MEKONG BUSINESS INITIATIVE

INTERNATIONAL BEST PRACTICES ON SUPPORTING STARTUP ECOSYSTEMS

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1. INTRODUCTION

1.1 Startup ecosystems as sources for growth

Startups, here defined according to Steve Blank as *"an organization formed to search for a repeatable and scalable business model"*[1], are high on the agenda of all policy makers in all countries. The reason for this is obvious. Although startups represent a very small share of all companies, the impact of some very successful startups to economies can be significant[2]. They generate new jobs and tax income, as well as develop new services and solutions, which fuel the renewal of more established businesses and industries. However, most new startups fail and only very few are able to scale up and grow. Therefore, for each successful startup there will be dozens – or even thousands – of other startups.

Recently, the number of new startups has increased rapidly, especially in 'hotspots' like Silicon Valley, New York, Singapore, Berlin etc. The reasons for this 'startup boom' are various and have many context specific factors, but some general trends can be identified. First, as a result of fallen product development costs, new startups can now be built much easier and more cheaply than for example 10 years ago. Second, the decrease in costs to build a new venture has also catalysed the growth of venture financing industry, as investors are able to spread their investments in more companies than before.

1 Source: https://steveblank.com. Note: This definition is used as it differentiates startups from other newly established businesses, most of which are not looking for growth through scalable business models. It also highlights the nature of 'startup' as a certain phase in the lifecycle of a company. However, it needs to be acknowledged that this definition is quite vague and especially for statistical purposes more explicit definitions are needed. Therefore, some explicit factors such as age (e.g. less than 6 years), size (e.g. less than 50 employees) and organization type (private and independent, excluding e.g. subsidiaries or public companies) could be used to build some common ground for defining startups.

2 See e.g. Kane, T. (2010).

Third, the development and dissemination of new management practices such as Lean Startup methods, has helped to launch (and fail) new startups rapidly. Finally, also large corporations have recognized the importance of agile research and development practices and have started their own startup accelerator programmes[3] to build their own business ecosystems and speed up their research, development and innovation (RDI) processes.[4]

As the operational environment of startups has become increasingly global, it raises a question of why startup activity seems to focus on some specific *local* hotspots. In order to answer this question we need to have an understanding of the dynamics and needs of building a successful startup. A framework developed by Startup Commons[5] (Figure 1) provides a good overview of the purposes of this paper.

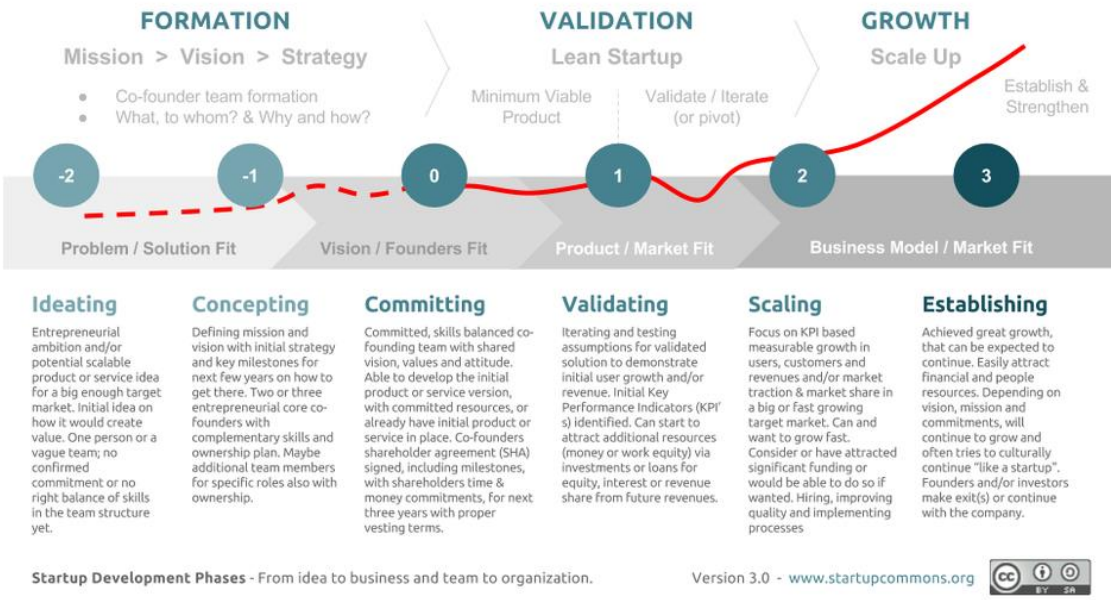

Figure 1. Startup Development Phases. Source: Startup Commons.

3 See e.g. https://www.googleforentrepreneurs.com
4 Adopted from Herrmann et al. 2015, 13-14.
5 http://www.startupcommons.org/startup-development-phases.html

First, startups need an idea and a clear vision of its implementation. This requires building a team, defining concepts for the new products and services, as well as setting up a viable strategy and committing to its implementation. Second, startups need to validate their products and services and get first customers and resources for further development. Third, once the product or service has been validated and the business model is in place, the startups need to scale up by attracting new customers and getting into broader markets. As competition has become more intense and global, startups often need to compete against startups from all over the world.

In order to be able to succeed in global competition, startups needs various different resources in the different phases of their development. Ideating and concepting new products and services require the right people and talent, and efficient collaboration between them. Developing and validating concepts requires (in addition) access to seed funding and potential customers and end-users. Finally, scaling up and establishing the company requires growth financing, access to networks and strong business competence (e.g. through mentors or advisors). In practice, all this calls for efficient and open knowledge transfer, trust, face-to-face discussions and connections to experts of various different branches. These resources are best available in thriving *startup ecosystems*.[6]

1.2 Objective and structure of the paper

The objective of this paper is to provide description of international best practices on supporting startup ecosystems. The work has been commissioned

6 Adopted from Hermmann et al. 2015.

by Mekong Business Initiative (MBI), an advisory facility that promotes private sector development in Cambodia, the Lao People's Democratic Republic (Lao PDR), Myanmar, and Vietnam. MBI fosters development of the innovation ecosystem by supporting business advocacy, alternative finance and innovation. It is supported by the Government of Australia and the Asian Development Bank. MBI is supporting the Ministry of Planning and Investment (MPI), the Government of Da Nang and the Government of Ho Chi Minh City to design policies to support entrepreneurship and startup ecosystems.

The paper is divided into four parts. After this introductory chapter, the *second chapter* explains the elements and characteristics of startup ecosystems. *The third chapter* describes some common policies and instruments which are used to support startups and startup ecosystems. *The fourth chapter* presents selected international examples of startup ecosystem policies and initiatives. The *fifth chapter* synthesizes the findings from these comparisons and discusses how the results, findings and lessons could be utilized when designing support policies for startup ecosystems. This part is written with a particular emphasis of Vietnamese policy planning and the new SME law under preparation.

This paper is parallel to another paper, which focuses on *international best practices on innovation and business support services* (not specifically for startups). In order to avoid overlaps between the papers, we have selected to limit this paper to instruments and policies, which are characteristic to startup ecosystems (see definition below). More general instruments such as business grants or funds, even though relevant for startups as well, are discussed in the other paper.

2. ELEMENTS OF STARTUP ECOSYSTEMS

2.1 What is a startup ecosystem?

The concept of *startup ecosystem*[7] has been recently widely used in the context of innovation and entrepreneurship. Although there is no single official definition for a startup ecosystem and the term is used in different ways, typically it refers to a specific geographic area or 'hotspot' (e.g. Silicon Valley) with high density of startup companies and entrepreneurs.[8] The scope of the ecosystem can vary from a few blocks to a single country, but in its most common use the term 'startup ecosystem' refers to a city or a metropolitan area. For example, The Global Startup Ecosystem Ranking report, which is arguably the most comprehensive international benchmark analysis of different startup ecosystems, defines startup ecosystems as "a metropolitan city or geographic area [approx. 100 km radius] with a shared pool of resources."[9] This is also the definition adopted in this paper.

As in natural ecosystems (e.g. forest), a key characteristic of a startup ecosystem is the interdependence (or "common fate") of the different organisms within the ecosystem. In other words, ecosystems are not about individual actors or groups of actors rather than about the relationships between them. These characteristic also differentiate ecosystems from other concepts such as *clusters*.

7 Startup (or entrepreneurial) ecosystems should not be confused with the concept of business ecosystems, which refers, according to James Moore (2006), to "intentional communities of economic actors whose individual business activities share in some large measure the fate of the whole community".
8 See e.g. Herrmann et al 2015; Szerb et al 2013; Mason & Brown 2014.
9 Herrmann et al., 2015.

Main actors of the startup ecosystem are obviously the startups themselves. Other key actors often considered as part of the ecosystem include funders and investors, incubators, accelerators or other service providers (both public and private) as well as processes, events and other more or less developed institutions (e.g. meetups, hackathons). Recently many authors have highlighted the important role of *entrepreneurs* within the ecosystem and introduced the concept of *entrepreneurial ecosystem* instead, or in parallel, to startup ecosystem[10]. Mason and Brown (2014) define entrepreneurial ecosystems as follows:

'a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment' (Mason & Brown 2014, 5)

2.2 Success Factors of Startup Ecosystems

Defining the success of a startup ecosystem is not easy as ecosystems are highly complex and constantly evolving, with various different factors affecting their performance. However, it is possible to identify some imporant factors and features of successful ecosystems. This section presents shortly some prior approaches.

10 See e.g. Mason and Brown 2014; Acs et al 2015; Autio 2015.

Based on previous literature, Mason & Brown (2014, 8-12) have analysed the general conditions and charcteristics of successful entrepreneurial ecosystems, leading to the following conclusions:

- Ecosystems emerge in locations with 'place-specific assets' (e.g. strong universities, desirable places to live and/or strong industrial tradition or one or more large companies)
- The growth of ecosystems is driven by 'entrepreneurial recycling', a process where successful entrepreneurs remain involved in the ecosystem "reinvesting their wealth and experience to create more entrepreneurial activity"
- Ecosystems are 'information rich' by nature, meaning that startups (and other actors) have an access to information and knowledge about customer needs, technologies etc.
- Well-functioning ecosystems have also some common cultural characteristics such as a sense of inclusiveness, 'give-before-you-get' culture and positive attitude towards failure
- Availability of finance is important for the success of ecosystems – especially seed and startup investors and business angels who provide financial resources as well as mentoring and advice ('smart financing') for new startups.
- The role of universities (and other research institutions) is important (although not crucial) for the success of entrepreneurial ecosystems as they attract future entrepreneurs, talents and professionals to the ecosystem.
- Successful ecosystems also need have a rich pool of different service provides (e.g. lawyers, accountants, business mentors etc) who can provide business support for new startups.

Another approach to the success factors of ecosystems is provided Isenberg (2011), who has identified six different domains of entrepreneurship ecosystems:

1) Policy (leadership, government),

2) Finance (financial capital),

3) Culture (success stories, societal norms),

4) Supports (infrastructure, support professions, non-governmental institutions),

5) Human Capital (labour, educational institutions), and

6) Markets (networks, early customers)

Vogel[11], in turn, has emphasised the following factors and actors as important building blocks of such ecosystems:

- Non-entrepreneurship level
    - Government and regulations (e.g. property rights, policy framework, labor laws)
    - Geographic location (livability, cost of living)
    - Markets (customers, users, large corporations, competitors, etc.)
    - Infrastructure (physical infra, institutions, energy, ICT, workspaces, etc.)
    - Innovation (knowledge, R&D, research, technology transfer, etc.)

- Entrepreneursip level

11 Vogel, P. (n.a). Building and Assessing Entrepreneurship Ecosystems. http://www.slideshare.net/OECDLEED/6-vogel-building-and-assessing-entrepreneurial-ecosystems

- Financing (e.g. accelerators, business angels, loans and grants, micro financing, private equity, crowdfunding, etc.)
- Culture (mindset / ambition, role models, attitudes towards succcess and failure)
- Visibility (events, conferences, awards, etc.)
- Support (accounting, mentors, lawyers, experts, information hubs, etc.)
- Education (entrepreneurship education, skills, certificates)
- Networks (formal and informal networks, organizations, groups, etc.)

Global Startup Ecosystem Ranking (2015) has adopted a slightly different approach and assesses ecosystems according to their performance and growth. It is based on the following "Entrepreneurship Ecosystem Canvas" (originally based on the work by German Productivity and Innovation Centre). It is based on eleven building blocks, covering the key areas of a startup ecosystem. These blocks are: Ideas & Talents, Support & Infrastructure, Startup Community, Policy & Finance, and Trends & Markets.

