exits emerge in the past two years, and they are innovation hubs with exceptionally strong R&D and tangible IP generation.



Example of effective specialization: Odense, Denmark: Robotics

Objective: To accelerate commercialization of Robotics Research and IP through a vibrant Robotics and Hardware startup ecosystem.

Description: The cluster is a collective of robotics companies, educational institutions, and research organizations that share a common thread of having some influence in the small city of Odense (200,000 population), working to build up the robotics industry in the city. The cluster includes about 130 companies, 33% of which are working in the area of collaborative robotics. Companies within the cluster employ more than 3,900 people and have accounted for a combined revenue of €763 million in 2017 (more than 200,000\$ per employee). The success of the cluster is rooted in the intense collaboration of the 8 regional universities and research centers, the exceptional engagement of few prominent founders and the municipality.

A large-scale incubator helps founders to rapidly develop and test their ideas - without taking any equity or commitment from them - and it also acts as the center of gravity where participants naturally convene. With its Robotics Funding Matchmaker, the incubator also addresses funding needs, combining Angel Investors with a large private Danish Fund as well as additional government funding. The municipality is strongly supporting the cluster, not the least by building business relationships with larger international business clusters, actively supporting their startups to build Global Connectedness and Market Reach.

Odense today is the leading global center for collaborative robotics and has caught the attraction of international investors, particularly from the Boston Robotics scene.

KPIs:

- 130+ Start- and Scaleup companies / 2 "Minicorns" well en-route to Unicorn status
- 40+ companies highly focused on Collaborative Robotics / 3,900 employees at EUR 200k average salary
- 8 universities, 40+ Robotics and Hardware focused education programs



The rise of Deep Tech⁴ and the fastest-growing startup sub-sectors, namely Artificial Intelligence & Big Data, Advanced Manufacturing & Robotics, Agriculture Tech (Agtech) & New Foods, and Blockchain, all belong to the Deep Tech field. When comparing the timeframes of 2010-2011 to 2017-2018, Deep Tech-related sub-sectors saw stunning growth in the number of startups. The concentration of Deep Tech-related startups has increased to twice the share in the respective period. R&D-focused ecosystems have a unique opportunity to leverage tangible IP strengths to grow startup ecosystems. A new generation of ambidextrous ecosystems is emerging all around the world which both focus and build on the intersection of innovation industries to accelerate their disruptive startup ecosystems. SEA regional ecosystems in our opinion stand a good chance of participating in this global trend if they are able to effectively combine their tech talent and knowledge infrastructure. Specialization will be key in this regard and SEA countries and clusters should be diligent in identifying the opportunities and market niches that allow successful R&D clusters to punch way above their weight.

Exhibit 16: Lab-to-Startup Performance scores for deep-tech sectors in Singapore, Manila and others

(Scores less than 0 indicate below average startup performance with respect to the level of production of tangible knowledge and IP (e.g. patents) in the ecosystem)



⁴ Startup companies with the objective to provide technology based on substantial scientific advances and high tech engineering innovation. They require lengthy R&D, may take a long time to reach commercial application, and often require large investments to achieve commercial success. (Wikipedia)



3. The Impact of COVID-19 On Startup Ecosystems & The New Normal

As the COVID-19 crisis hit across the world, startups have found themselves in a double bind, being hit hard from two main shockwaves: capital shock and demand.

3.1. Shockwave #1: Capital

On the capital side of the equation, there is a crunch for capital across the world. This capital crunch manifests itself in three key statistics:

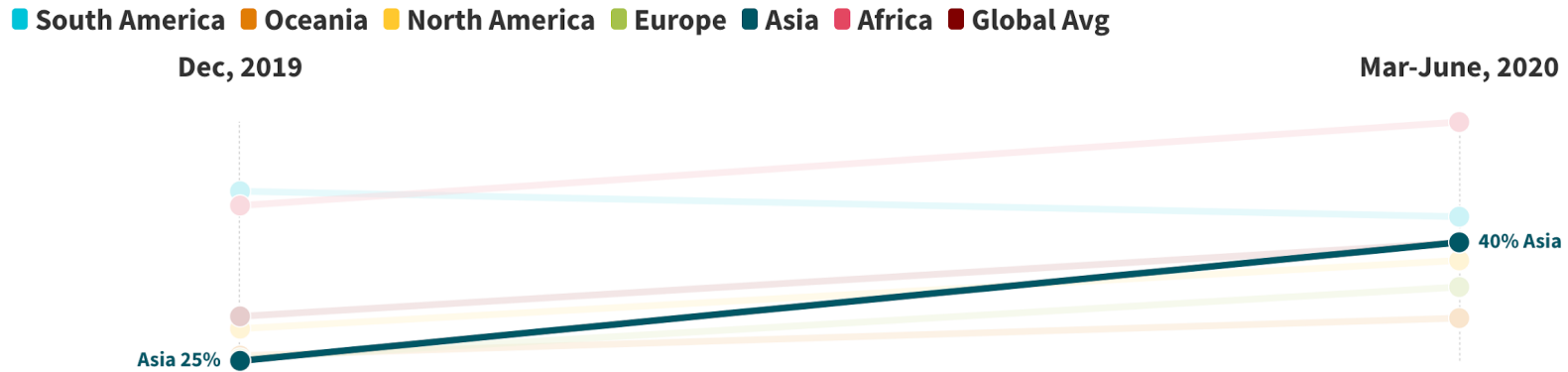
First, four out of every 10 startups globally today are in the red zone: they have three months or fewer of capital runway. This means that they will collapse if they do not raise additional capital and their revenues and expenses remain unchanged, risking a mass extinction event for startups globally. Asian startups are right at the global average for this indicator. If we focus on startups on Series A+ only⁵, we see that 35% of startups have 6 months or fewer of capital — a troublesome figure given how long it takes to raise a Series B⁶ or later round, especially in the current environment.

