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**DEVELOPING REGIONAL BUSINESS INBUBATOR ACTIVITY**

# DEVELOPING REGIONAL BUSINESS INBUBATOR ACTIVITY

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## ABSTRACT

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### Summary:

Business Incubation is one of the key activities to foster new innovative scalable business creation. Globally there are several examples of successful business incubation implementations helping regions to achieve economic renewal.

Kielo Growth, privately owned startup-investor, business community and angel investor family has been running business incubation since 2015 in Oulu region and support the entire Northern Finland. October 2020 Kielo Growth decided to spin-off business incubation activity to Oulu Startup Incubator. Oulu Startup Incubator was founded as a non-profit entity and at the same time first development project was started.

The thesis is based on two projects, the first project was done for the Oulu Business Incubator and the second project was part of a larger Oulu University of Applied Science project. The goal of the first project was the development of a private business incubator operations. In the second project, the goal was to examine the current needs to improve business incubators co-operation in the regional innovation ecosystem. On this basis, new co-operation models and development paths were studied to meet the need for change. During the project, a significant amount of research data and other literature on different themes and incubator models and startup ecosystem evolutions are reviewed. The goal was to build a systemic understanding of what needs to be considered in the operation of a regional business incubator. During project 2, three workshops was arranged with regional stakeholders. Information about startup ecosystems in other regions in Finland and abroad was gathered. During the projects, many observations were made about the current operating environment.

Business Incubation has been studied globally from many perspectives. The goal was to build overall view of business incubation to understand what the main factors are affecting establishing sustainable regional business incubation. During research and development project the biggest challenge in private business incubator operations was the lack of public financial instruments. Functional and continuous financial instruments were not found during these development projects to make the business incubator operation sustainable. Only project-based funding instruments are available, which often leads to discontinuity of operation.

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Keywords: Business Incubator, Pre-Incubator, Accelerator, Ecosystems, Clusters

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## FOREWORD

It's great that new types of study paths have been built and made possible at Oulu University of Applied Sciences, because skills in industry need to constantly be renewed in a globally changing environment. The Education Entrepreneurship program was extremely interesting for me, and I am very grateful to be a part of it. Although my work focused on the development of business incubator operations, I have been able to reflect the experiences of my entire working career by familiarizing myself with different literature and research topics. I could claim that the business incubator environment is also an educational program where the goal is startup business development and at the same time learning new things for entrepreneurs.

I would like to thank the instructors Blair Stevenson, Johanna Pihlajamaa, Pekka Isomursu and Igor Kouzine who made training program possible and very interesting. It was the well-organized program with a lot of insights for the subjects. Thanks also to the final work director Sari Alatalo, I think I was quite challenging to direct.

The training program had participants from different backgrounds from around the world, which made it very rewarding.

Special thanks also to numerous interlocutors, colleagues, and partners from whom I received help during the two years.

Thanks also to my wife Johanna, who has patiently followed the completion of my work.

Recommending continuous learning with curiosity to everyone.

In Oulu on 26 July 2023, Heikki Ailinpieti

# 1 INTRODUCTION

After 30 years in various position in industry with innovations and new business creation, I got an opportunity do to research related on new business creation areas.

At first, I started researching different public-private-people partnership models and different helix models, such as triple, quadruple, and quintuple innovation helix models. At that time, I was involved more in pre-incubation area, where individual people and team creation aspect was very important as many cases lonesome innovators without team were looking for support.

However, at a very early stage of my research, I moved to developing business incubator activities, so I refocused my thesis work specifically on that subject area. Business Incubators can be seen as an enabler engine for the new businesses for region and thus improve also regional resilience and renewal.

This thesis is mainly based on extensive literature research work, my professional experience, as well as practical development work for business incubation activity and processes in two development projects. Experiences in working on both pre-incubation and business incubation activities brought up the idea of building umbrella view of business incubation activity. This though was also supported by being in discussions with several Business Incubation stakeholders, start-ups, investors, and large corporations. One of main question was, what to consider when building sustainable and continuously developing operation for regional business incubation.

I also noticed in discussions with several stakeholders, that terms and different activities in business incubation seems to be abstract for many. Therefore, I have collected and used many figures to clarify activities and different methods in this thesis. I have used many of these figures successfully during development project. The old saying that “A picture is worth a thousand words” is so true in modern complex world with wicked challenges.