Figure 2. Entrepreneurship Ecosystem Canvas.[12]

This framework provides the basis for the startup ecosystem index, which consists of three different indices: *performance index*, *factor index* and *growth index*. Performance index is based on the value of the ecosystem and it consists of the sum of all valuations of startups at exits and funding events (80 %) and the number of startups (20 %). Factor index includes A) funding (availability of venture capital as measured by total VC investments (80 %) and time to raise a financing round (20 %), B) market reach (local and cultura market size, global market reach), C) talent quality (as measured by prior startup experience and coding skills) and availability (time to hire engineers, immigration success rate, average engineer salary), and D) startup experience (number of advisors with equity, proportion of employees with startup experience, proportion of founders with prior experience in a hypergrowth startup, proportion of startups providing stock options). Growth index is based on annual growth of the ecosystem as measured by the number of startups, growth in VC investments and two-year moving average growth of the annual sum of exit valuations.[13]

12 Source: Herrmann et al. 2015.
13 Source: Herrmann et al. 2015.

Finally, it is important to acknowledge that startup ecosystems constantly evolve and develop through different stages. One approach to assess these lifecycles has been developed by Startup Compass, the authors of Global Startup Ecosystem Ranking. Their Startup Ecosystem Lifecycle Model consists of the following phases:[14]

1. **Emergence.** This first phase of the Startup Ecosystem begins "when a city gathers or assembles the necessary resources for a startup ecosystem to come to life". Ecosystems at this stage are characterized by a slow (organic) growth and are likely to lack many important features such as venture capital, service provides, serial entrepreneurs or advisors, and startup friendly poliocies. According to the model, the best way to support this type of ecosystem is to "foster a vibrant, entrepreneur community is to nurture it with many types of events" in order to catalyse face-to-face collaboration and community.
2. **Activation.** Ecosystems at this stage of development have most of the key components of successful ecosystem in place. Typically ecosystems at this stage adopt "Catch Up Growth" processes, i.e. importing best practices from other successful ecosystems.
3. **Integration.** Ecosystemts at this stage are characterized by inorganic growth as they focus on attracting more resources across the region and global economy with the help of success stories and notable exits. According to the model authors, "exits are the crucial performance indicator needed for a startup ecosystem to attract all the key stakeholders and resources required for further growth in the Integration phase." Ecosystems at this stage are directly competing against other ecosystems for the same resouces. This means that there is likely to be room for only one or two fast-growing ecosystems in

14 http://blog.compass.co/startup-ecosystem-lifecycle-model/

most countries. If an ecosystem manages to become internationally attractive, the main challenge will shift on attracting and supporting the influx of talent (e.g. with immigration and housing policies).

4. **Maturity.** At some point, an ecosystem may exceed the limits of its resources and enter a phase of slower growth. At this stage the ecosystem should focus on strengthening its (national and international) linkages, identify future waves of innovation, and differentiate itself from its competitors.

3. POLICIES AND INSTRUMENTS FOR STARTUP ECOSYSTEMS

This chapter presents an overview of common policies and instruments that have been used to support startups and startup ecosystems.

3.1 Overview of policies and instruments

Building on the prior frameworks and recognized characteristics of successful startup ecosystems (see Chapter 2.2), we have identified the following 8 policy domains for startup ecosystem policies for the purposes of this paper:

1. Government and regulation
2. Research, development and innovation system
3. Infrastructure and attractivity
4. Markets & customers
5. Financing
6. Entrepreneurial skills and education
7. Culture, networks and community
8. Business support

These domains, as well as related policies and instruments are presented in Table 1. The table makes a distinction between general policies and specific programmes and instruments. The general policies (e.g. taxation, labour, education policies) are often very broad, complex and context-specific, and not too different from policies that are generally used to support innovation and economic growth. The main focus of this paper is on the specific

programmes and instruments that are used to support startups and startup ecosystems in particular.

Table 1. Public sector roles for supporting startup ecosystems.

Adapted from: Isenberg 2011.

Domain	General policies (examples)	Programs and instruments (examples)
Government and regulation		
Building startup ecosystems takes time and this in turn requires unequivocal support from the policy makers. Government statements and strategies help to build a common vision and social legitimacy as well as encourage other actors to make commitments and advocate the ecosystem. Regulation and taxation policies can be used to attract new companies, entrepreneurs or foreign talents to the ecosystem.	- Regulation and good governance related to (e.g.) starting a business, exits, bankruptcies etc - Taxation - Corporate & entrepreneurship laws - Immigration policies for attracting foreign talents and promoting entrepreneurship among immigrants - Labour policies targeting the flexibility of labour markets	- Startup strategies and policy statements for creating a common vision and legitimacy
Research, development and innovation system		
RDI policies can be used to build long-term scientific and technological basis for future innovations. Universities and research institutes can also attract future entrepreneurs and highly-skilled professionals to the ecosystem.	- Higher education policies - Research and science policies - R&D institutions - IPR policies	- University spin-off / entrepreneurship programs / innovation hubs
Infrastructure and attractivity		
Besides making sure that the basic infrastructure is in place, policies can support startup ecosystems by providing them an easy access to ICT technologies or workspaces e.g. through supporting science	- Basic infrastructure development (transportation, electricity, ICT…) - Housing policies (affecting the living costs)	- Science and technology parks, living labs, fabrication labs etc - Co-working spaces

and technology parks or co-working spaces. Improving the attractivity of the local ecosystem is a result of several different policies (e.g. taxation). However, specific attention should be paid to the livability of the area and the living costs.	- Zoning (e.g. tax-free zones, zoning for affordable office spaces) - Promotional campaigns attracting foreign talent and investments	
Markets and customers		
Besides ensuring that private markets are operational, public sector can also play a role in helping the startups to get references through innovative public procurement processes, or facilitating the collaboration between startups and large corporations.	- Policies related to the functioning of private markets and market entry - Public procurement practices (for providing startups client references)	- Hackathons and challenge competitions, piloting & user-testing platforms, etc.
Financial capital		
Efficient stock markets and private equity markets are a necessary precondition for startup ecosystems. Furthermore, policies can help to build the financial foundation of the ecosystem, e.g. by offering matching grants to VC funds, supporting accelerator programs or directly supporting startups with grants or loans.	- Stock market - Regulation of private equity funding - Banking system regulation	- Accelerator support programs - Startup grants - Matching VC funds - Business angel tax incentives
Entrepreneurial skills and education		
Successful startup ecosystems are built around talented people. This requires high quality educational institutions and universities that attract students and researchers to the ecosystem.	- Entprereneurship & business education / training	- Startup launch programmes / pre-incubators
Culture, networks and community		
Policies can also help to build networks among ecosystem actors as well as promote startups and entrepreneurship as a viable career choice by highlighting success stories, arranging events etc.	- Promoting success stories & entrepreneurship as a viable career option	- Startup communities, meetups, events, societies, information portals, etc. - Initiatives for supporting and networking startup ecosystems
Business support		
Finally, successful startup ecosystems need various different support services, programmes and/or institutions that help new startups to get access to networks, investors, customers, new	- Private service provider pool (e.g. lawyers, accountants, etc.) - General public business support services	- Incubators and accelerators - Mentoring and advisory networks - Public support services tailored for startups

employees, advisors and other service providers (e.g. business, legal, accounting consulting, etc.).		- Information portals

3.2 Instruments for supporting startup ecosystems

This section provides examples and descriptions of common support instruments and programs, which are especially designed for supporting startups and startup ecosystems. More general policies related to improving business conditions in general (e.g. labour policies, education policies, regulation) are not described here. Also examples of how such policies have been used to support startup ecosystems are provided in chapter four.

Although the described programmes are all different in terms of their objectives and implementation, they are all designed to add value to startups at different phases. They may also have some overlaps and, in fact, many programmes typically combine different types of services. Most of them could be labelled under a general umbrella term of *incubation*, which, according to Dee et al (2015), refers to "a collection of techniques that can be used to prove an idea, develop a team and de-risk ventures for later-stage investors."

As the table below highlights, a common characteristic of startup support programs is that they provide startups many different kinds of support. For example accelerator programs offer not just invaluable financial resources, but they also typivally provide the startups better access to other forms of resources such as physical infrastructure, new skills and knowledge, and social networks and contacts. In fact, all of these programs have also another important feature: they all help to connect startups with actors such as peer startups, investors, clients or end-users. This focus on social interaction and relationship between different actors is an important aspect of the functioning of startup ecosystems.

Table 2. Summary of startup ecosystem policies and instruments. Source: Authors.

Provides or helps startups to get access to...				
Programme	Financial resources (funding)	Physical resources (infrastructure, facilities, office spaces, etc.)	Human resources (new talent, skills)	Social resources (networks, contacts)
Pre-incubators	Sometimes (e.g. stipends)	Yes	Yes	Yes
Incubators	Sometimes	Yes	Yes	Yes
Business accelerators	Yes (early-stage investments)	Yes (but not necessarily)	Yes	Yes
Co-working spaces	No	Yes	Sometimes	Yes
Hackathons	Sometimes (e.g. awards)	No	Sometimes	Yes
Meetups and startup events	No	No	Sometimes	Yes

3.2.1 Pre-incubators and launch programmes

Pre-incubators and startup launch programmes are support programmes for individuals or teams with early stage business ideas. The programme types can vary greatly from short, intensive camps or business idea competitions to longer programmes lasting from a few weeks to up to six months. However, the basic objective of all types of pre-incubators is to help aspiring entrepreneurs to build motivation, confidence and skills needed to transform an idea into a new business. Pre-incubator programmes are often preparing business ideas and entrepreneurs-to-be to get ready to enter an incubator or an accelerator programme. As the programme types vary, also the training methods of pre-incubation vary from individual coaching to group trainings.

Box 1. Pre-incubators and startup launch programmes	
Description & objectives	Pre-incubators are support programmes for early-stage business ideas. The actual programme types can vary from short intensive camps or competitions to longer programmes lasting for up to 6 months. The objective of pre-incubators is to build motivation, confidence and skills needed to launch an idea into business. The training of business and entrepreneurship skills can be a combination of individual coaching and group trainings.
Organization	Pre-incubators are typically organized by non-profit actors, such as universities/colleges, cities/towns, entrepreneurship societies or technology parks. There are also some rare examples of for-profit pre-incubators or concepts, often operated by large accelerators such as Techstars[15] to provide a better stream of startups for their accelerator programmes.
Funding sources and business model	Pre-incubators mainly rely on public funding, project funding or grants. Pre-incubators are seldom financially self-sufficient without external funding, as participants usually cannot pay (enough) for the programme. However, sometimes pre-incubator programmes have private companies as sponsors.
Prerequisites for law & regulation	Typically no specific laws or regulations are needed for pre-incubators to operate.
Other prerequisites	Pre-incubators should ideally have a partner organization that can support new companies in the next stage of the startup lifecycle (e.g. incubators, accelerator programmes). Also, sufficient amount of applicants (e.g. through universities) and high quality experts are needed.
Role of public sector & government	Pre-incubators can be organized publicly, e.g. by universities/colleges or cities/towns, or alternatively the public sector can sponsor a privately run pre-incubator programme. Pre-incubators are often located in a university campus area in a space provided by a public sector organization.

15 See Startup Next (Techstars), http://www.startupnext.co; or Startup Weekend (Techstars), https://startupweekend.org

Success factors	In order to operate a successful pre-incubator or startup launch programme, the organising institution must ensure the high quality and expertise of competent mentors and advisors. The most successful programs are rather short, forcing the startups to "fail fast" and test multiple ideas. This on the other hand calls for efficient and refined processes as well as establishing a pipeline and follow-up process for the best ideas. When it comes to choosing the participants, the programmes should not be too restrictive, but be open for different types of individuals and teams to join the programme (selectivity is needed in later stages). Successful programmes endorse different competencies and emphasize multidisciplinarity in team building and matchmaking.
Measurement and quality control	Key indicators for the success of pre-incubator or startup launch programmes are the number of participants and applicants as well as the number of generated teams or ideas that proceed to next stages and follow-up programmes (e.g. incubator or accelerator programmes).

Case: Startup Weekend & Startup Next[16]

Startup Weekend is a 54-hour event and competition for aspiring entrepreneurs. During just one weekend, participants will connect and team up with like-minded people, choose a problem to work on, learn what it really takes to start a company and get ready to take the next steps in becoming an entrepreneur. The idea of the event is to grow completely new businesses from the ground up over the course of the weekend - this means that participants are not supposed to work on their existing businesses but "start from scratch" on a new idea.