⁵ Series A financing refers to an investment in a privately-held, start-up company after it has shown progress in building its business model and demonstrates the potential to grow and generate revenue. (Investopedia: <https://www.investopedia.com/terms/s/seriesa.asp>)

⁶ Series B financing is the second round of funding for a business through investment including private equity investors and venture capitalists. (Investopedia: <https://www.investopedia.com/terms/s/series-b-financing.asp>)

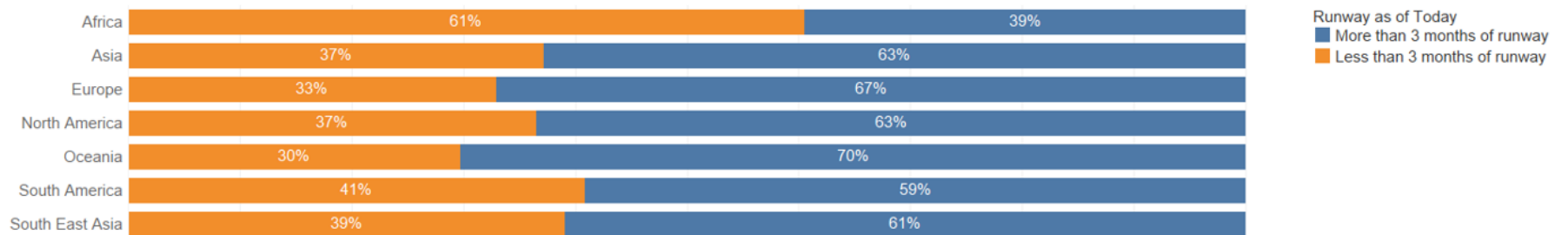


Exhibit 17: Startup Funding and Runway by continent



The SEA Region currently shows that Startups have a financial runway (cushion) which is somewhat similar to global averages and in line with overall data from Asia: 39% of SEA startups are reporting less than 3 months of financial runway.

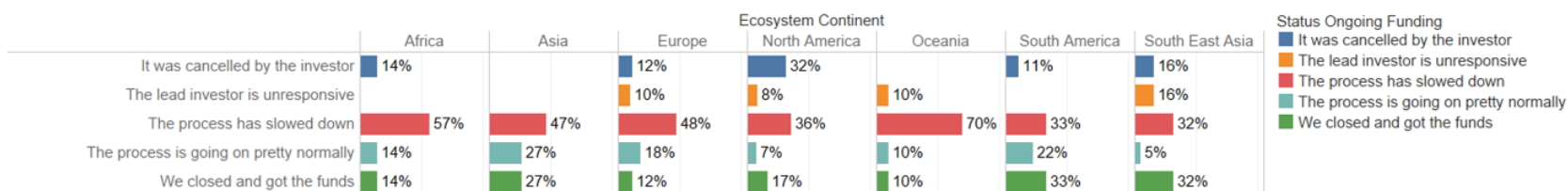
Exhibit 18: Proportion of Startups in the “Red Zone” and by region





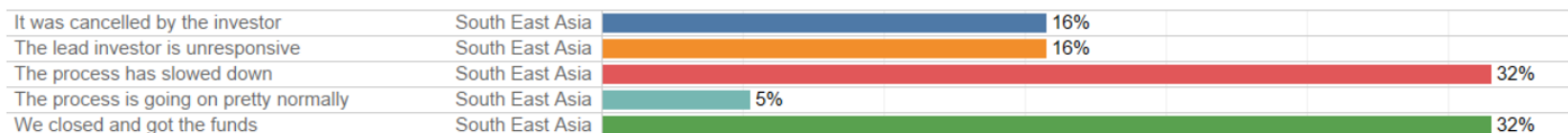
Second, the fundraising process has been dramatically disrupted. Even for startups that already had term sheets from investors before the crisis, signed or unsigned, three out of every four startups have had the fundraising process disrupted. A dramatic 18% of those startups with term sheets have had a funding round canceled by the investor, and 54% have had their funding round delayed or the lead investor become unresponsive.

Exhibit 19: Term Sheets derailed - global comparison by continent



In Southeast Asia, a similarly alarming 16% of startups with term sheets have had a funding round canceled by the investor, and 48% have had their funding round delayed or the lead investor become unresponsive.