The world is getting more complicated, and the management of entities is becoming more and more difficult. On the other hand, rapid renewal is needed, which can be facilitated

by a well-functioning startup ecosystem and related business incubator activities. At the same time, regional resilience can be developed. With good resilience, region can often prepare for unexpected events or at least the ability to return to the growth path.

In this work, I have deliberately approached business incubation activities from a broader perspective to touch the complexity of the ecosystem, however, trying to present the most important elements in terms of the development of business incubation activities without introducing any single theme in depth.

The goal has been to present different models and introduce elements and ideas for the development of regional business incubator operations keeping mind systemic approach.

Thesis is based on business incubation development project having two subsequent projects with different goals and focus. Naturally, the first project suffered from the restrictions caused by Covid-19. The familiar and planned local face-to-face events were cancelled. On the other hand, travel restrictions meant that it was possible to participate in many seminars related to the thesis topics in different countries, because they were organized mostly only on-line. The world came close, and closeness went far. During the projects, I was also able to expand my network to include researchers and practical implementers in the field, as well as national and international actors.

In the thesis, there is a history section for some activities. It is crucial to understand history and learn from it, not to stick on it. Plan for a better future and act in the moment.

Thesis reporting follows a diary-like format. At the beginning, the work describes the current situation. After this, the goals and concepts related to the topic are described. In the thesis, the development of two separate projects related to the theme has been described with diary entries. Finally, there is a reflection and final conclusions.



## **2 DESCRIPTION OF THE CURRENT STATE**

### **2.1 Introducing the employer company, work environment and different stakeholders**

Oulu Startup Incubator Oy was founded by Kielo Growth Oy in July 2020 as a spin-off. Kielo Growth Oy was founded in 2015 to support regional startups. One of the main reasons for founding the spin-off was, that there was a presumption that non-profit entity could be supported by public funding. Already at that time it was very clear that there is a clear need for public funding to run sustainable business incubator activity. During the years Kielo Growth had made substantial investment to run incubator environment as a private company. Oulu Startup Incubator started to operate business incubator activity in Kielo Growth premises. After that, focus of Kielo Growth was real estate lease and early state startup investments.

Main stakeholders at the beginning were naturally startup companies, which were supported with business incubation activity. As projects proceeded it was realized that there is substantial amount of regional and national stakeholders, who have impact on regional business incubation activity. Stakeholder analysis is presented later in section 5.2.10.

### **2.2 Describing the workplace's competence**

When I started to lead business incubation there were not specific documentation of competence requirements for business incubation manager. So that was one of the goals to clarify and to document basic requirements of business incubation manager. Expectations and requirements for a role is discussed later in section 5.2.5 and documented.

### **2.3 Describing the author's task and professional development**

The author's duties included running the local business incubation and its sustainable development. At the same time, the startup companies involved in the operation were helped to find the resources they lacked. Tasks also included the execution of two defined development projects. Significant amount of practical and theoretical knowledge about business incubation practices were acquired during these projects.

### **2.4 Topic of business incubation and its history in the region**

The choice of topic "Developing regional business incubation activity" was natural because it was closely related to operational development of business incubation. Thesis work gave me also opportunity to make a thorough review of the relevant literature on the topic. During the work it became very clear, that business incubation has many elements and stakeholders with different expectation. Regional preconditions and regional development goals should be considered in development work, so ecosystemic thinking will be involved.

It is very important to understand, what type activities there has been in the past in the region and pick learnings from them. Most of the discussions related to this were conducted during the project with persons, who were active in the past activities to find out fundamentals of past activity. The most relevant past regional activities related to business incubation are introduced in this chapter.