The event is divided into three days with each a different agenda. On the first day, the participants of the event will network and get to know each other, pitch their ideas, choose a project that they want to work on and build a cross-functional team to work with over the weekend. On day two, the teams will get to work on their chosen project, and they will be responsible for everything from finding the customers to building a product. There are local mentors and other experts to coach and help out when the team faces problems to make sure that there will be significant progress in a short period of time. On the final day, all teams will have 5 minutes to present their product or service

16 http://entrepreneur.nyu.edu/about/

to a panel of experts, which will serve as the judges and choose the winning team, as well as to other participants (and possible external audience). The panel of experts will choose the winner team. The final day is also a great opportunity to mingle and network with the judges, mentors and other participants of the event.

Startup Next is a 5-week pre-acceleration program, which main goal is to prepare startups to get ready for accelerator programs and seed investment rounds. Startup Next provides high quality mentorship, introduces startups to potential investors and connects the startups to a large network of investors, mentors and founders. In practice, the program consists of six weekly in-person sessions that are mandatory. Each session lasts for three hours and is broken down to three parts: speaker series, pitch coaching and one-on-one mentorship. This structure gives the startups each week the possibility to learn from mentors and experts about their experiences in growing a company and ask questions, receive critical feedback and improve their elevator pitch as well as solve challenges related to procut and strategy together with an expert mentor. The weekly topics include accelerators, customer development, pitching, product-market fit, market sizing and funding.

Startup Weekend and Startup Next are both startup programs organised by Techstars, which was founded by David Cohen and Brad Feld in 2007. Techstars is one of the first and most successful organisations engaged in startup support programs (such as accelerators and startup lauch programmes). So far, it has funded over 760 companies through 20 accelerator programmes and raised over $2 billion in total funding. It ranks in the world's top 3 of currently operating accelerators measured by number of companies accelerated, value of exits as well as value of funding raised.[17] Techstars itself is funded privately by several different venture funds and angel investors. Its business model is based on the profits generated through the growth and further investments to its portfolio startups. Therefore, a key role of Startup Weekend and Startup Next is to generate a better deal flow for the main accelerator programme. So far more than 23 000 startup teams have been formed through Startup Weekend globally, with over 193 000 alumni members in its network. Startup Next has managed to help over 50 startups to get accepted into accelerators and raised over $40m funding for teams.

Although organized and operated under the Techstars concept, both Startup Weekend and Startup Next operate closely with other global and local partners, including individuals, public sector actors as well as large corporations – most notably Google,

17 http://www.seed-db.com/accelerators

whose global entrepreneurship program *Google for Entrepreneurs* is the main sponsor for Techstars programmes. Sponsor and partner arrangements not only help the programmes to attract some extra financing but also connect them with the broader ecosystem.

Applicability and key takeaways:

Startup Weekend and Startup Next are good examples of concepts that have been managed to expand and scale to different locations around the world. Their success is largely based on the ability to attract the most promising teams or startups from all over the world with the help of the worldwide brand of Techstars. Having been able to set up a worldwide network of mentors and alumni, it is now able to utilize this pool of expertise and further strengthen its attractivity. Replicating this type of success is extremely difficult and is something that the publicly funded programmes should not probably be looking for. Instead, a more viable stragey would be setting up public-private-partnerships with existing global brands. In addition, public sector can focus initiating pre-incubator programmes in earlier stages, regions or industries where strong commercial brands are not yet present and where there is a need to build up startup culture and networks. Globally successful programs and their processes provide a good benchmarks and lessons for these initiatives.

3.2.2 Incubators

Incubators are support programmes meant for startups with an existing business idea, product or a concept. Incubators can be seen as the next step after a pre-incubator programme. Where as the pre-incubator programmes often concentrate on preparing the individuals and teams for entrepreneurship, incubator programmes focus on developing the business idea further. Incubators typically offer startups services related to business development, networking and basic infrastructure.

The organizations and operating models of incubators vary from one program to another. Typically, most incubators are non-profit, but also for-profit incubators exist. Similarly, some incubators ask for an equity stake in the

incubated startups where as others do not. However, most incubator programmes are supported by the government or other public sector organisations (e.g. universities, cities), at least to some extent.

The funding needs of incubators can be roughly divided into six different categories: initiation costs, operating expenses, direct tenant costs, specific services, funding for incumbee investments and growth funding. Incubators' initiation costs include funding needs related to physical premises, laboratories, launch activities and marketing. Operating expenses include incubator management costs and general costs of the premises (e.g. maintenance, events, etc.). Also direct tenant costs, such as premise rent, IT networks, electricity, water and other joint services and facilities, are closely related to the operating expenses. Even though the most obvious costs are related to the initiation and the operation of the incubator, incubation process requires funding also for other purposes. Incubators often offer the participating startups specific (additional) services, such as legal or marketing advice, outsourced managers and other staff. Additionally, funding for incumbee investments (e.g. soft loans, grants, credit guarantees) and growth funding (e.g. equity, venture capital) for the startups is also needed.

Box 2. Incubators	
Description & objectives	Incubators are programmes meant for startups with an existing business idea, product or concept. They offer startups support services in business development, infrastructure and networking. Many incubator programmes also offer physical working space for the companies involved, but this is not mandatory since incubation is essentially a process, not a space. Incubators usually focus on early-stage companies that need help with scale-up activities, such as building the team and processes needed for growth. Incubator programmes typically last for 1-3 years. The purpose of many incubators is to support the economic development of an area.

Organization	Incubator programmes (and spaces) typically operate year-round and continuously. Incubators can be both publicly and privately organized, and both non-profit and for-profit incubators exist. Non-profit incubators are often attached to a university, whereas for-profit incubators are usually an extension of an existing investor activity. Incubators are typically promoted by a wide range of organisations from the public and private sectors including local authorities, universities, companies, and financial institutions.[18] This means that a government-funded incubator does not necessarily have to be government operated. The daily operation of the incubator can be managed by a university or a company, and the government can be involved e.g. in the board of the incubator.
Funding sources and business model	Incubator business models vary depending on their nature (non-profit or for-profit). Majority (in North America up to 93%) of incubators are non-profit, and the business model of an incubator is often a combination of participant fees, public funding and taking an equity share of the participating startup companies.
Prerequisites for law & regulation	Typically no specific laws or regulations are needed for incubators to operate, but the public funding of incubators must not be prohibited by the current laws and policies.
Other prerequisites	Since incubators are ideally continuous programmes that run for several years, it is important that the operating organization is committed to providing the incubation service in the long term. Incubation is a human resource intensive business. A successful incubator programme needs a constant deal flow of potential, serious entrepreneurs with feasible business ideas and relevant skills needed for success but also experienced business development managers / coaches who have the needed time and interest in working with the entrepreneurs.

18 Centre for Strategy and Evaluation Services, "Benchmarking of Business Incubators." Brussels: European Commission Enterprise Directorate General, 2002.

Role of public sector & government	Public authorities have an important catalytic and leadership function, and can provide crucial pump-priming investment during the development phase of incubators. Besides financial support, public sector can support incubator activities by providing physical spaces, human resources or other types of support for incubators through universities, cities or other public organizations. Government can also help stimulating incubators by providing different types of incubator funding schemes[19], or directly providing grants to startups participating the incubators.
Success factors	Ensuring the high quality and expertise of competent mentors and advisors is crucial also in the case of incubator programmes. Similarly, also incubator programmes should encourage the participating startups to test multiple ideas and fail fast. The processes need to be efficient and refined to support this approach. In order to succeed, incubators need to balance between selection and openness when choosing the participating startups. On the other hand, the programme should be open enough to attract multidisciplinary talent and a variety of business ideas, but the programme needs to be able to focus and provide enough time, support and resources for all the chosen participants. The most successful incubator programmes also have access to multiple resources, including facilities, substantial professional networks as well as follow-up financing (investors, accelerators etc).
Measurement and quality control	The number of participants and applicants is one key measure, since they indicate the popularity of the program among its target group. Other key performance indicators include the amount of startups created, the amount of startups or teams who manage to attract follow-up funding or get accepted to accelerator programmes, and the survival rate of those startups participating in the programme. Also the number of alumni or partners in the network can be a good indicator for the attractivity of the incubator. Meanwhile, especially if the incubators are publicly funded and aim to support the local economy, the funders may want to assess the longer term economic impact (e.g. number of

19 See e.g. http://www.guidemesingapore.com/doing-business/finances/singapore-government-schemes-for-startups

new jobs, new startups, taxes, diversification of industries) of the incubators.

Case: New York University Incubators[20]

The New York University (NYU) strongly promotes entrepreneurship and fosters a vibrant, university-wide startup ecosystem that encourages multi-disciplinary collaboration, accelerates innovation and aims to cultivate the next generation of startup leaders within the university campus. The university and its team dedicated to entrepreneurship offer educational programmes and events as well as industry-specific resources and funding support. With this, the university aspires to inspire, educate, connect and accelerate entrepreneurship across NYU in various different ways. An important part of this ecosystem is **The New York University Incubators** programme.

The incubators are public-private-academic partnerships that aim at nurturing the entrepreneurs by university partners with support from government and the private sector. The incubators provide collaborative spaces, administrative support, guidance and expertise, as well as a community that startups need to succeed. The NYU incubators include Data Future Lab, Digital Future Lab and NYC ACRE.[21] In addition to incubator programmes, NYU also has a campus-based entrepreneurship programme called **Blackstone LaunchPad**, that is designed to support and coach aspiring NYU entrepreneurs. The Blackstone LaunchPad offers a variety of resources to support startups, including one-to-one coaching, online tools, resources and deals as well as a community of other NYU members sharing their interests and passion for entrepreneurship.[22]

A key objective for the NYU incubators is to support the City's endeavours to diversify its efforts to nurture a fast-growing sector of technology companies by providing guidance, expertise, and resources to entrepreneurs. According to its own analysis, The School of Engineering's incubators have generated more than $352 million in economic impact and over 1,255 jobs since 2009.

20 http://entrepreneur.nyu.edu/about/
21 http://engineering.nyu.edu/business/incubators/
22 http://entrepreneur.nyu.edu/resource/blackstone-launchpad/

The incubators are co-funded by the university and a number of sponsors, which include public institutions such as NYCEDC and Empire State Development (see descriptions in chapter 4.1.2) as well as companies such as Samsung and Verizon.

To support the early-stage startups financially, NYU has its own seed-stage venture capital fund, **Innovation Venture Fund**. It is a venture fund that invests exclusively in startups that are founded by current NYU students, faculty and researchers, and/or that are commercialising technologies and intellectual property developed by current NYU community members. The fund makes approximately five to six investments per year in partnership with other venture capital firms and/or individual investors. Investment returns are invested back into the university to finance further research and future ventures.

Applicability and key takeaways:

Incubators are especially essential in supporting startups in their early stages, when they have the strongest need for mentoring, constructive criticism and professional advice. Incubators can also be used as programmes to diversify local economy or stimulate entrepreneurship in less developed regions and industries. Publicly funded incubators (or those organised as a public-private-partnership) are a credible and tangible way for the public sector to show their support and encourage the emergence and development of new startups and thus contribute to the diversification of local economy, job creation and tax generation. As the case of New York University Incubators highlights, setting up incubators is best achieved through collaboration between public and private actors.

3.2.3 Business accelerator programmes

Business accelerator programmes are startup support programmes targeted at startups with skilled and established teams, a solid business idea and a strong (international) growth expectation. Accelerator programmes provide startups with programmed events, intensive mentoring and financial support. The objective is to help startups to accelerate their growth and scale their business idea within the timeframe of the programme, which is typically 3-6 months. Accelerator programmes often have a special focus area, such as a target industry (e.g. healthcare, cleantech) or a demographic focus (e.g.

women or young entrepreneurs). By focusing on certain types of startups, accelerator programmes can offer the chosen companies the best possible support, e.g. in the form of top mentors and networking opportunities within the focus area.