Exhibit 19: Term Sheets derailed - global comparison by continent - South East Asia Region



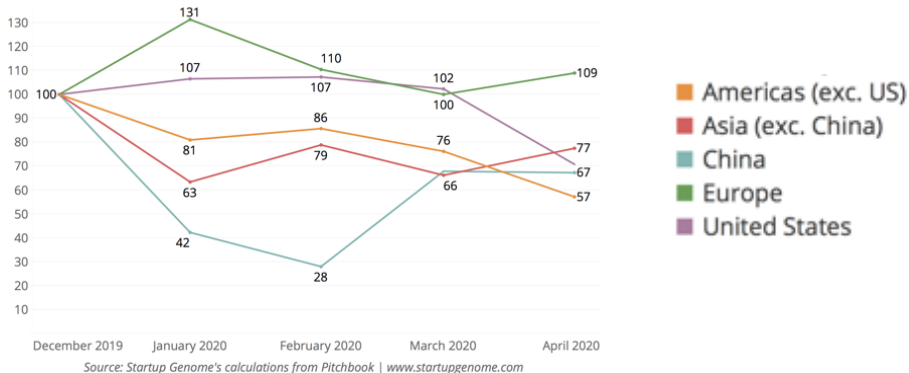


Third, total VC funding has dropped dramatically across every single continent. Globally, it is down by 20% in the three months of 2020. In some regions of the world it dropped even more sharply. China, the first country hit by the crisis, saw funding drop by over 50% relative to the rest of the world, as we have written for the World Economic Forum. While the country is experiencing a rebound in investments in March, it still faces lower activity than it had in December 2019. For VC funding in Southeast Asia specifically (Series A+ deals), we see declines in January and February in line with the declines seen in the rest of Asia, but March and April activity begins to look more in line with numbers pre-pandemic.

Exhibit 20: Funding Trends since Dec. 2019 / Series A+ Deals

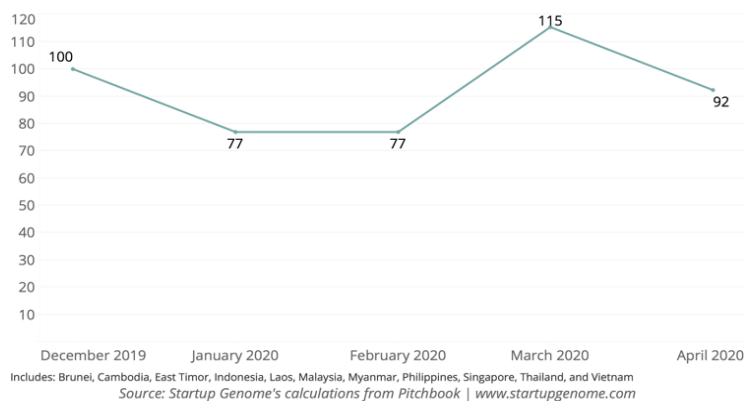
Number of Series A+ Deals

Indexed to Dec. 2019. Largest Regions by Investment Activity
World



Number of Series A+ Deals

Indexed to Dec. 2019
Southeast Asia

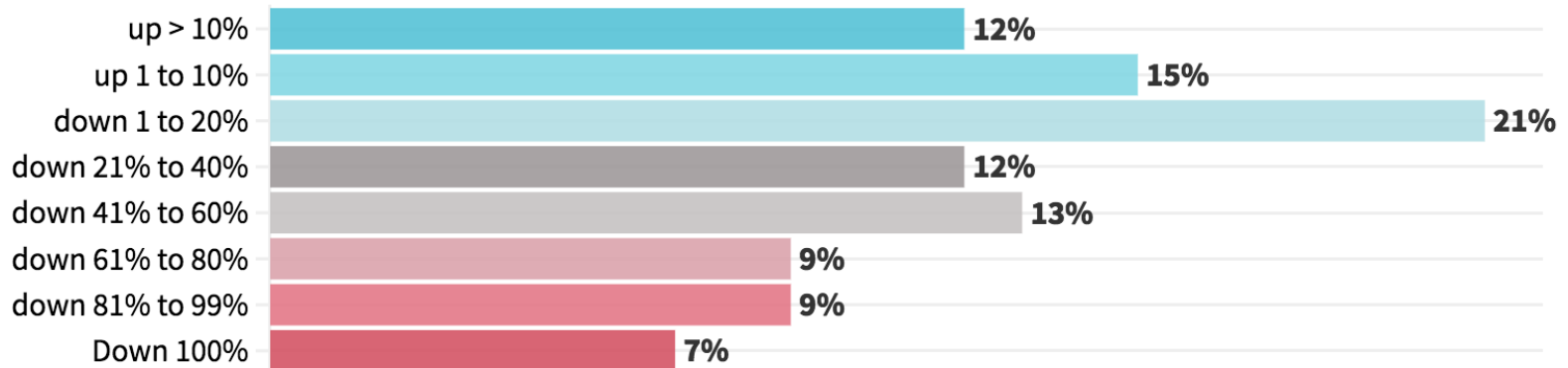




3.2. Shockwave #2: Demand

The other side of the equation on the shocks affecting startups is we have seen demand drop like a rock for most companies. About 72% of startups globally saw their revenue drop since the beginning of the crisis, with the average startup experiencing a decline of 32%. Shockingly, almost 40% of companies saw their revenue drop by 40% or more, and only about 12% are experiencing significant growth.