There have been several activities to support startups during 40 decades in Oulu region. The first technology center in Finland was established in Oulu in 1982, and in 1985 the first technology incubators started operating. The operation was initially focused on the supply of facilities near universities. It continued in Technopolis facilities until 1994, when Oulutech Oy was founded, and ownership and funding base was expanded. Oulutech Oy was a consulting company, who offered different services for startups. They provided incubation services including commercialization of technology-based ideas, business development, and assisted in finding financing. Oulutech Oy was owned by Technopolis Oyj, Oulun Yliopiston tukisäätiö (The support fund of the university of

Oulu) and Sitra (The Finnish National Fund for Research and Development). Oulutech Oy business incubation continued until 2006, when Technopolis Venture acquired activity. During year 2008 business incubation activity was sold out and gradually was closed as a national level activity. Remaining parts were integrated to cities activity. This was also the phase where national coordination for business incubation ended in Finland. This decision led to the fact that there was no longer any national program to support regional business incubation operations.

In 2009 Vigo acceleration program as a national level activity was initiated by Ministry of Economic Affairs and Employment of Finland. The Vigo program's accelerator were selected mostly in the capital region; however, their focus was to find potential startups for acceleration from entire Finland.

Activity was funded by Tekes and Finnvera. Some details of activity are shown in the Figure 1. The special feature in this concept was that the acceleration operation was supported strongly by public funds. The other side of the coin was that there was no longer a national funding model for business incubator operations. After this most business incubation attempts were and still are based on project funding, which has led often to discontinuation of operation and it has been quite impossible to maintain sustainable, impactful, and continuously developing business incubation. Since that, business incubation services are operated mainly by public organization and education institutes. Usually, acceleration operations are financed with private funds. Vigo program was kind of mixture of business incubation and traditional acceleration program. Main task was to raise money for startups, in which program succeed well. They were able to raise more than 220 million euros in 4 years for companies involved it the Vigo program.

In total, ten accelerators operated in the program, with almost 90 growth companies in their portfolios. The most famous of the target companies is Supercell, which rose from zero to a value of over two billion euros in three years.

## Vigo accelerator process: program tasks and targeting of public funding

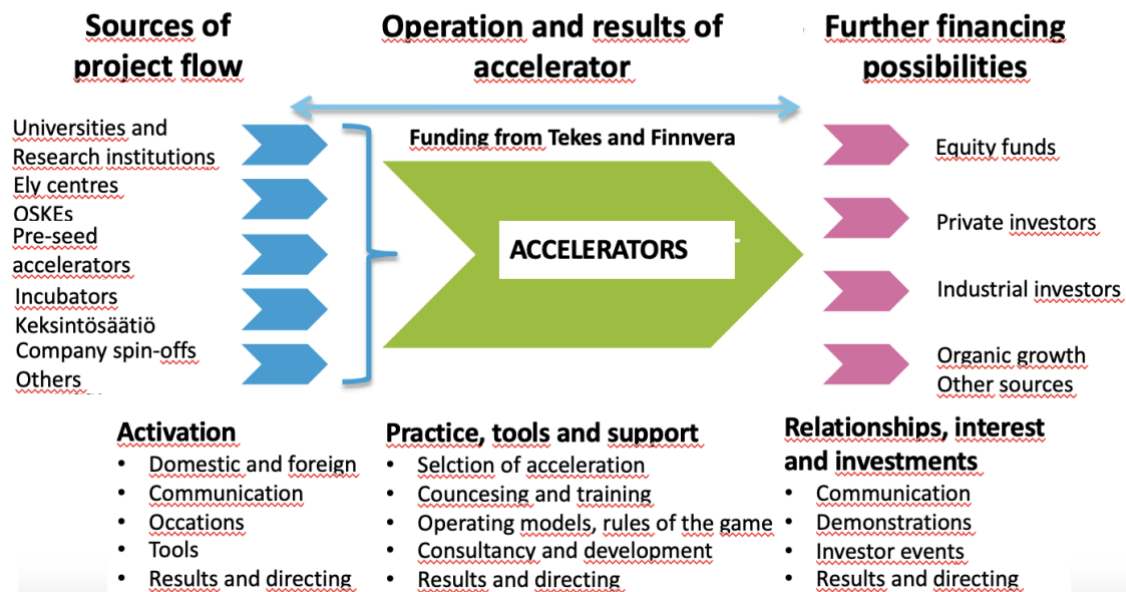


Figure 1. Vigo Acceleration Program (TEM, 2012),

Since then, there has been several other attempts to help startups in Oulu region, including for example BusinessKitchen, Protostudio, Starttaamo. All of them were project funded and activities were closed when project funding ended.