Box 3. Business accelerator programmes	
Description & objectives	Business accelerator programmes are startup support programmes targeted at already established and skilled teams with a strong, preferably international growth expectation. The accelerators usually provide startup companies with programmed events, intensive mentoring and pre-seed investment in exchange for equity in the companies. The objective is to help startups rapidly grow and scale their business idea within a certain timeframe (typically 3-6 months). Many accelerator programmes have a special focus area, such as a target industry or a demographic focus (e.g. women or youth entrepreneurs).[23]
Organization	Accelerators can be organized in several ways: privately, publicly or even as public-private-partnerships. Accelerator programmes are typically rather short and intensive programmes, and thus they require strong engagement from all participants: organizers, startups, mentors and investors. The most successful startup accelerators (e.g. Techstars, Startupbootcamp, etc.) have developed into global brands and concepts that operate in many different countries around the world.
Funding sources and business model	Typically funded by (private) investors in return of equity in participating companies. Some accelerators (e.g. "impact accelerators", that are focusing on solving societal challenges) can be funded or co-funded by public actors. Also many corporations have launched their

23 See Bound & Miller (2011)

	own accelerator programmes[24] in order to speed up their R&D development or to make use of their patents and technologies.
Prerequisites for law & regulation	Accelerator programmes as such are usually not addressed through laws and regulations. However, as many accelerators also make invest in the startups, government should pay attention not to prohibit this through regulation.
Other prerequisites	Accelerators require a strong startup ecosystem with a sufficient amount of high-quality startups and VC funding available. Like incubators, also running a business accelerator is a highly human resource intensive business. Besides the organizing institution, it requires a bunch of high-potential startups, experienced mentors as well as investors with risk-taking ability.
Role of public sector & government	Government can engage in stimulating accelerator programmes e.g. by public-private partnerships, where the public organization acts as an investor, but participates also in the recruitment, evaluation and selection process and actively promotes the programme to high potential startups. However, once private accelerator market is operational, government should avoid disrupting it with publicly funded accelerators.
Success factors	The success factors of accelerators are to a large extent similar to those of incubators, but there are important differences as well. The role of investors and funding is crucial when setting up an accelerator programme. A successful accelerator needs steady financing itself in order to be able to provide funding for the companies that are chosen to the programme. The financial support element of accelerators on the other hand calls for a higher selectivity of the participants compared to incubators, since the accelerator programme is taking an investment risk by providing a fixed amount of funding to the startups that participate in the programme (typically in return for an equity share). In order to attract the best startups that have the highest potential of succeeding and growing, it is essential for the accelerator to ensure the high quality and expertise of competent mentors and

24 See e.g. https://www.googleforentrepreneurs.com

advisors as well as having access to customer and investor networks. This leads to another factor that may be crucial for the success of the accelerator: focus. Many accelerator programmes have chosen to focus e.g. on a certain industry in order to be able to bring together the most prominent startups with the most influential mentors, investors and professionals of a certain focus area. This also secure the deal flow for investors interested in funding a certain industry or special focus area.

Measurement and quality control	Some common metrics related to the success and performance measurement of accelerators are e.g. the number of applications to the programmes, number of ventures supported, the amount of follow-on investment raised or exits made by the participating startups, survival rate of participating startups, number of alumni or mentors in the accelerator network.

Case: Startupbootcamp FinTech / Singapore[25]

Startupbootcamp is a global network of industry-focused accelerator programmes, founded in 2010. Currently, there are 14 accelerator programmes running in 10 cities, including Singapore. The 3-month programme provides the participating startups with funding, mentorship and office space in the city centre as well as access to a global network of corporate partners, mentors, investors and VCs. The participating companies are also connected to the global alumni network and growth program after the programme. Startupbootcamp has funded 140 companies in 9 accelerator programmes, and it has raised over $ 46 million in total funding. It ranks as the 5th best accelerator programme in the world measured by the number of companies accelerated.[26]

Startupbootcamp Singapore is focused on FinTech, i.e. financial technology and innovation. The first The first Startupbootcamp Singapore was organised in the summer

25 http://www.startupbootcamp.org
26 http://www.seed-db.com/accelerators

of 2015 with 11 FinTech teams participating and graduating from the programme. The programme was organised again in 2016 and the application period for the 2017 programme is opening soon. Already the first programme was supported by the Monetary Authority of Singapore (MAS) and the Infocomm Development Authority (IDA). MAS offered the participating teams bi-monthly, 30-minute sessions to give guidance on the regulatory framework. IDA on the other hand introduced financial institutions to the startups and facilitated their conversation. In January 2016, the Startupbootcamp FinTech Singapore published additional partnership with Accreditation@IDA, which provides startups assistance on their technical architecture, including in-depth product testing and financial advisory[27]. The collaboration with MAS and IDA has boosted the credibility of the programme and the startups in the eyes of potential business partners and investors.[28]

The investor behind Startupbootcamp Singapore is Infocomm Investments, which is a state-funded venture capital fund wholly-owned by the IDA. Every startup chosen to participate in the programme is getting an investment of SGD25,000 in return for a 6% equity stake.[29]

Applicability and key takeaways:

Startupbootcamp FinTech Singapore is a good example of a for-profit accelerator programme that is taking advantage of efficient public-private-partnerships. Although it is run by entrepreneurs[30] and thus operated as a private company, it is funded by a government-owned investment arm, the collaboration with the public sector is adding credibility to both the programme and its participants. Instead of launching public business accelerators from scratch a more viable strategy is likely to be sponsoring and partnering with already established accelerators through sponsoring and partnership arrangements.

27 https://www.startupbootcamp.org/blog/2016/01/startupbootcamp-fintech-singapore-announces-partnerships-thomson-reuters-accreditationida/
28 https://www.techinasia.com/talk/4-lessons-startupbootcamp-fintech-singapore
29 https://www.crunchbase.com/organization/startupbootcamp-fintech-singapore#/entity
30 https://www.startupbootcamp.org/about-us/

3.2.4 Co-working spaces

Co-working spaces are shared office spaces meant for individual entrepreneurs, teams and startups. They provide companies in their early phases an affordable and flexible access to office spaces, usually including the necessary office services and facilities (e.g. coffee service and/or kitchen, internet access, postal services, etc.). Besides the physical workspace and infrastructure, co-working spaces offer startups the possibility to network, benchmark and share ideas with other entrepreneurs and thus enable autonomic peer support among entrepreneurs sharing the same office space. Quite a lot of co-working spaces also organise events for their members in order to enforce the networking effect and sense of community among the individual startups and entrepreneurs.

Box 4. Co-working spaces	
Description & objectives	Co-working spaces provide companies in their early phases an affordable and flexible access to office spaces. Besides a physical workspace, co-working spaces offer opportunities to benchmarking and networking with other entrepreneurs and experts from different fields. Co-working spaces often also organize events and offer pre-negotiated deals (on e.g. internet connection, coffee services, etc.) for their members.
Organization	Co-working spaces can be organized by private or public organizations. A co-working space can be hosted by a private company, but also many universities offer co-working spaces for their students & alumni.
Funding sources and business model	Co-working spaces are typically financed either by membership/user fees or external (public) funding sources. Privately owned co-working spaces usually charge their members for using the space, and the membership fee is typically based on the extent to which the space is used. Publicly owned

	spaces may be free of charge for a certain group of people (e.g. students) or they may charge a membership fee in the same way that private spaces do.
Resources	Obviously the most important resource for a co-working space is a well functioning space as well as basic infrastructure (heat, electricity, water, internet connection). Apart from that, co-working spaces typically require one or a few persons for managing the everyday operations.
Prerequisites for law & regulation	From the law and regulations point of view, co-working spaces do not differ from other space rental activities. Typically no additional regulation is needed. If a public institution owns the space, there may be limitations regarding the business model, taking in private companies or charging rent.
Other prerequisites	Co-working spaces need to be located in a place that is easily accessible, typically in the city center or in a place where also other startup activities are concentrated, e.g. a university campus. Internet, electricity, public transport and other infrastructures need to be in place. In order to be successful, the co-working space needs to have a critical amount of users in order to provide the networking benefits that are one of the key benefits of co-working spaces for the startups.
Role of public sector & government	Public sector involvement in co-working spaces happens usually through universities or cities, which often provide the physical space and/or other facilities and services of the co-working space. Typical examples of publicly operated co-working spaces are located in the university campus areas.
Success factors	In order to be successful, a co-working space needs to have a functional space in an attractive location, and it must be affordable to be considerable option for a variety of entrepreneurs and freelance experts. The most successful co-working spaces serve not only as facilities and office spaces, but also as communities for startups, entrepreneurs and other creative workers. This feeling of community is typically created with different types of events and membership concepts to involve the office space users as community members.
Measurement and quality control	The quality of a co-working space is best measured by the number of the clients, or in other words, the members of the co-working community. Another measure of the success would be the utilization rate of the space, i.e. minimising the amount and time of empty desks at the office space.

Case example: WeWork[31]

WeWork (https://www.wework.com) is a private company providing co-working spaces and community services in 12 countries[32] all over the world. It was launched in 2010 in New York, where it now has as many as 32 offices. WeWork is arguably one of the most successful and best-known co-working space concepts in the world. The company has managed to build a highly successful business[33], a worldwide network of offices and a community of 40,000 members all over the world. These are clear indicators of its success and results.

Basically WeWork is a real estate company for startups, entrepreneurs, freelancers and small businesses. The business model of WeWork is based on leasing floors of an office building, renovating them into smaller office spaces, and charging monthly membership fees from startups, entrepreneurs and small companies using their premises. Clients can choose a membership plan best suited for them from four alternatives, and they will pay for the use of the space accordingly. Besides depending on the size of the office space, the fees also vary significantly depending on the location of the office. For example in New York offices, the price for private offices may start from $1000/month and desks from $550/month, whereas in Berlin the prices are approximately only a half of that. Operational costs of each office depend mostly on the general costs of the office spaces in the city they are located in. Personnel costs are relatively minimal as most offices have only a few full-time employees.

Besides space, WeWork offices provide its clients (e.g. entrepreneurs, freelancers, startups, small businesses) a number of other services such as printing, coffee service, conference rooms, high speed internet, weekly events (e.g. with keynote speakers or investors) and education and training events. The emphasis on community building activities, like common events and parties, is what differentiates WeWork from many other co-working spaces. A further competitive advantage of WeWork is its digital platform to connect all members of their worldwide community. With the help of digital platform, the clients have an access to a huge number of networks, talents, investors, potential clients etc. WeWork also publishes its own magazine, which offers insights to companies' success stories as well as guidelines for starting, growing or running a company.

31 Based on wework.com unless stated otherwise.
32 WeWork has currently offices in United States (in 15 cities), Israel (3 cities), China (Shanghai), France (Paris), Australia (Sydney), Canada (Montreal), Mexico (Mexico City), South Korea (Seoul), United Kingdom (London), Hong Kong, Netherlands (Amsterdam) and Germany (Berlin).
33 By October 2015, WeWork had raised $969 million in funding at a $10 billion valuation and was ranked as the 11th most valuable startup in the world. Source: Kosoff, M. (22.10.2015) How WeWork became the most valuable startup in New York City. http://www.businessinsider.com/the-founding-story-of-wework-2015-10?r=US&IR=T&IR=T

Applicability and key takeaways:

Although WeWork is a private sector startup company that operates completely on a commercial basis, its success highlights some lessons for public sector policies as well. First, it shows that there is (at least in large cities) a strong demand for functional co-working space concepts, and that it is possible to operate them profitably. Second, WeWork's example highlights the importance of holistic service concepts that offer not only office space but also includes processes and platforms (both face-to-face as well as digital) that help startups build networks and be part of broader startup or business community.

3.2.5 Hackathons, meet-ups and other startup events

Hackathons, meetups and other startup events comprise of a number of occasions for startups to meet other ventures, entrepreneurs and other startup-minded people. The duration of these events is rather short, typically from a few hours to one weekend. Some of the events may be one-off occasions, where as others may occur on a regular basis.

The organisation of these events varies greatly. Hackathons are the most resource intensive events, since they typically require planning, organising personnel, catering and a physical space usually for 24-48 consecutive hours. On the other end of the spectrum are casual meet-ups that can be organised basically by anyone in the startup community and that can be hosted e.g. in a coffee shop with a zero budget from the organising side. More organised meet-ups, e.g. monthly meet-ups of the startup community, are somewhere in the middle of the spectrum regarding planning and resource-intensity.

Even though the types of startup events may vary greatly, they are nevertheless a key component of a vibrant and active startup community. More important than the types of events is the fact that there *is* activity: any types of events where startups and startup-minded people can gather to network, exchange ideas and learn from each other's experiences.

Box 5. Hackathons, meetups and other startup events	
Description & objectives	Hackathons, meet-ups and other startup events comprise a number of occasions for startups to meet other ventures, entrepreneurs and other startup-minded people. The duration of these events is rather short, typically from a few hours to one weekend. Some of the events may be one-off occasions, where as other may occur on a regular basis.