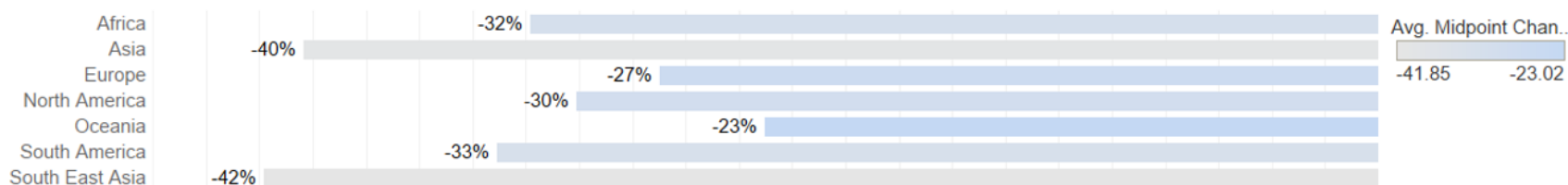
Exhibit 21: Change in revenue since the beginning of the crisis



The drop in demand is even more pronounced in the South East Asia Region with startup revenues down by 42% as compared to regions that - at least for now - seem less affected, e.g. Europe (-27%) and Oceania (-23%), making a strong case for demand side intervention in the SEA region.



Exhibit 22: Change in revenue since the beginning of the crisis and by continent



The Downstream Effects of the Coronavirus Crisis

The downstream results of these two shocks are dramatic: Over 60% of startups have laid off employees or reduced salaries. For startups reducing FTEs, an average of 33% of jobs were cut, as the Startup Genome COVID-19 Impact Insights survey shows. This is also reflected in crowdsourced data about startup layoffs globally, with the number of employees laid off identified in these crowdsourced lists growing 5x between March and May 2020.

Some of the types of job cuts are exactly what you would expect given a drop in demand and even operational availability of selling: jobs in Direct Sales (36% of companies with job cuts) and in Marketing (29%). But a significant number of jobs cut are particularly troublesome because they hurt a company's long-term innovation capacity. Roughly 31% have cut jobs in R&D, and 32% have cut jobs in Product (e.g., software engineers). This is a major problem not only for the post-crisis prospects of startups but also for their ecosystems. As tech talent is laid off, they might be absorbed by large corporates, leaving the startup ecosystem altogether. And for tech hubs that are less mature, such as the ones we cover in our Emerging Ecosystems Ranking, these scientists and engineers might end up leaving the city altogether for the more robust startup labor markets in places like [Silicon Valley](#), [London](#), and [New York](#).



Cost-Cutting and Expectations

Relatedly, 71% of startups have reduced their expenses, for an average cost cutting of 22%. When we look at what founders expect for their companies in the next two months, 31% expect they will have to do salary cuts, and 13% of startups expect they will have to terminate more employees. In terms of revenue, only 10% of startups expect their revenue will grow a lot. 40% expect it will stay about the same or grow a little, and a dramatic 28% think their revenue will still drop a lot further.

The combination of dropping expenditures, salary cuts, and layoffs have downstream effects for the rest of society, not just today but also tomorrow's potential for economic growth and innovation capacity.

When startups suffer, the whole economy suffers.



4. Policy Actions for Immediate Impact and Aftermath for Recovery

Global economic crises often become extinction events for startups. The COVID-19 crisis has been no exception, and many startups across the globe remain perilously close to the edge of closing shop. Young companies and founders remain on edge, knowing that things can change in their communities seemingly in an instant. But while it is clear policymakers and ecosystem leaders need to act, there's bound to be some disagreements about the best approaches to take. Let's shed some light on what governments and business leaders should be doing now to help startup ecosystems.

Governments Are Not Taking the Right Actions

Governments around the world are taking actions to help businesses during COVID-19, but they aren't doing enough to assist startups. Government relief programs typically have strict eligibility rules and emphasize companies with revenue, profitability, and collateral. But this leaves a lot of startups out in the cold.

As a result, [Startup Genome's data](#) shows that 39% of startups globally are not receiving assistance and/or do not expect to be helped by national or local government relief measures. Additionally, 16% said they are not currently receiving help but expect to be helped by a policy measure soon, as of June 2020. More work must be done to enact policies that will help startups with policy measures, which will in turn prepare economies for growth, steady jobs, competition, and innovation.



4.1. Funding First

Among the actions that policymakers can take now, funding startups should be the top priority. Without providing funding, many jobs, innovative concepts and capacity for digital transformation will be lost.