In the Oulu region, because of the structural change in the ICT sector, a pre-incubator activity called Oulun Yritystakomo was founded and started in 2010, the main target group of which were people who lost their jobs because of the structural change in technology industry. The core of the activity was team building and networking. The operation continued for 7 years, until project funding ended 2017. Operations was funded by City of Oulu and Centre for Economic Development, Transport and the Environment. Studies are available for impact of this activity. (Lauri Vierto, Progradu, Oulun Yritystakomo Oy:n aluekehityksellinen vaikuttavuus)

Several other project funding-based pre-incubation or business incubation activity have been in the region in the last 15 years, which have not continued after project funding has ended.

### **3 AIM AND GOALS OF THESIS**

#### **3.1 Specifying the research problem, the purpose of the work**

Aim of this thesis was to build systemic view for business incubation, including understanding of stakeholder views. Business incubation is often structured from too narrow point of view and sometimes it is too structured program approach, which leads to facts that it does not meet the needs of startup companies in an optimal way. Startup companies wrestle with professional challenges every day and challenges often come up unexpectedly and thus require quick advice.

Although startups often participate in the same program, their needs arise at different times, are very different and thus require solutions that are suitable for them as quickly as possible.

In the real world, however, even business incubator operations cannot help innovators or teams that themselves lack an understanding of entrepreneurship or do not have sufficiently ambitious goals.

Sustainable business incubator operations require a systematic view due to the wide range of stakeholders. The thesis will cover the matter comprehensively from the perspective of different themes and activities, without however going particularly deep into the individual themes.

Based on above following research questions are formulated:

What kind of business incubation models can support economic growth and resilience in the region?

What to consider when designing sustainable business incubation?

How is business incubation related to regional startup ecosystem?

### **3.2 Diary interval**

This thesis is based on observations of two separate development projects made over the course of two years. The first project was executed between October 2020 and September 2021. The second project was executed between October 2021 and September 2022. In the projects, different tasks were done overlapping, because they were connected to each other.

### **3.3 Diary reporting method plan**

Certain goals were defined in the projects, but as is often the case in development projects, observations and operational environment changes must be taken into account. Based on findings in project conclusions are done for both projects. Conclusions from literature review are considered, when reflection, recommendations and conclusion are done in thesis.

## 4 DEFINITIONS, THEORETICAL BACKGROUND AND LITERATURE REVIEW

### 4.1 Foreword

The purpose of this section is briefly explaining main definitions and terms related to business incubation, also theoretical background was collected related on those. During both development projects it became very clear that same terms were used depending on viewpoint for different activity. Even though there is still no consensus on some terms, goal is to familiarize reader to the main definition of terms. First step, when starting development project, is to agree with stakeholders what are the meanings of different terms.

Along the way, I have familiarized myself with previous research findings, publications, and other articles on the subject, of which there are many. Business incubators have been researched a lot around the world and the goal was to find relevant publications from regional point of view, because there is always an element of locality in business incubators.

### 4.2 A startup

Definition for term startup varies. Co-founder of Y-combinator's Paul Graham's definition

*"A startup is a company designed to grow fast. Being newly founded does not in itself make a company a startup. Nor is it necessary for a startup to work on technology or take venture funding or have some sort of "exit." The only essential thing is growth. Everything else we associate with startups follows from growth".*  
(Graham, 2012)

Balbridge and Curry defines startup in their article in Forbes following way.

*"Startups are businesses that want to disrupt industries and change the world—and do it all at scale. Startup founders dream of giving society something it needs but has not created yet. The idea is to generate eye-popping valuations that lead*

*to an initial public offering (IPO) and an astronomical return on investment”.*  
(Balbridge & Curry, 2022)

Eric Ries writer of *The Lean Startup* defines startup and entrepreneurship in one sentence:

*“The concept of entrepreneurship includes anyone who works within my definition of a startup: a human institution designed to create new products and services under conditions of extreme uncertainty. I believe ‘entrepreneur’ should be considered a job title within all modern companies.”* (Ries, 2011)

The common factor in all definitions of startups are growth, fast execution, and uncertain business environment.