Organization	Hackathons, meetups and other events are typically organized by the startup ecosystem or some of its (key) organizations, such as entrepreneurship societies or startup communities. Public institutions (such as universities or cities) can support these events financially or in other means, e.g. by providing a venue for the events.
Funding sources and business model	Meetups and other events can have different types of business models. Some events are funded by the participants, who pay a participant fee to attend the meeting / event, but quite a lot of events have chosen not to collect any fee from the partiscipants. They are often organized with the help of volunteers and sponsors (e.g. from established companies, public organizations, etc.) with a very lean budget.
Resources	The most important – and in some cases the only – resource needed for hosting a startup event is a physical space. Some events also provide the participants with some food/drinks and other facilities (e.g. a place for sleeping during hackathons), but the most simple events can be organized and sustained by the startup community themselves simply by announcing the time and place for the meetup or event – such as morning coffee at a local coffee shop (e.g. Boulder Open Coffee Club).
Prerequisites for law & regulation	From the law and regulations point of view, startup events do not differ from other events. Typically no additional regulation is needed, as long as the freedom of assembly applies.
Other prerequisites	The most important prerequisite for the startup events is a vibrant (or at least emerging) startup ecosystem with enough startup-minded people interested in creating / maintaining a startup culture by participating in the ecosystem events.
Role of government	Startup events are typically organized from within the ecosystem. This is why government usually cannot force these events, but it can indirectly support the birth and development of a startup culture, e.g. by encouraging universities to support entrepreneurial activities and providing different types of support schemes for other startup activities.
Success factors	The success of a startup event is hard to predict - quite similarly the success of a startup. In both cases, timing and meeting a demand are

crucial. It is also notable that there is a wide variety of startup events that suit different purposes, and the success factors for each types of events are slightly different. However, the most successful startup events share some common factors. The most important factor is that the event is suited to the stage and demand of the startup community. For example, in a startup community that is in its inception phase, the most relevant events are likely to be those that bring like-minded people together and enable networking and idea exchange among the startup community, and eventually promote the development of the ecosystem into the next stage. These type of events might be weekly or monthly meetups. On the other hand, in startup ecosystems that have entered a more mature phase, also the nature of successful event might be different, and the focus is more in bigger events, such as annual networking events and hackathons. The successful events that fall into this category typically share attributes like a strong brand and high attractiveness to their target group. Noteworthy is also the fact that some of the most successful events (e.g. Slush) have evolved over time together with the ecosystem itself; starting as a small event targeted only for the local ecosystem and developing together with the ecosystem into a major, globally attractive startup event.

Measurement and quality control	Like the success factors, also the measurement and quality control of different events is highly versatile and depends on the type of the event. However, some determining success factors are the amount of participants as a whole, and depending on the type of the event also the amount of different types of actors, such as startups, mentors and investors.

Case example: Slush Singapore & Techventure

Slush is a startup event and a non-profit movement that was organised in 2008 for the first time in Helsinki, Finland. Slush started out as a 300-person assembly organised by a group of university students that wanted to change attitudes towards entrepreneurship in their own campus. Since then, the event has grown every year hand-in-hand with the startup ecosystem it is located in, and the target audience has grown systematically accordingly. First, Slush was a local event targeted at the local startup community in Helsinki area, after which it became the most important startup event in Finland, and finally, in the past few years, it has grown to be a global brand and an international event

known by startup enthusiasts all aroung the world. The role of public sector in initiating and organising the event has been minima although in recent years it has been sponsored by the Finnish Government.

Slush has been described as being a combination of a festival and a conference, which brings together a community of people including individual entrepreneurs, startups, innovators, investors as well as established companies. It provides a unique platform for networking, partnering and showcasing products and exchanging ideas. During the past few years, the event has grown to be one of the biggest startup events in the world, and currently the Slush movement is going global. In 2016, a Slush event is organised in Helsinki, Tokyo, Shanghai and Singapore. Slush Singapore takes place for the first time on September 20, 2016.[34]

Slush Singapore is organised in partnership with Techventure, which is a major annual innovation and enterprise event organised by the National Research Foundation Singapore for the 20th year in 2016. The purpose of Techventure is promoting Singapore-based technology startups to the global investment community and industry leaders. Together with Slush Singapore, Techventure is an anchor event under the Singapore Week of Innovation and TeCHnology (SWITCH), which is organised for the first time this year.[35]

Applicability and key takeaways:

Slush is a perfect example of an event that started out as a small event serving the local startup community and grew together with the startup ecosystem throughout the years. Despite the magnitude and status of the event today, it was founded by a group of startup enthusiasts that wanted to spread the word about entrepreneurship on a voluntary basis. In fact, still today Slush is mainly organised by volunteers, and only a few people get paid to work on the event. This example shows that building a vibrant startup ecosystem and events around it is strongly dependent on people – startup-minded people that are voluntarily willing to bring the ecosystem forward together as a community. In general, the emergence of grassroots startup culture cannot be forced from above, the impetus needs to come from within the startup community itself. However, as the Slush Singapore example highlights, public sector can support these initiatives through highlighting success stories, sponsor and partner arrangements and by providing high level political mandate and legitimacy for grassroots entrepreneurial initiatives.

34 http://singapore.slush.org
35 http://www.nrf.gov.sg/techventure/techventure-2016

4. INTERNATIONAL BENCHMARKS

This chapter presents case studies on three successful but very different startup ecosystems from different continents (New York, Singapore, Amsterdam). The cases provide an overview of each ecosystem and presents key policies, programs and instruments, which have been used to support them. In-depth descriptions (boxes) are provided on selected international benchmarks of policies, programs and instruments. The focus of the cases is on specific policies related to supporting startups and startup ecosystems (not in more general policies, which are obviously at least equally important in creating successful ecosystems as argued in chapters 2.2 and 3.1.).

The first case is New York, arguably one of the leading startup ecosystems in the world (it ranks 2nd in Global Startup Ecosystem Ranking right after Silicon Valley). Although New York as a highly developed ecosystem may seem as an "unfair" benchmark for Vietnam, it provides a good example of the kind of instruments and actors that exist in a thriving startup ecosystem. In addition, as the case highlights, also public sector policies have had an important role in supporting the ecosystem. Singapore's startup ecosystem, the second case, is also ranked highly. In fact, it is the highest-ranking Asian startup ecosystem in Global Startup Ecosystem Ranking (10th). From the policy perspective, it is also highly interesting as it is more recently developed than New York and the role of public sector has been very active. Amsterdam is selected as a European benchmark due to its recent development (breaking into the Top 20 in Global Startup Ecosystem Ranking) and its recently adopted policies and

initiatives for supporting startups. Indeed, Netherlands is the highest-ranking country in the Startup Nation Scoreboard[36].

4.1 New York

Overview of the ecosystem

New York has been ranked as one of the leading startup ecosystems in the world according to several different studies and rankings (e.g. 2nd in the Global Startup Ecosystem Ranking 2015[37], 1st in Citie ranking (City Initiatives for Technology, Innovation and Entrepreneurship)) [38].

Within the past decade, New York has increasingly gained reputation of being a "tech city". It has been estimated that the NYC tech ecosystem consists of up to 291 000 tech jobs, and it generates up to 541 000 jobs in total, which accounts for 12,6% of the total workplaces in the city.[39] The number of technology-focused or otherwise tech-related startups has also risen rapidly, and these companies make up a significant percentage of the startups in the ecosystem in total. It is also remarkable, that tech-related venture capital funding in New York was rising also during a time when every other leading technology region in the US was facing a drop in VC funding (between years 2007-2011).[40] Although Silicon Valley is still the leading tech hub in the US, New York is gaining importance in the tech sector, which also has a significant impact on the city's startup ecosystem as a whole.

36 Osimo, D. et al (2016). The 2016 Startup Nation Scoreboard. How European Union Countries are Improving Policy Frameworks and Developing Powerful Ecosystems for Entrepreneurs. European Digital Forum.
37 Herrmann etl al. (2015)
38 http://citie.org/2015-results/
39 HR&A Advisors (n.a.). The New York City Tech Ecosystem. Generating Economic Opportunities for All New Yorkers.
40 https://nycfuture.org/pdf/New_Tech_City.pdf

Correlating to the excellent rankings of the city, New York has a lot of strengths and only little weaknesses when it comes to the city's ability and readiness to host and further develop a vibrant startup ecosystem. Being one of the financial centres of the world, it is not surprising that one of New York's most obvious strengths is the access to capital. The city also has a solid infrastructure for doing business, and an excellent market reach considering the local ecosystem's GDP and the ease of reaching customers in international markets. Other strengths of the NYC ecosystem include a high level of startup experience of the city, meaning that there are a lot of veteran startup mentors and founders with previous startup experience, and the performance on the funding and exit validations of the startups. Also, when it comes to the quality, cost and availability of technical talent, New York ranks as one of the top 10 cities in the world. The only shortcoming of the city mentioned in the CITIE report was the regulatory climate, which is not always supportive of new and innovative business models, such as Airbnb or Uber.

Digital.NYC, the official online hub of the New York City startup and technology ecosystem, has almost 8000 NYC-based startups listed on their website. In New York, there are over 100 accelerators and incubators, out of which many have specialised in a certain focus area (e.g. a certain industry, women entrepreneurs, etc.), and startup companies and entrepreneurs have over 120 workspaces and co-working spaces to choose from. Also the funding options are wide since there are over 200 venture funds, angel investors and other types of funding opportunities in the city.[41] Some examples of the different actors are listed in Annex 1.

41 http://www.digital.nyc/

Key policies and instruments for supporting startup ecosystem

Although the dynamicity of the New York startup ecosystem is based on the actions of private sector actors and the startup community (startups, business angels, investors, accelerators, meetups, etc.), policies and public sector actions have also played a major role in supporting the ecosystem. Besides indirect ecosystem support policies related to infrastructure, education, universities and overall attractivity of the city, there have also been several policy actions – both on state and city level – which have directly been aimed at supporting startups and the startup ecosoystem.

On the city level, a key document has been the NYC Digital Roadmap, which "outlines a path to build on New York City's successes and establish it as the world's top-ranked Digital City, based on indices of internet access, open government, citizen engagement and digital industry growth". The roadmap includes actions for attracting engineering talent, simplifying city's vendor procurement processes for startups, improving broadband connectivity and launching an Application Programming Interface (API) to provide startups an access to the city's data.[42] Besides introducing the concrete actions, the roadmap has been important in highlighting the key strategic priority of digital technologies and startups and thus giving a high-level political support and mandate for developing the ecosystem.

NYCEDC[43]

A strategy always needs an effective implementation mechanism. In New York this task has been given to the New York City Economic Development Corporation (NYCEDC), which is responsible for implementing the city's initiatives for supporting startups (and businesses in general).

42 The City of New York (2011); Cometto & Piol (2013).
43 The New York City (2011); www.nycedc.com; Cometto & Piol (2013)

NYCEDC, established in 2012 in its current form, is a city-owned non-profit corporation, which reports directly to the Mayor's Office. Within NYCEDC, The Center for Economic Transformation (CET) is responsible for implementing policies, programs and initiatives addressing the transformation of the city's industries. CET also acts as a bridge between the private sector and startup community and the city government.

This includes for example the management of the city's shared workspaces and incubators[44] (e.g. Varick Street Incubator[45]). NYCEDC has also provided support for privately operated initiatives such as General Assembly (see 4.1.1). NYCEDC also hosts several networking events and programs such as Global Business Exchange programs[46] with other countries and cities to attract new startups and build connections, and business competitions (e.g. Big Apps[47]). NYCEDC has also launched an early stage investment fund to support early stage tech startups. The fund was created with $3 million in NYCEDC funds, and matched by up to $4.5 million of private sector funds provided by Firstmark Capital, a private investment fund.[48]

Applicability and key takeaways:

The case highlights the importance of startup policies as a holistic and crosscutting topic, which needs coordination and collaboration between city officials but also with the private sector actors and other stakeholders. In addition, the central role of NYCEDC as part of the city organization highlights the importance of startups policies and improves their legitimacy and mandate.

Also the New York State has introduced several policies and intiatives to support the development of startup ecosystems within the whole state. Again, supporting startup ecosystems is a result of several policies, all of which are impossible to be covered here. Thus we focus here on policies and instruments which directly aim to support startups and startup ecosystems.

44 http://www.nycedc.com/service/incubators-workspace-resources
45 http://www.nycedc.com/program/varick-street-incubator
46 http://www.nycedc.com/blog-entry/nycedc-launches-global-business-exchange-milan-0
47 http://bigapps.nyc/
48 http://www.nycedc.com/opportunities/opportunities-entrepreneurs

The main body responsible for these policies in the NY State is the Empire State Development (ESD, see box bleow).