The first goal should be to inject capital quickly to save at least 80% of startups that are at risk of folding in 2020. The second goal should be to inject capital to increase the rate of new seed and Series A investments over the next two years, to ensure these types of investments do not drop as dramatically as they did during the 2008 recession and to ensure we don't lose an entire generation of founders. The latter would be an extremely negative development as effective ecosystems require a well calibrated startup funnel in which all generations - early, mid and late stage companies - play their role and interact. Achieving both of these objectives will lead to a situation where startups would have the opportunity to close their next round of funding as the wider context stabilizes.

Designing Effective Funding Vehicles

Startup Genome asked founders in our global COVID-19 survey about what type of support policies they would find most helpful. By far the greatest number, 31%, reported that they would like to see grants to support company liquidity, while instruments to boost investments (17%) and support for employees (15%) were the two other most popular policy measures.

However, we generally do not believe that grants are effective or desirable ways of helping startups. Typically, government grant schemes are complicated and slow. They are unlikely to help startups in time, and taxpayers do not receive value for the money — since they bear all the risk and none of the gain.

Governments should instead use existing equity funding instruments, such as convertible notes, and guarantees for equity investors, to inject new capital that directly benefits existing VC funds. Additional capital invested can be offered to investors at a fraction of each fund's original investment. The amounts invested should be enough to provide at least six months of runway to about half of startups that are in need of funds.



By only providing a cash runway to half of startups, investors will then be forced to concentrate capital to save top startups and future returns and will use their own capital if more is needed. This type of program does not work as well for seed-stage and pre-seed startups, so consider adding investor tax credits to complement it (compare the UK SEIS scheme as a good practice).

Currently, the only example of a well-structured government equity support fund in 2020 is the UK's Coronavirus Future Fund. It specifically targets UK-based pre-revenue and pre-profit companies that rely on equity investment and provides government convertible loans ranging from roughly USD 150,000 (£125,000) to USD 6 million (£5 million). Future Fund loans are subject to at least an equal match in funding from private equity investors. Germany announced similar ambitions with a massive EUR 2 billion aid package consisting of a matching and a liquidity facility and another EUR 10 billion package being prepared for post-crisis recovery; however, the details of these funding vehicles have yet to be fully announced.

Funding Best and Worst Practices

Policymakers hoping to implement new funding programs to help startups should follow a few best practices while avoiding a few worst practices.

Best Practices

- Promote risk sharing between public and private investors, with the public acting in a way to share risk and leverage private money.
- Align incentives through equity or convertible debt to equity.
- Consider a big increase in the investment ratio, such as 5 to 1. Signal that this is a good startup and remember it costs less than saving a large corporation for the same number of long-term jobs saved.
- Allow different types of investors (including angels and VCs) to inject capital to save the best startups and scaleups.
- Allow investments in new ventures that can help address problems created by the COVID-19 crisis, including healthcare, ecommerce, EdTech and online services, which also seeds the sub-sectors that can be successful in a post-pandemic world.



Worst Practices

- Do not encumber investors and startups with a new instrument, such as a convertible note when startups already have a preferred-share structure. If a government wants to offer the option to reimburse the investment, offer a redemption clause. And if a government wants to add an interest rate, then add it to the redemption clause.
- Don't change the current financing instruments completely. Strictly invest in the same exact instrument and preferably at the same conditions as the last round, so nothing needs to be re-negotiated. Keeping it the same ensures speed, prevents gaming the system, and keeps it easy for startups and investors.
- Finally, do not create a task force — whether government-led or privately led — to decide which startups to save. Even if a so-called task force is full of experts, this is a costly process and unlikely achieves better results than established investors.

Considerations for preserving the Israeli Tech Ecosystem

A new model has emerged at the Israeli Government that deserves attention as it puts into context government and private investment, the economic value of preserving startup structure and employment and other externalities such as effects on Social Services and Healthcare to name but a few. The model is based on attracting new and large-scale private investors such as pension funds and insurance companies to engage as long term investors (LPs) into entire slices of the ecosystem. Many of these institutions today are exempt - either by regulation or by their own governance structures - from engaging in high risk asset classes. The Israeli State steps in as a backstop, guaranteeing the principal investment or even a defined return, enabling these large providers of fresh capital to engage in the Israeli startup ecosystem. A long investment period of 5-8 years as well as the aforementioned externalities combine for what Israeli economists expect to be a Rate of Return of an order of magnitude higher than what would be achievable for any private investor. <https://www.timesofisrael.com/israel-approves-plan-to-draw-institutional-investors-to-tech-scene/>



4.2. Preserve Talent

Policy makers and ecosystem leaders also have the gargantuan task of both preventing existing talent from leaving and attracting new talent while the threat of COVID-19 disruptions persist. Considering the many years and resources spent building a startup-experienced talent pool, it is important to preserve this talent and to keep attracting non-local talent.