According to Stanford professor and Silicon Valley Entrepreneur Steve Blank and Bob Dorf, a startup is a

*“temporary organization designed to search for a repeatable and scalable business model”.* (Blank & Dorf, 2012)

Most of other established small businesses run with the fixed business models.

Steve Blank divide startups into the following six types:

*“Lifestyle Startups “Work to Live their Passion”;*  
*Small Business Startups, “Work to Feed the Family”;*  
*Scalable Startups “Born to Be Big”,*  
*Buyable Startups “Born to Flip”,*  
*Large Company Startups “Innovate or Evaporate”*  
*Social Startups “Driven to Make a Difference””*

(Blank, 2011)

The above definitions of startup therefore differ slightly. Typically, startups in business incubation have a scalable international business as their goal.

Figure 2 below illustrates scalable startup and agile development and transition to company and thus structured functions. Agile development is one key activity in



successful startup company. It is common to have several development rounds when designing product or service.

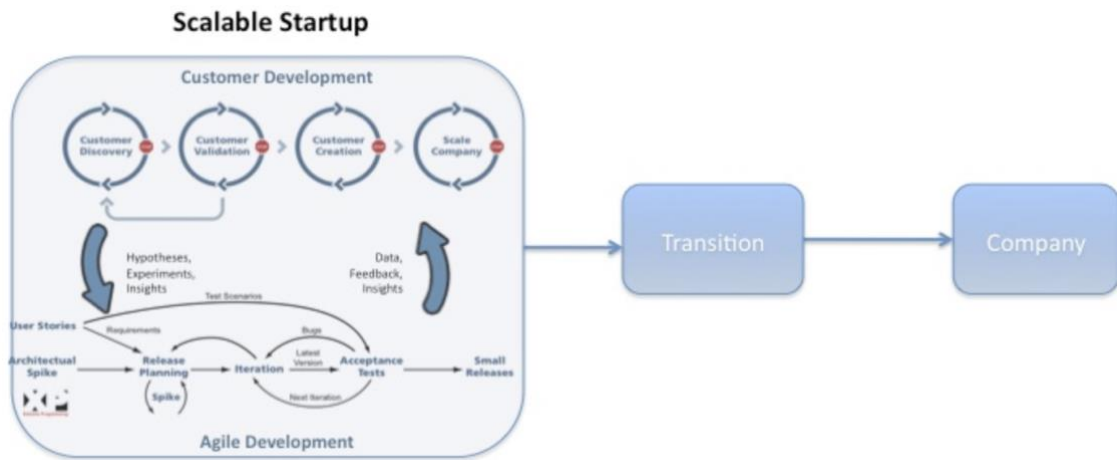


Figure 2. Agile development of scalable startup (Blank 2010)

Startups typically operate without processes in an uncertain world; therefore, it is good to also understand the challenges they can face in cooperation with different types of companies. Structured functions exist in corporation world, which often leads to tension between different startup activities, which should be taken into account when building co-operation with different levels of stakeholders like startup and corporation as seen in Figure 3.

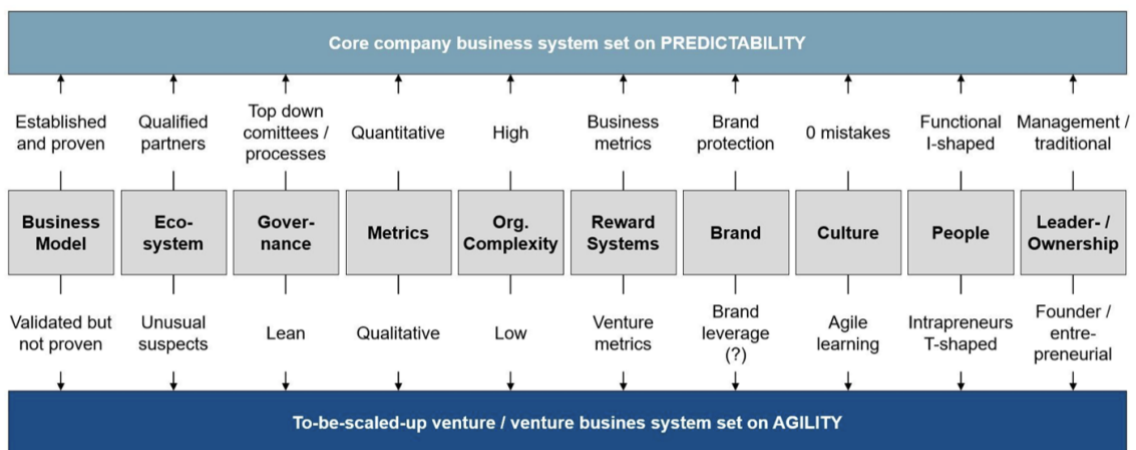


Figure 3. Tensions between corporation and start-up. (Mattes and Ohr, 2018)