Empire State Development Startup Support Programs[49]

Empire State Development is the chief economic development agency of New York State. Its mission is to promote the economy and encourage business investment and job creation, and support local economies across New York State. ESD has dozens of different grants, loans and tax credit, as well as other business assistance programs[50] for both large and small businesses in different industries. Some of them are specifically directed to startups and startup ecosystems and include (for example):

- **Capital Access Program (CAP).** A $9 million program that provides matching funds for financial institutions to increase lending for small businesses.[51]
- **Startup NY**. Offers new and expanding businesses the opportunity to operate tax-free for 10 years on or near eligible university or college campuses in New York State.[52]
- **The Innovate NY fund**. A seed stage business equity fund with up to $47 million to support innovation, job creation, and high growth entrepreneurship throughout the state.[53]
- **The New York State Innovation Venture Capital Fund** (NYSIVC Fund). A seed and early-stage venture capital fund with $100 million to support and attract new high-growth businesses. The Fund also invests through a fund-of-funds structure in the commercialization of new technologies emerging from universities and research labs. [54]
- **Business Mentor NY**. A free of charge, large scale, hands-on small business mentoring program, which aims at supporting entrepreneurs and established small businesses.[55]
- **The New York State Business Incubator and Innovation Hot Spot Program.** Provides financial support for ten designated innovation hot spots and ten business incubators (operated by universities, colleges or not-for-profit

49 http://esd.ny.gov; http://www.ny.gov/agencies/empire-state-development
50 http://esd.ny.gov/BusinessPrograms.html; http://esd.ny.gov/SmallBusiness.html
51 http://esd.ny.gov/BusinessPrograms/CapitalAccess.html
52 http://startup.ny.gov
53 http://esd.ny.gov/InnovateNY.html
54 http://esd.ny.gov/BusinessPrograms/NYSInnovationVentureCapitalFund.html
55 https://businessmentor.ny.gov/learn-more/about

organizations). Support at individual centers may vary but generally include: physical space, shared administrative staff, access to capital, coaching, mentoring, networking connections, prototype development and access to other technical services.

Applicability and key takeaways:

Similarily to NYCEDC, also ESD highlights the importance of a holistic approach to startup and startup ecosystem support. Many of its actions are focused on regions and sectors, which lack private capital and other resources, with the aim of making the ecosystem more diverse.

Takeaways for Vietnam

- Public actors can have an important role in facilitating the ecosystem, creating a common vision and building bridges between different actors. Yet, they should allow the ecosystem to manage itself and not over-engineer it.
- Supporting ecosystems requires a holistic approach consisting of different tools and policies, accommodated for the local conditions
- A natural role for public actors to act is where there is no feasible markets or incentives for private actors to operate. Identifying these structural gaps is a good starting point for policy initiatives.
- All successful ecosystems should include a global aspect and strive to build connections with other ecosystems and actors across the world.

4.2 Singapore

Overview of the ecosystem

Singapore is one of the world's financial centres and nowadays also one of the most important startup launchpads of Southeast Asia. Having a business-friendly environment, great geographical location and a fair number of affluent consumers and multinational corporations, Singapore makes a great place for startups to launch their business. Currently there are already thousands of active startups based in the city-state and the startup ecosystem continues to develop and scale up. A good indication of the ongoing development is Singapore's latest ranking as #10 in the Global Startup Ecosystem Ranking 2015, compared to the #17 ranking of 2012. This placement also makes Singapore the first ecosystem in the Asia-Pacific to be ranked in the top 10 ecosystems of the world.[56]

Singapore's main strengths are it's business-friendly athmosphere, political climate and infrastructure, thriving local economy, easy access to international markets and foreign investment, as well as a high-quality educational system feeding the ecosystem with talented individuals. However, there are also some weaknesses considering the attractivity of Singapore to entrepreneurs, such as the high cost of living and a small local market.[57] One of the more surprising shortcomings of the ecosystem however is the Singaporean culture, where entrepreneurs do not enjoy a high social status. Because of this, there is a social pressure for young talent to seek jobs in large multinationals instead of promising startups[58], which makes attracting the best local talent to work within the startup ecosystem difficult – and forces the Singaporean startups to rely widely on foreign workforce.[59]

Singapore's startup ecosystem includes all the key actors that are necessary for a thriving and developing startup ecosystem; there are a variety of startups, incubators, accelerators and funding options. The ecosystem has also

56 The Global Startup Ecosystem Ranking 2015
57 https://www.techinasia.com/singapore-startup-ecosystem-growth-infographic
58 Mason & Brown (2014)
59 The Global Startup Ecosystem Ranking 2015

experienced a rapid growth in the recent years; the number of startups almost doubled between 2005 and 2013, growing from 24 000 to 42 000 startup, respectively.[60] According to the Global Startup Ecosystem Ranking, the Singaporean startup ecosystem is still growing moderately (with the rate of 1.9). There are at least 20-30 accelerators / incubators in Singapore[61] [62], and the amount of funding available for tech startups has increased significantly in the recent years; there has been a fivefold rise in investments from 2012 to 2015. [63] In addition, there are also a large number of differnet associations, events, hackathons and competitions, co-working spaces and venture capital funds available.[64]

Key policies and instruments for supporting startup ecosystem

Singapore government has been very active in supporting the local startup-ecosystem. The first initiatives were launched already in the 1990s in the form of financing programmes and incentives directed at startups. In the mid-2000s the policies were intensified, contributing to the emergence of startup events, incubators and accelerators in recent years. Between 2011 and 2015, the government allocated over $11 billion to strengthen Singapore's research, innovation and enterprise ecosystem. By the end of 2015 there were more than 10 different funding schemes (loans, grants, equity financing etc) for startups as well as various programmes aiming at helping entrepreneurs to get access to office space and mentors.[65] It is argued that the financing schemes introduced in Singapore have helped to attract entrepreneurs from the entire region to the Singaporean ecosystem.[66] An important characteristic in the implementation of grant schemes is that they are not necessarily

60 http://www.infocomminvestments.com/docs/SG%20Startup%20Ecosystem%202015%20(IIPL).pdf
61 https://e27.co/24-singaporean-accelerators-incubators-know-20150128/
62 http://www.innovationitaly.it/en/desk-uk/singapore/194-accelerators-and-incubators-in-singapore
63 https://www.techinasia.com/singapore-startup-ecosystem-growth-infographic
64 Bonzom, A. (n.a) Singapore Startup Ecosystem and Entrepreneur Toolbox.
http://www.slideshare.net/arnaudbonzom/singapore-startup-ecosystem-and-entrepreneur-toolbox-51515671
65 IIPL (2015), p. 13.
66 Herrmann et al. 2015.

allocated directly to companies, but to other actors such as incubators and schools in order to help them build the ecosystem (see box below).

Although funding schemes can be seen as the most important policy instrument in Singapore, it should be noted that also in Singapore specific attention has been paid to other types of support initiatives as well. For example the Singapore Entrepreneur Pass Scheme (EntrePass) was launched already in 2004 to attract foreign entrepreneurs to Singapore.[67] Another example of non-financial support is Accreditation@IDA initiative, which aims to accredit promising Singapore-based early-stage technology companies to "establish credentials and position them as qualified contenders to government and large enterprise buyers", and "build an innovative technopreneur ecosystem to drive economic growth, inspire the younger generation, and build more innovative products and technology companies that can scale overseas".[68]

Government-led ACE (Action Community for Entrepreneurship) is a an initiative which aims to strengthen the entrepreneurial culture and community in Singapore. It aims to engage and provide promising entrepreneurs with resources and networks, and act as the voice for entrepreneurs and lobby for relevant policy changes. It also works to support the entrepreneurial efforts in schools and among youths.[69] ACE was launched already in 2003 in collaboration with entrepreneurs, but it was privatized in 2014 in order to make it more "startup-like".[70]

Singapore has established strong institutions to implement its innovation and startup policies. The National Research Foundation (NRF) sets the national

67 See e.g. https://www.guidemesingapore.com/relocation/work-pass/singapore-entrepreneur-pass-guide. Funding schemes described also in paper: International Best Practices in Business Support Services.
68 https://www.ida.gov.sg/startups/programmes/Accreditation
69 http://ace.org.sg/web/
70 https://www.techinasia.com/ace-singapore-governmentled-entrepreneurship-entity-startuplike

policies, plans and strategies for research, innovation and enterprise as well as funds strategic initiatives and builds up R&D capabilities, especially through the National Framework for Innovation and Enterprise (NFIE) programme. NFIE includes a number of schemes which are specifically designed for startups and startup ecosystem. These include for example an early stage venture fund through which NRF invests with VCs (1:1 basis) in Singapore-based tech companies. Another instrument is technology incubation scheme, which funds startups incubated by seeded tech incubators.[71]

Another imporatant organization is SPRING, an agency under the Ministry of Trade and Industry. It is responsible for "helping Singapore enterprises grow and building trust in Singapore products and services". SPRING provides various different grants and tax schemes for companies. Although SPRING serves broadly all enterprises in Singapore, many of its grants and programmes (e.g. SPRING Seeds, Business Angel Scheme and ACE Startu-Ups Scheme) are designed for startups and other actors in startup-ecosystem[72]. Through collaboration with other government agencies and industry partners, SPRING also operates an information portal for SMEs. The portal provides centralised information on business regulation, government assistance schemes and industry specific information[73].

Third important organization is the Infocomm Development Authority of Singapore (IDA), an autonomous agency under the Ministry of Communications and Information (MCI). It aims to "develop information technology and telecommunications within Singapore with a view to serve citizens of all ages and companies of all sizes". It (among its other tasks)

71 NRF is described also in paper: International Best Practices in Business Support Services. More information at: http://www.nrf.gov.sg/innovation-enterprise/national-framework-for-research-innovation-and-enterprise/technology-incubation-scheme

72 SPRING and its funding schemes are presented in paper: International Best Practices in Business Support Services. More information on also at http://www.spring.gov.sg/Nurturing-Startups/Pages/nurturing-startups-overview.aspx

73 https://www.smeportal.sg/

supports the growth of innovative technology companies and startups and aims to developd "a vibrant infocomm ecosystem where MNCs and innovative foreign companies work alongside local infocomm enterprises and start-ups to innovate and grow the infocomm industry". IDA also seeks facilitate local infocomm startups' access into the global markets. An important instrument for supporting the (tech) startup-ecosystem is arguably Infocomm Investments Pte Ltd (IIPL), a subsidiary of IDA (see box below).

Infocomm Investments: Ecosystem building and partnerships with accelerators[74]

Infocomm Investments Pte Ltd (IIPL) is a wholly owned subsidiary of the Infocomm Development Authority (IDA). Its main goal is to develop a sustainable startup-ecosystem in Singapore. It manages more than US$200 million of investments through which it aims to accelerate the development of startups in different stages. IIPL was first established already in 1996 under the name of NCB Holding Pte Ltd. but changed its name in 2000.

IIPL's main goal is to support, through its equity investments, IDA's efforts to develop globally competitive infocomm industry in Singapore through the use of its equity invesments.

However, IIPL should not be seen merely as an extra financing source for startups, but rather "an ecosystem builder" which seeks to strengthen the foundations and self-sustainability of the startup-scene in Singapore. In order to achieve these goals, IIPL has set up public-private partnerships with local and global accelerator programmes. The first partnership was launched in 2014 with Joyful Frog Digital Incubator (JFDI), one of the leading accelerators in the whole Asia region. After that partnerships have been signed with Startupbootcamp FinTech, corporate accelerator Plug and Play and FinLab.

Another example of IIPL's ecosystem-building activities is BASH, "an innovation-focused collaborative environment for startups" opened in early 2015. Basically BASH (Build Amazing Start-ups Here) is a 25,000 square feet co-working space / prototyping lab / meeting hub. Through BASH, IIPL seeks to bring together local and global startup-ecosystem actors including entrepreneurs, teams, accelerators and investors.

74 Sources: https://www.ida.gov.sg/; IIPL 2015; http://www.infocomminvestments.com/

IIPL has also been involved in exporting the Block 71 (co-working space / startup hub managed by NUS Singapore) to San Francisco in order to support the access of Singapore-based tech startups into the US market, as well as help US investors get a better view into Singapore startup-ecosystem.

Key takeaways for Vietnam:

IIPL is a good example of the importance of combining financing with other means of support and ecosystem building. It also highlights the importance of building networks and collaboration and supporting the foundations of the whole ecosystem. Forging partnerships with local and global accelerators appears as a good strategy. IIPL's position as an independent but publicly-owned private investor company is likely to help it operate in the startup-scene and collaborate with startups and accelerators.