On a domestic level, recessions typically cause significant delays on employment for new graduates and they cause subsequent long-term impacts on lifetime earnings, savings, and socio-economic advancements. Policy makers must counter these effects with targeted actions to keep talent from moving to other startups in nearby ecosystems that offer more benefits. They also should be working to extend visas so foreign talent does not immediately leave if they are furloughed or laid off due to disruptions. They also should try to avoid startup talent from being snapped up by large corporations because this can add “brain-drain” to the ecosystem.

A few examples of smart talent retention actions include:

1. United Arab Emirates — The UAE took the bold step of automatically renewing residency visas and IDs that expired on March 1st, 2020 without additional fees, to ensure foreign talent could stay during the crisis.
2. Germany — The German *Kurzarbeit* program allows employers to furlough employees part-time, with workers agreeing to a reduction in working time and pay, and the government covering up to 67% of an employee’s lost wages for up to 12 months.
3. Sweden — The government offers a “short term leave subsidy,” which allows employers to receive more than 90% of employees' salaries who have to take short-term leave due to COVID-19.

Additionally, policy makers and ecosystem leaders should be aware that this is a good time to attract affordable talent as well. If the average cost of living drops in major startup hubs, then make sure to bring more cost-averse talent into the fold at that time. It’s also an opportunity to fish for talent from promising startups and SSOPs who have folded.



4.3. Specialization Should Be Protected and Harnessed

Another reason policymakers and ecosystem leaders should be shielding startups from collapse is that existing sub-sector strengths that already exist should be protected. For example, an ecosystem that has a vibrant Fintech community must do what it can to fund promising Fintech startups. This will help keep these specialized clusters of companies, which compete and collaborate with each other, intact.

Startup Genome research shows that specialization is key to the development of deep-tech focused ecosystems. Our research shows that any deep-tech-focused cluster requires a vibrant startup community to ensure that patent creation and R&D make their way efficiently into commercial use.

These ecosystems, which excel in sub-sectors such as Artificial Intelligence & Big Data, Advanced Manufacturing & Robotics, and Blockchain, have a lot to lose if their most promising startups don't survive 2020. The 2020 global ecosystem rankings have revealed the emergence of new tech innovation centers or R&D powerhouses, and it would be a shame to lose these gains.

4.4. Procurement Programs for Startups

With startups struggling to generate demand they had before the COVID-19 crisis, policymakers can step into help with the development of government-led innovation procurement programs. The overall objective of these programs would be to replace domestic and global demand temporarily. For governments, this also offers the opportunity to drive ingenuity and productivity in public services, with the aid of tech founders that are more available with private market opportunities declining. Here, policy makers can play a significant role in mitigating the evaporation of organic consumer demand by ramping up efforts to procure in a trade-permissible fashion from innovative domestic companies. Borrowing from the highly lauded US Small Business Innovation Research program (SBIR) and its cousins in Canada, the UK and other jurisdictions, challenge-based innovation procurement provides an immediate means of both addressing Covid19-related needs as well as providing innovative firms with infusions of cash to continue the development of their innovations and technologies.



The most effective model is demand-driven, with startups and SMEs responding to governmental department requests. A supply-driven or proposal model may be more appropriate in regions where technology is not as in-demand.

While COVID-19 disruptions and fears persist, policymakers, VCs, and angel groups can help identify more scaleups and startups that are well positioned to help with specific problems stemming from coronavirus. Startup specialties that can help during the crisis include:

- Healthcare — Startups can aid in the provision of testing, sanitation, and contact tracing.
- Social services — Startups can provide non-health related care and food delivery for the immunocompromised and elderly
- Online services — Startups can help with online platforms for education at all levels and services for businesses

Successful innovation challenge programs include the Government of Canada's Innovative Solutions Canada (ISC) program. Like the SBIR in the United States, ISC acts as a valuable first customer to innovative Canadian startups and SMEs and acts as a seed fund for proof of concept development, prototype development and customer validation for high-potential firms with solutions to government department challenges. In Europe, the EU-commission backed Innovation Procurement Brokers program supports participating public agencies in the identification of their needs, and then acts as a broker to connect those needs with startups and SMEs whose capacities are best able to address them.

Today, as startups and SMEs struggle to find sufficient demand to keep their doors open, these approaches to stimulating economic activity represents a near-term solution for policy makers in innovation systems worldwide. Whether directed towards the immediate challenges that COVID-19 has brought to the fore related to healthcare and social services, or more long-term applications related to data, detection and other digital services, no other policy lever offers the ability to address the near-term revenue challenges that will dictate which startups survive this period of economic crisis and come out the other side ready to win.



4.5 Keep Working on Startup Programs

Finally, the last important piece of the policy puzzle to assist startups is to save support programs such as accelerators and mentorships. While switching to a virtual model in the near term may help organizations like these keep moving forward, they typically still need some financial support. Alternative models also are emerging that aim at making a virtue out of necessity, e.g. with Global Entrepreneurship Networks (GEN) Accelerate program that makes available acceleration services and scaling mentorship by drawing upon the very best of technical and business mentors the world over; an approach that only has become possible as virtual programs find increasing acceptance. Similarly, the crisis to some degree has further helped to democratize access to startup support programs and investors with entrepreneurs being able to participate and to pitch regardless of their location.