In some level, tensions can be also seen between public and private actors when creating public-private-partnership activities. Even though Figure 2 illustrates the tensions between corporate and startups, it can be also seen as a description or definition of different approaches. Therefore, it is essential to understand also startups needs, when developing services for them, like business incubation. When a startup develops forward as a company, it naturally develops gradually needed processes and structured methods which are seen in a corporation world. Because of these observed tensions, corporations at present often have separate operations for startup-like operations for creating new businesses to achieve the needed flexibility in unpredictability.

Often startups have been seen as a disruptor, when they challenge the status quo in a particular industry or market by introducing new and innovative products, services or business models. Best startups disrupt industry and finally scaleup to be kind of industry norm like Google, Amazon, Facebook, Spotify.

Thousands of companies are founded in Finland every year, but only small amount them can be defined as a real startup. According ETLA's estimation only 100 companies fulfill startup definition. (Maliranta & Rouvinen 2018)

As can be seen in Table 1, the differences are related to the aspects of business goal, risk, organization structure, funding, product and customer. (Duc, Dahle, Steinert & Abrahamsson 2017)

### Comparison between a startup and a SME

<b>Elements</b>	<b>Startups</b>	<b>Established firms</b>
<b>Business goal</b>	High growth	Stable business
<b>Risk</b>	High risk	Low risk
<b>Organization structure</b>	Various from agile team to more structured organization	A structured and stable group of employees
<b>Funding</b>	Often seek large-scale funding from venture capitalists or angel investors, IPO	self-funded or financed from family, friends or a bank loan
<b>Product</b>	Unknown, often related to advanced technology	Often known, various
<b>Customer</b>	Unknown	Often known

Table 1 Comparison between a startup and a SMEs. . (Duc, Dahle, Steinert & Abrahamsson 2017)

In summary, certain characteristics distinguish a startup from creating conventional small business or running established SME. Founding a new company does not always mean founding a startup company. Main characteristics for startups are growth, new business models, innovative products or services and uncertainty in operating environment. The goal of a startup is to grow quickly, thus many times angel investors and venture capitalist fund the operations since conventional cash flow funding will follow later. (Gutterman 2022) Startups have often unconventional business model including innovative product or service. Uncertain operating environment causes need for early-stage support like business incubation or acceleration activities.

Even though Table 1 states, that startups don't know their customer, it can be argued that knowing the customer and the customer's needs even in the startup phase according to the current understanding is very important and essential element in startup success. For example, Minimum Viable Product -method's (MVP) is one of key elements in discussions with potential customer in very early phase of product or service development. In some cases, well prepared power point presentation can represent first round MVP.

### 4.3 Preincubation

Preincubation is an activity, which usually happens before establishing and officially registering company. There is an individual or small team with business idea or project, but it is not yet incorporated to real startup activity with established company. In the pre-incubation phase entrepreneurs require training, coaching, and mentoring to understand if their ideas are viable, has commercial potential, etc. Often individuals are looking for more knowledge of entrepreneurship (Paraol, Teixeira & Teixeira, 2020). Pre-incubation phase can take from few months to several years depending on technological complexity and industry area.

Pre-Incubator program can offer short, low barrier of entry spaces for teams and individuals who want to explore and develop their basic entrepreneurial capabilities and make actions to develop their ideas into products and services. In some cases, pre-incubation service provider can speak about acceleration, when teams are prepared for business incubation process.