Takeaways for Vietnam

As Vietnam is geographically much larger and more heterogeneous country, the task of building a national startup ecosystem is likely to be more challenging than in Singapore. However, there are still some good lessons to take from its example.

- First, as well as the cases on New York and Amsterdam, also Singapore's experience higlights the importance of holistic policies and approaches. Building ecosystems requires a diverse set of different tools.
- In Singapore, the emphasis of public policies is on financial instruments and funding schemes. However, a deeper analysis of these instruments reveals that many schemes are implemented in close collaboration with other ecosystem players such as private accelerators and incubators. Thus, rather than merely pouring money to startups, specific attention has been paid to building the roots of

the ecosystem by brining together different actors and setting up partnerships.

- Another lesson is the importance of specialisation and linking the ecosystem with other global hubs (e.g. by facilitating collaboration between local startups and multinational corporations). This is likely to be even more important for Vietnam as it has not the "first mover" advantage and needs to find its own "niche" in order to be able to compete against other ecosystems.

4.3 Amsterdam

Overview of the ecosystem

Amsterdam has a vibrant and steadily growing startup ecosystem, which is already one of the biggest ecosystems in Europe. The value of Amsterdam's startup ecosystem has been estimated to be between 8-10 billion US dollars and the city has been ranked as 19th in a global startup ecosystem ranking.[75]

75 Startup Compass, Global Ecosystem Ranking 2015 http://www.businesslocationcenter.de/imperia/md/blc/service/download/content/the_global_startup_ecosystem_report_2015.pdf

Amsterdam's core strengths are its central geographical location, international atmosphere, high-class educational system that produces knowledgeable workforce and the adequacy to act as a test-bed for new products and services. On the other hand, the biggest challenges are the lack of venture capital, fragmentation of the startup ecosystem as well as the fact that growth-aspiring startups often move from Amsterdam to Berlin, London or Dublin. So far, there is also only a limited number of serial entrepreneurs in the Netherlands, which means that there is also fairly little cumulative knowledge regarding entrepreneurship in the ecosystem.

What is especially notable in the case of the Netherlands, is that the country's startup ecosystem is not restricted only to the country's capital city, Amsterdam, but the national ecosystem consists of 13 Dutch cities/areas altogether. These hubs are linked together, with each area concentrating on a special focus area (e.g. healthcare, food & agriculture, cyber security, etc.). Besides the 13 startup hubs, the Netherlands also has a fair amount of startup companies and other related stakeholders, such as accelerator programmes, investors and co-working spaces.

The Dutch startup ecosystem consists of over 3000 startup companies, 300 investors, 40-50 accelerators/incubators and 10 public sector organisations (including universities). In addition to the daily involvement of public organisations in the startup ecosystem, the Dutch public sector has also intiated two major startup programs, StartupDelta (national program) and StartupAmsterdam (local initiative). These two startup initiatives will be introduced in more detail later shortly.

Key policies and instruments for supporting startup ecosystem

The ground for the current startup policy in the Netherlands was laid in 2010 with the introduction of a new policy approach: the demand-led innovation policy and the top sector approach. The top sector policy started with the aim to increase collaboration between large industries, research institutions and the government. However, it was soon discovered that the overall ecosystem was still missing something: startups and funding actors, such as venture capitalists. The Dutch government started pushing for ambitious entrepreneurship and has developed an agenda for start-ups and growing businesses. The government wants to remove barriers, related to e.g. access to capital, taxation, legislation and regulations, and give ambitious entrepreneurs all possible scope for development. Entrepreneurs and startups are nowadays seen as the driving force behind the Dutch economy.

A few years back, the ambitious entrepreneurship policy was turned into an action plan (Ambitious Entrepreneurship Action Plan), through which the government has introduced several measures to support startups and entrepreneurs in achieving their ambitions for growth. The government has set aside a budget of €75 million in order to promote better access to capital, knowledge, innovation and the global market. The actual measures include the following:

- Providing early-stage finance so that entrepreneurs can research whether an idea or product is technically feasible and suitable for the market
- Strengthening the international position of startups and growing businesses and attract foreign startups to the Netherlands through the StartupDelta initiative
- Providing temporary residence permits ("Startup Visa") for non-EU entrepreneurs, creating opportunities for them to start a business in the Netherlands

- Developing the NLevator initiative – a platform created for and by ambitious entrepreneurs which aims to help businesses grow faster
- Funding Eurostars projects – innovative technology development projects involving business and knowledge partners from at least two different European countries
- Providing funding under Horizon 2020 – the European Commission programme to stimulate European research and innovation.

In addition to the initiatives specially targeted at startups, the Dutch government has taken an active role in supporting innovation of all businesses and offers a number of business support measures that the startups can take advantage of as well. These include e.g. governmental credit guarantees, proof-of-concept financing, innovation credit as well as tax incentives for R&D activities.

Startup Delta

Startup Delta is a national startup ecosystem programme initiated and organised by the Dutch government. The original timeframe for the programme was 1,5 years (January 2015 – June 2016), but the government decided to organise a follow-up programme after the first program period as per the requests of various stakeholders of the first Startup Delta programme. The primary goal of the Startup Delta initiative is to raise the Netherlands into the top 3 most attractive startup ecosystems among European cities in the Global Startup Ecosystem ranking (current ranking being 19th internationally and 4th in Europe). The programme aims to reach this goal by developing the existing ecosystem further and by linking all 13 Dutch startup hubs into one great startup ecosystem, instead of consentrating in only a few major cities.

The budget of the Startup Delta programme for the first 1,5 years period was fairly small, only €450 000, and it was meant to cover mainly travelling and meeting expenses. The salaries of the 12-15 persons working for the programme were paid by the permanent employers (i.e. ministries and other governmental organisations) of these employees. The working spaces for the initiative were provided by the city of Amsterdam.

The participating organisations of the Startup Delta programme represent various stakeholders of the society, including national and local government, Dutch cities, private companies, educational institutions and financial organisations. The programme also had a former EU commissioner Neelie Kroes as its special envoy. Having a high-profile person representing the programme has been identified as key factors for the success of the programme, considering the limited time period and the concrete targets set for the programme period. Especially the personal network of Kroes has been important when contacting the leadership of important partner organisations.

Startup Delta programme's strategy is based on three key objectives: 1) combining the 13 individual hubs into one connected startup ecosystem 2) developing the current system into one that supports startups and other businesses in the best way possible and 3) creating impact and making the Dutch startup ecosystem self-sufficient. The concrete measures have been divided into three categories: capital, talent and network. A key element in all of these three measures is the Startupdelta.org web portal, which is supposed to act as a one-stop-shop for the information about startup ecosystem and business support services in the Netherlands.

Startup Amsterdam[76]

Startup Amsterdam is an action programme organised as a public-private-partnership, where the most active partners are the startup community and the city of Amsterdam. The programme aims at utilising, strengthening and articulating the benefits and strengths of the Amsterdam startup ecosystem in order to elevate Amsterdam into one of the three most important startup hubs in Europe right after London and Berlin. Special focus is set on supporting the growth of startups and accelerators, attracting talented individuals and knowledgeable workforce into the Amsterdam startup ecosystem, promoting internationalisation, improving the quality of startup events, developing the role of Amsterdam as a bridge to the European markets and creating hub-to-hub connections with other important international startup ecosystems.

Like Startup Delta, also Startup Amsterdam programme was initiated by the public sector (in this case the city of Amsterdam) and it is operated as a public-private-partnership. The close collaboration of the public and private sector can be seen in the actual organisation of the programme: the core team, which is responsible for the operations of the programme, includes two programme managers, one of which represents the private sector and the other public sector. The public sector programme manager is responsible for the managerial side of the programme (e.g. process management, promotion of public sector interests, collaboration with and reporting to the public sector stakeholders), where as the private sector programme manager is responsible for the operational side of the programme (e.g. project management, content of the programme actions). In addition to the programme managers, the core team includes two project managers as well as validation and financial experts. The core team acts very independently, but reports to the programme's focus group every other month and to the administration of the city of Amsterdam two times a year. Also the focus group includes both public and private sector actors, such as representatives from accelerator programmes, academic institutions, multinational corporations, venture capitalists, startup companies and city authorities.

Startup Amsterdam works in close collaboration with Startup Delta, and both programmes have their own, clearly defined roles. Startup Delta concentrates on promoting collaboration between the different startup hubs of the country and tries to change the public climate and attitudes towards startups for the positive. Startup Amsterdam on the other hand emphasises more tangible actions, such as organising different types of

76 Source and more information: Startup Amsterdam: Vision and Action Programme. https://www.iamsterdam.com/en/business/startupamsterdam

startup events, connecting startups with investors and attracting talented individuals to come and work for startups in Amsterdam.

Takeaways for Vietnam

- Ecosystems are best facilitated at local/regional level, but broader collaboration and networking is important as well. Public actors can have a role in building bridges between these ecosystems.
- Strong leadership and high-level commitment is important to give a clear mandate and directions for building ecosystems on local/regional level

5. CONCLUSIONS AND RECOMMENDATIONS FOR VIETNAM

The purpose of this paper is to support the Ministry of Planning and Investment (MPI), the Government of Da Nang and the Government of Ho Chi Minh City to design policies to support entrepreneurship and startup ecosystems. Building on previous literature and international examples and practices, the authors have formulated the following general conclusions and recommendations.

5.1 Conclusions

Focus on comparative advantages

Successful startup ecosystems are a result of complex and often non-linear long-term developments and path-dependencies. For example the roots of Silicon Valley tech startup ecosystem date back to at least the 1950s. Therefore, as highlihghted by Isenberg (2011), such ecosystems cannot be copied or created artificially from scratch. Instead, they should be built on the foundations of existing local conditions. This calls for 'smart' specialisation and focusing on identified comparative advantages of a country or a region.

Different stages needs different policy approaches

Each ecosystem is different and has different needs for support. These needs depend on both local conditions as well as on the current stage of the

ecosystem. For example the policies that have worked in Amsterdam or Singapore likely would not be useful in New York nor in Vietnam. Therefore the process of designing policies and support instruments should begin with a thorough analysis of the current stage, conditions, strengths and weaknesses of the ecosystem. Ecosystems in early-stages may need more focus on active building of collaboration and networks whereas in later stages benefit more from policies aiming to attract talents and investments to already functioning ecosystem. Thus, for example, setting up an innovation venture fund might not be a feasible policy, if there is no pipeline for launching new ventures and strengthening the "roots" (skills, networks, etc.) of the future startups.

The Government may act as an initiator or facilitator in the early stages, but after that it should step back and adopt the role of a "feeder", who serves the needs of the ecosystem. A natural role for public actors to act is where there is no feasible markets or incentives for private actors to operate (such as sectors where very long-term research and development investments are required).

Table 3. Ecosystem development phases and policy goals.

Phase	Rationale	Policy goals and tools
Emergence	Fostering the emergence of a vibrant entrepreneur community by catalyzing grassroots culture and face-to-face collaboration.	Support emerging startup culture by closely collaborating with ecosystem actors in organising events and meeting or setting up support schemes for building networks and entrepreneurial culture. Ensure that the general framework conditions for new startups (e,g. regulation, education, infrastructure) are in place.
Activation	Strengthening the emerging ecosystem and providing support to its key	Identify, map and analyse the potential ecosystems and their actors, interests and needs for policy support. Adopt appropriate measures and support the implementation of best

	actors. Catch up with peers.	international practices on incubators, accelerators, VC funds etc.
Integration	Building up the competitive advantages of the ecosystem in national and international competition	Attract new startups and talents with incentives and policies. Highlight success stories. Build linkages with leading startup ecosystems to improve the reach and scope of the ecosystem.
Maturity	Supporting the renewal of the ecosystem.	Focus and improve the competitive advantages of the ecosystem. Identify future waves and differentiate from competitors.

Supporting ecosystems requires a holistic approach

Due to their complex and dynamic nature, supporting ecosystems requires a holistic approach of different tools and policies, accommodated for the local conditions. For example, focusing too narrowly on fixing specific market failures (e.g. lack of access to financing) might not provide desired results if other policy are not addressed. Holistic approach should consist of both long-term support for creating better framework conditions for new startups to emerge (see 3.1) as well as short or medium term programmes for actively supporting the ecosystems (see Table 4 below). All of the presented international cases are good examples of such holistic policies, covering all different domains of successful entrepreneurial ecosystems.

Table 4. Synthesis of support program options and policies.