5. Driving towards a New Normal for Economic Development

As the [Financial Times' fDi wrote](#)⁷ based on Startup Genome's policy advisory, governments need to act to support startups and bail them out in the same way they are doing for traditional industries and small businesses. We need a new normal for economic development, where we are supporting the technology economy just as much as we were supporting traditional small businesses and traditional industries like Airlines, Tourism and Services Industries.

This is especially true for ecosystems that are not at the very top and do not have the decades of experience, talent, and capital to draw upon during times of crisis. One of the reasons for acting now is particularly critical is that startup ecosystems have increasing returns to scale due especially to network effects as we have explained in the previous chapter. As the number of startups in the ecosystem grows, the whole economic community related to the ecosystem — talent, universities, startup support

⁷ Refer to fDi Website: <https://www.fdiintelligence.com/article/77701>



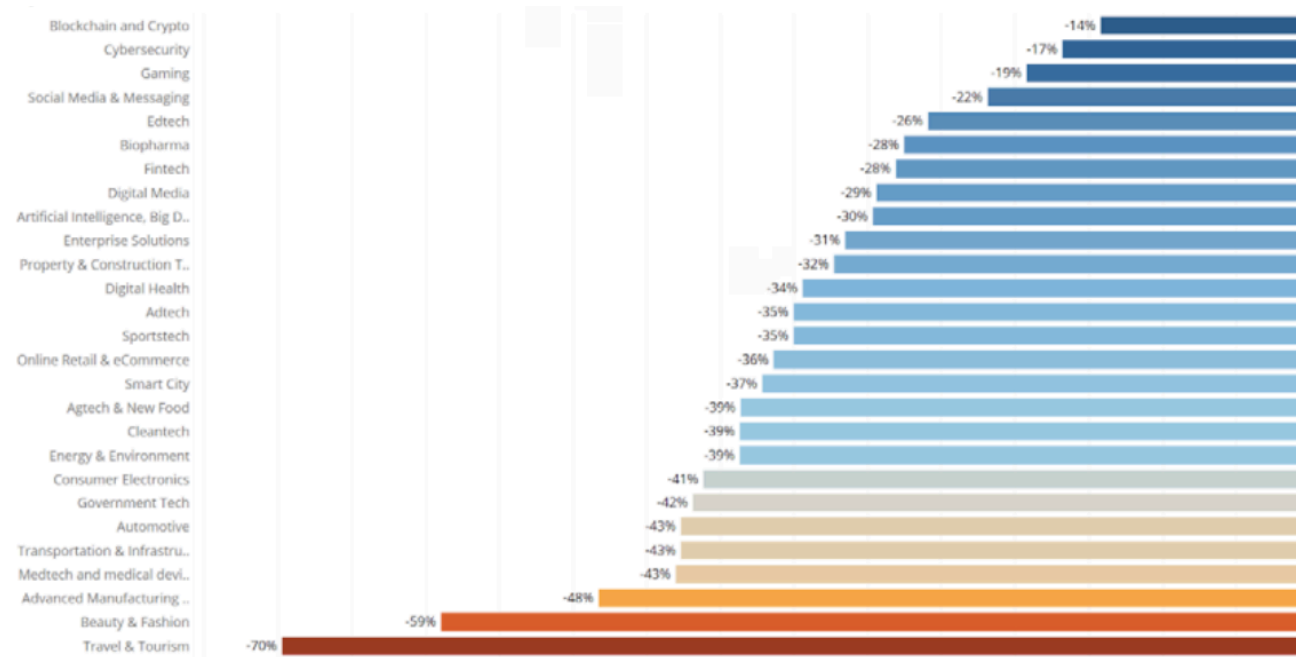
organizations — produces more value. An ecosystem that is 3x larger creates about 5x more economic value. This also means that if you lose about 20% of startups, you can expect to lose about 27% in value. If you lose 40% of them, which is the figure for startups in the red zone globally, and you're risking shaving off over 50% of economic value produced by your ecosystem.

Next Gen Ecosystems

Every crisis creates opportunities, and this crisis likely is no different. For instance, over half of Fortune 500 companies started during a contraction and over 50 unicorns were created in the Great Recession alone, as Startup Genome data shows. The list of companies funded during the Great Recession is impressive. It includes Facebook, LinkedIn, Palantir, and Dropbox — all of these based in the Bay Area. In the same way opportunities are unlocked for companies, they are also unlocked for ecosystems. The current crisis has accelerated the digitization of the offline economy, making tech companies even more important. The actions of ecosystems today will help determine how they will be positioned in the global stage tomorrow. At the same time, this is a unique opportunity for all of us to rebuild our economic communities with a lower negative impact on the environment and a stronger focus on inclusion and fair access to the amazing value that tech ecosystems create. Just like the rise of both London and New York City came at the heels of the 2007-2009 Great Recession — in their attempt to diversify from reliance on their traditional strengths in finances — the post-COVID-19 recovery will see new ecosystems rising.