Startup Commons ([startupcommons.org](http://startupcommons.org)) has defined startup company phases as seen in Figure 4 below. Preincubation can be considered to exist from phase -2 to phase -1, including Formation phase, Ideating and Concepting. As seen in descriptions on those phases, the purpose in preincubation phase is more or less ideating and concepting of potential product or service. In phase 0 company will be established and there is an initial opportunity to be selected in the various incubation programs, when company meets selection criteria, which will be discussed later. In university programs preincubation phase can continue even to phase 1, which can lead to better success to receive seed funding.



Figure 4. Startup company phases. (Startup Commons, 2023)

Spin-offs from large companies can be considered also pre-incubation. Usually, the pre-incubation phase takes place within the company before the spin-off company itself is founded. Good example of this action is VTT and their special in-house program for this purpose LauchPad. VTT, owned by the Finnish state, is one of Europe's leading research institutes. The goal of the Launchpad incubator is the commercialization of research and technology. In the incubator, researchers, business developers and investors meet. In the initial phase, one of the most important tasks of business developers is securing financing for the company from either public or private investors. (VTT, 2023)

In Finland there are special funding instrument from Business Finland for research-based product or service ideas commercialization in universities. This activity and the utilization of this funding this phase can be also considered as a pre-incubation phase in the bigger picture. (Business Finland, 2023)

Many cities in Finland offer physical environments and support for pre-incubation activity. There are good examples of those pre-incubator programs in Helsinki (Helsinki pre-incubator, 2023) and Tampere ( Red Brick, 2023)

The main purpose of pre-incubation is to help teams to enter business incubation activity. Some service providers call these activities also acceleration programs, which however

must be distinguished from later-stage acceleration programs. After successful pre-incubation startup company is often formally established ja company registered.

#### **4.4 Business Incubation**

Business incubator activity is an innovation-oriented process, which is worldwide phenomenon. Business incubation processes, activities and goals varies significantly depending on where the activity is located. Some of business incubators are also very selective or are acting in specialized industries. What is special about business incubators is that angel investors and private equity investors see business incubators as a tool to reduce the risk of their investment, and startup entrepreneurs look to business incubators for support for their operations. Business incubators therefore have the challenge of managing both investment and business risks (Callegati, Grandi & Napier, 2005)

The concept of business incubation began in the US in 1959 when Joseph L. Mancuso opened the Batavia Industrial Center in New York. Incubation expanded in the U.S. in the 1980s and spread to the Europe through various related forms like science parks and innovation centers. (Wired, 2023)

International Business Innovation Association estimates that there are over 7,000 incubators worldwide. Around 1,500 of which active are in the United States and about 1,000 in the Europe. Nowadays business incubation activities are not limited to developed countries but are increasingly popular and evolving also in developing countries. (InBIA, 2012) Some of business incubators provide virtual incubation service all over the world.

A business incubator is a program typically run by nonprofit organizations. There some are business incubators, which are operated by for-profit companies. The main goal of these organizations is to help startups at a very early stage grow, succeed and scaleup their business. Typical incubator programs continue 1-5 years (Cohen, 2014).

Some incubators provide funds with their partners to incubetees, but most of incubators do not invest money in the startups, since they are usually nonprofit organizations and

many times also associated with universities, governmental or city organizations. However globally there are possibilities on various financing models for startup companies in business incubation, depending on local strategies and public-private financing models (Rubin, Aas & Stead, 2015)

Main business incubation activities can be aggregated as following. Firstly, the service of incubation includes offering physical environment, like affordable or free office space, meeting rooms, canteen place and other support service, like internet connections and copy machines. Physical space also creates opportunity for community for peer-to-peer learning and networking for startup.

Secondly, team development is an essential element, because as the work progresses and startup organization grow from small flexible team to managerial team, the competence needs will change during the company evolution.

Lastly, access to mentoring and advisory services is also essential element. (Van der Spuy, 2019)

One of the goals of business incubation process, is that startup can formulate better understanding customer needs and market expectations. However, there is no clear universally accepted definition of business incubation or incubator. (Theodorakopoulos, Kakabadse & McGowan Carmel, 2014)

Table 2 below illustrates in chronological order the definition of business incubation/incubator in the literature. The definitions as such also describe the development of business incubator operations over the years.