Domain	Options for support programs and schemes
Government and regulation	• Startup strategies and policy statements (e.g. NYC Digital Roadmap) • Identify and relieve regulatory barriers and gaps related to starting a business, exits and bankruptcies. (e.g. SME Portal in Singapore; Startup Delta)
R&D	• Set up government R&D grants and loan schemes (e.g. SPRING Singapore; The New York State Innovation Venture Capital Fund; The Innovate NY Fund)

	• Provide support for innovation hubs and platforms (e.g. The New York State Business Incubator and Innovation Hot Spot Program; SPRING Incubator Development Programme (IDP))
Infrastructure	• Provide support and incentives for co-working spaces, incubators and labs (e.g. BASH in Singapore; New York University Incubators)
Attractivity	• Attract foreign talent (e.g. Singapore EntrePass Scheme and Startup Visa in Netherlands) • Attract startups and companies (e.g. Startup NY) • Support grassroot initiatives for entprereneurship & business education / training & startup launch or pre-incubation programmes (e.g. The New York State Business Incubator and Innovation Hot Spot Program)
Markets and customers	• Utilize public procurement practices to support startups' access to markets and client references (e.g. Accreditation@IDA initiative) • Initiatite / participate in hackathons and challenge competions (e.g. Slush in Singapore; Startup Amsterdam) • Support and encourage the establishment of corporate accelerators and open innovation programs large corporations (e.g. Infocomm Investments)
Financing	• Collaborate with business accelerators • Introduce tax incentives for business angels (e.g. Singapore Business Angel Scheme) • Set up matching VC funds (e.g. Capital Access Program • Launch startup grant schemes (e.g. ACE Startup Grant)
Entrepreneurial skills and education	• Support pre-incubation and entrepreneurial programs in universities and higher education institutions (e.g. NYCEDC) • Support entrepreneurial culture in schools (e.g. Young Entrepreneurs Scheme for Schools (YES! Schools) in Singapore)
Culture, networks and community	• Initiate, participate and/or provide support for startup events, societies and grassroot initiatives (e.g. SLUSH Singapore & Techventure) • Set up information portals (e.g. Digital NYC; Startup Delta)
Business support	• Setting up public incubator programs (e.g. NYCEDC) • Support schemes for private incubators and accelerators (e.g. The New York State Business Incubator and Innovation Hot Spot Program) • Mentoring and advisory networks / programs (e.g. Singapore Business Angel Scheme; Business Mentor NY program in New York; Startup Amsterdam) • Information portals (e.g. Digital NYC; Startup Delta)

Public sector can help create common vision and build bridges

Although ecosystems cannot be managed or controlled from 'above', public actors can have an important role in facilitating the ecosystem, creating a common vision and building bridges between different actors. Yet, they should allow the ecosystem to manage itself and not over-engineer it. Engaging the private sector actors in this process is crucial.

This type of approach requires the collaboration of various different actors. An important first step in this process is the mapping of these actors, their interests and roles within the ecosystem, and establishment of common processes and platforms for multi-stakeholder collaboration and coordination. Facilitating the face-to-face collaboration between different actors is best implemented at local/regional level. However, all successful ecosystems should include a global aspect and strive to build connections with other ecosystems and actors across the world.

Focus on the needs of globally competitive startups

Startups as well as startup ecosystems compete against each other in attracting the most promising startups and talents. Therefore, – without undermining the importance of all kinds of entrepreneurial activities – the focus of *startup policies* should be on supporting and creating the best possible conditions for the *most potential candidates*. Yet, when supporting such programs, as Isenberg (2011, 47) points out, the government should avoid pouring excessive resources into large programmes but rather focus on the "roots" and "ensure that entrepreneurs develop toughness and resourcefulness", as well as adopt experimental "fail fast" approach. Thus, when planning startup support programs, it should be acknolwledged that the needs of startups are often much different to those of 'ordinary' companies.

Startup support programs should focus also on relational support

Although access to financial resources is important for startups, at least equally important is the access to other resources such as skills, experience, infrastructure, and especially networks. Therefore, when designing startup support programs, special attention should be paid on this type of *relational support*. This also explains the popularity of business incubators/accelerators, co-working spaces, hackathons and other startup programmes.

If the programmes are publically funded or managed, it is important that the impact is assessed and the success of the programmes is evaluated. Yet, instead of strictly steering and controlling the programmes with a set of predefined indicators the government should favour collaborative approach and public-private parterships and focus on providing more strategic level guidance, e.g. through steering board participation. Furthermore, the government should adopt an experimental approach, where programmes are first piloted (and validated) before they are launched as large-scale programmes.

5.2 Recommendations for Vietnam

The Vietnamese startup ecosystem is still very young compared to some of the world's most significant startup ecosystems (i.e. Silicon Valley, New York, London). Vietnam's startup scene has only started to rapidly emerge in the past few years.

Knowing the organic and time-consuming nature of building and growing a thriving startup ecosystem, it is understandable that Vietnam's startup ecosystem is still in it's inception phase. However, it seems that the current

development and growth is quite remarkable: the number of startups has over quadrupled from around 400 in 2012 to almost 1800 in 2015. In the same timeframe the number of venture capital funds in Vietnam has tripled and the number of funding deals has grown almost exponentially. Following the trend, the amount of other ecosystem services and activities (e.g. Startup.vn), such as startup events, business incubators, accelerators and co-working spaces, has grown significantly between 2012 and 2015 contributing to the growth of the Vietnamese startup ecosystem.

Besides private initiatives, the Vietnamese central and regional governments have also become active in launching funding initiatives targeted at startup companies (e.g. government-backed Vietnam Silicon Valley (VSV) initiative[77]). This political change of switching the focus from large state-owned entrerprises to supporting the privately owned small and medium enterprises has also contributed to the cultural change that is often a prerequisite of building an emerging and thriving startup ecosystem. Despite the remarkable development of the past few years, Vietnamese startup scene is still in its inception phase.[78]

Assessing the Vietnamese startup ecosystem as such has not been the purpose of this paper, and the description above is by no means excessive. However, it seems that Vietnam's startup ecosystem is going in the right direction, but continuous political support (in all domains presented in chapter 3.1) and further cultural change are needed to realise the full potential of the Vietnamese startup scene. It is our understanding that Vietnam has now moved up from the Emergence Phase to the Activation phase, where it should try to "catch up" with other ecosystem by adopting best international practices on supporting startups and startup ecosystem. This calls for a careful analysis of and mapping of the ecosystem actors, interests and needs for policy

77 http://www.siliconvalley.com.vn
78 Source: Phan, L. (2016). Anatomy of Vietnam's Startup Ecosystem. NATEC. Not yet available in public.

support. Meanwhile, Vietnam should keep developing its policies to strengthen the general framework conditions for startups.

Building on the international examples the authors present the following recommendations for supporting Vietnamese startup ecosystem(s).

1. Identify, map and analyse the potential ecosystems and their actors, interests and needs for policy support. Focus on building collaboration and trust between the actors. Existing rankings and indices[79] can provide a good framework and starting point for the analysis, but more in-depth analyses may be needed. The different domains described in this paper can support in this task.

2. Set up general policy objectives (e.g. roadmap) and an implementation plan (with allocation of responsibilities and resources accordingly) for supporting startup ecosystems. Ensure the engagement of private sector actors and other key stakeholders in the process.

3. Adopt a holistic approach and address all domains of startup ecosystems. Focusing on identifying and removing regulatory barriers (e.g. for incoming investments, talents, startup formation, bankcruptcy and liquidations of exits) and supporting entrepreneurial culture and mindset would appear as good bets, but certainly a more thorough analysis is needed.

4. Allow room for experimental policies and "fail fast" approaches in designing and launching programmes and policy initiatives, avoiding

79 E.g. Global Startup Ecosystem Ranking (Startup Compass); Global Entrepreneurship Index (GEI); Global Competitiveness Index (WEF); Doing Business Index (World Bank).

too rigid practices. Set up monitoring and evaluation processes to facilitate learning and future improvement of the initiatives.

APPENDIX: Indicators for measuring startup ecosystem

Table 1 presents an overview of indicators that can be used to monitor and measure the startup ecosystem in Vietnam, as well as Vietnams position in country rankings. The indicators have been compiled from the following indicies and rankings:

- World Economic Forum **Global Competitiveness** index (GCI) 2015-201680 assesses business environment in 140 countries. Vietnam ranks 56th globally in GCI 2015-16. GCI consists of 12 pillars: Institutions, Infrastructure, Macroeconomic environment, Health and primary education, Higher education and training, Goods market efficiency, Labor market efficiency, Financial market development, Technological readiness, Market size, Business sophistication and Innovation.

- World Bank Groups **Doing Business**[81] ranks economies based on 10 attributes: Starting a Business, Dealing with Construction Permits, Getting Electricity, Registering Property, Getting Credit, Protecting Minority Investors, Paying Taxes, Trading Across Borders, Enforcing Contracts and Resolving Insolvency. Vietnam ranked 90th among 189 countries in 2016. The ranking rose by 6 places from 2015 edition of Doing Business.

- **Global Entrepreneurship Index**[82] (GEI) is published by Global Entrepreneurship and Development Institute. In 2016 a total of 132 countries were assessed, and Vietnams ranking was 84th globally, and 12th among the reagion of South-East Asia. The ranking consists of 14 pillars: Risk Acceptance, Process Innovation, Internationalization, Tech Sector, High Growth, Cultural Support, Competition, Opportunity Perception, Start-up Skills, Opportunity Startup, Product Innovation, Risk Capital, Human Capital and Networking.

- Global Startup Ecosystem Ranking 2015[83] (Herrmann et al. 2015) by **Startup Compass** includes worlds top-20 startup-ecosystems. Only Singapore and Bangalore made it to the top-20 from the Asian ecosystems in 2015, but Hong Kong and Kuala Lumpur were featured in the report as well. It is noteworthy, however, that ecosystems of China were not assessed at all. Startuop Compass looks into themes like: Performance & Growth, Demographics, Funding, Talent, Market Reach, Startup Experience and Supporter & Policy Maker Insights. Startup Compass has conducted assessments of individual startup ecosystems outside of the global top-20 as well.

- **Seed Database**[84] lists information on seed accelerator programmes, investors and businesses. Seed database ranks the performance of both the accelerator programmes and businesses that have participated in the progammes and received seed investment,

80 http://reports.weforum.org/global-competitiveness-report-2015-2016/
81 http://www.doingbusiness.org/rankings
82 https://thegedi.org/global-entrepreneurship-and-development-index/
83 http://startup-ecosystem.compass.co/ser2015/
84 http://www.seed-db.com/

and lists both VC and Angel investors and accelerators globally. However, Seed-DB does not offer country rankings.

Table 5. Overview of indicators to monitor and measure startup ecosystem

Domain	Indicators	Vietnam Score	Source
Government and regulation	*Institutions*	85th	WEF Global Competitiveness
	Starting a Business	119th	Doing Business
	Registering Property	58th	Doing Business
	Paying Taxes	168th	Doing Business
	Protecting Minority Investors	122nd	Doing Business
	Resolving Insolvency	123rd	Doing Business
	Enforcing Contracts	74th	Doing Business
	Corruption	0.44 / 1	GEI
	Economic Freedom	0.50 / 1	GEI
Research, development and innovation system	*Innovation*	73rd	WEF Global Competitiveness
	Product Innovation	0.39 / 1	GEI
	Process Innovation	0.19 / 1	GEI
	Technology Absorption	0.21 / 1	GEI
Infrastructure	*Infrastructure*	76th	WEF Global Competitiveness
	Getting Electricity	108th	Doing Business
Markets and customers	*Goods market efficiency*	83rd	WEF Global Competitiveness
	Business sophistication	100	WEF Global Competitiveness
	Labor market efficiency	52nd	Doing Business
	Trading Across Borders	99th	Doing Business
	Market Reach	-	Startup Compass
Financial market	Financial market development	84th	WEF Global Competitiveness
	Getting Credit	28th	Doing Business
	Risk Capital	0.49	GEI
	Funding	-	Startup Compass
	Health & Primary education	61st	WEF Global Competitiveness
	Higher education & training	95th	WEF Global Competitiveness

Entrepreneurial skills and education	*Start-up Skills*	0.27/1	GEI
	Human Capital	0.57/1	GEI
	Talent	-	Startup Compass
Culture, networks and community	*Cultural support*	0.25/1	GEI
	Risk Acceptance	0.08/1	GEI
	Networking	0.65/1	GEI
	Demographics	-	Startup Compass
Business support	*Efficiency enhancers*	70th	WEF Global Competitiveness
	Internationalisation	0.20/1	GEI
	Startup Experience	-	Startup Compass
	Accelerator Programs	-	Seed DB

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Websites for startup programmes and initiatives are provided in footnotes