Exhibit 23: Change in revenue in % since the beginning of the crisis and by sub-sector





Conclusion

Policymakers have a lot of their plates now to sustain their economies, but startups simply can't be forgotten. At the very least, they can provide short-term measures to “keep the lights on” and attempt to minimize the disruption of existing startup ecosystems. The most effective measure they can take is to use existing funding structures to quickly deploy capital using equity-based instruments.

We recognize that this is a short-term view of the current situation and the effects of the COVID-19 crisis will be long lasting. Indeed, our analysis of the prevalence of different policy instruments around the globe shows that, as of April 2020, business loans were by far the most popular measure used by governments. Equity-based funding and demand generation were the least popular — demonstrating that policy instruments are not yet aligned to the needs of a longer-term recession environment.

As this develops further, it will be vital for policies to adapt from short-term firefighting to building long-term foundations. We recommend a shift to equity investment, guarantees for equity investors, and demand generation programs to future proof our ecosystems.

In the medium to long term, we are facing both a recession and an accelerated move to a digital economy. Thankfully, the tech and digital-focused startups can play a role in coming back from the recession, like they did in 2008.

During this time, there will be a greater role for the government to play when it comes to industrial policy and working with startups. Without this public sector involvement, startup clusters and ecosystems will be harmed and the economies they belong to will lose the benefits startups provide. Those governments that unlock new demand generation for their startups will facilitate not only startup ecosystems but also the wider economic recovery and an accelerated path of successful digital transformation.



6. Methodology and Framework

6.1 Key Concepts

Startup: A technology-enabled business that is less than 10 years old. Steve Blank defines a startup as a “temporary organization in search for 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 reality. Resources typically include policymakers, accelerators, incubators, coworking spaces, educational institutions, and funding groups.

Startup Ecosystem Development: Purposely investing time and resources into bolstering startup founders and companies to facilitate the creation of new jobs and economic prosperity.

Global Startup Economy: The global economic value created by tech startups. In data terms, Startup Genome measures this as the sum of tech startup valuations and exits in the world over a two-and-a-half-year time period.

Ecosystem Value: A measure of economic impact that we update each year. It is currently calculated as the value of exits and startup valuations between January 2016 and July 2018.

Software Startup Output: The number of software startups in an ecosystem, calculated using the MSE (Multiple System Estimation) method.



6.2 Funding and Exits Data Sources

The main data source for funding and exits we use here is PitchBook, a private capital market data provider. In our analysis of Pitchbook we focused on U.S.-headquartered businesses in software. For IPO data in the U.S. we use University of Florida's Jay R. Ritter database, and for unicorns we use Startup Genome's proprietary database.

6.3 Survey Data

Key results here come from Startup Genome's proprietary Global Startup Survey. Over 2400 respondents answered the survey, across every continent and in over 50 countries, between March 25th and July 25th. Companies come from every startup sub-sector (e.g., AI, Digital Health, Edtech, Life Sciences, etc.), tackle various markets (e.g., B2B, B2C, B2G), and are at different funding and lifecycle stages. A small share of companies, around 5%, have closed since the beginning of the crisis. For those, we asked questions pertinent to their current stage. In this analysis, we only include technology-driven startups, excluding young businesses in non-technology sectors. We define a startup's location by where most of their executives are based at.

While the survey instrument is focused on addressing questions about the COVID-19 crisis effects on startups, it builds upon our experience surveying thousands of founders globally across several years. We developed our survey instrument around five key factors: Capital, Talent, Market, Operations, and Policy. In addition to the results we publish here, we collected more in-depth data which we will publish in the coming weeks and months.

The data collected so far was based on Startup Genome's panel of tech startups. Startup Genome will continue to collect data on the topic with our global member network, and will continue to publish results.

If you are a startup and want to take the survey to share what is happening in your business and market, you can take it [here](#). Your input is crucial. If you are a policymaker or ecosystem support organization and would like to deploy the COVID-19 Impact Global Startup Survey in your community and get detailed insights about what is happening on the ground (and how your ecosystem stacks up with what is happening globally), please reach out to Adam Bregu (adam@startupgenome.com).



7. About Startup Genome

Startup Genome works to enhance startup success and ecosystem performance everywhere.

Our mission and impact are rooted in over a decade of independent research with data on over a million companies across 150 cities. Working side-by-side with more than 300 partner organizations, our frameworks and methodologies have become instrumental in building foundations for startups to grow. Our efforts earned us the Research Champions award at the Global Entrepreneurship Congress 2019.

Many of the world's leading governments and innovation-focused organizations have joined our knowledge network to cut through the complexities of the startup ecosystem development and to fuel sustained economic growth. Considering the new science of the startup ecosystem assessment, we point to key gaps in startup ecosystems and prioritize actions to address them. Together with global thought leaders, we define robust strategies and implement programs to drive lasting change.

Join us and boost startup success, economic growth, and job creation in your region. Follow our work at startupgenome.com or find us at [Facebook](#), [Twitter](#), and [LinkedIn](#).