<b>Author(s)</b>	<b>Definition</b>
Plosila and Allen (1985)	“A small business incubator is a facility which promotes the early stage development of a for-profit enterprise.”
Allen and Rahman (1985: 12)	“A small business incubator is a facility that aids the early-stage growth of companies by providing rental space, shared office services, and business consulting assistance.”
Albert (1986)	“An enterprise incubator is a collective and temporary place for accommodating companies which offer space, assistance and services suited to the needs of companies being launched or recently founded.”
Smilor and Gill (1986)	“The business incubator seeks to effectively link talent, technology, capital, and know-how in order to leverage entrepreneurial talent and to accelerate the development of new companies.”
Allen and Bazan (1990)	“An incubator is a network or organisation providing skills, knowledge and motivation, real estate experience, provision of business and shared services.”
Allen and McCluskey (1990)	“An incubator is a facility that provides affordable space, shared office services and business development assistance in an environment conducive to new venture creation, survival and early stage growth.”
Hackett and Dilts (2004: 57)	“A business incubator is a shared office-space facility that seeks to provide its incubatees (i.e. portfolio- or client or tenant companies) with a strategic value-adding intervention system (i.e. business incubation) of monitoring and business assistance.”
Hughes, Ireland and Morgan (2007: 155)	“A business incubator] is a facility that houses young, small firms to help them develop quickly into competitive business.”
Eshun (2009: 156)	“A business incubator is an environment formally designed to stimulate the growth and development of new and early stage firms by improving their opportunities for the acquisition of resources aimed at facilitating the development and commercialisation of new products, new technologies and new business models. Business incubation is also a social and managerial process aimed at supporting the development and commercialisation of new products, new technologies and new business models.”
UK Business Incubation  UKBI (2009: 2)	“Business incubation is a unique and highly flexible combination of business development processes, infrastructure and people designed to nurture new and small businesses by supporting them through the early stages of development and change”.
American National Business Incubation Association  NBIA (2010: 1)	“A business incubator is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts. A business incubator’s main goal is to produce successful firms that will leave the programme financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalise neighbourhoods, commercialise new technologies, and strengthen local and national economies.”
<i>Entrepreneur</i> (2014: 1)	‘Business Incubator is an organization designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services that could include physical space, capital, coaching, common services, and networking connections



Table 2. Commonly adopted definitions of business incubation / incubator. (Theodorakopoulos, Kakabadse & McGowan Carmel, 2014)

The role and functions of a business incubators have been evolving during the recent years. Also the activities and requirements of their clients have been changed. (Figure 5)

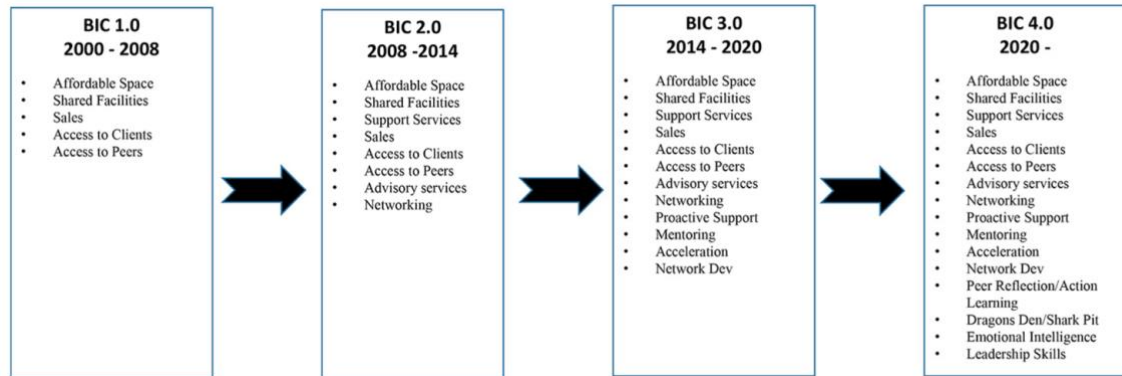


Figure 5. The changing activities of business incubation clients (Stephens and Lyons 2022)

Virtual incubator activity, which can support startup remotely has been introduced. There are several virtual incubators, who offers that service. (Zornic, Bećirović, Ujkanović & Plojović , 2011)

Business incubators can be classified also according to the different strategic objectives and competitive scopes. Based on that classification are five archetypes of incubation as stated in Figure 6.

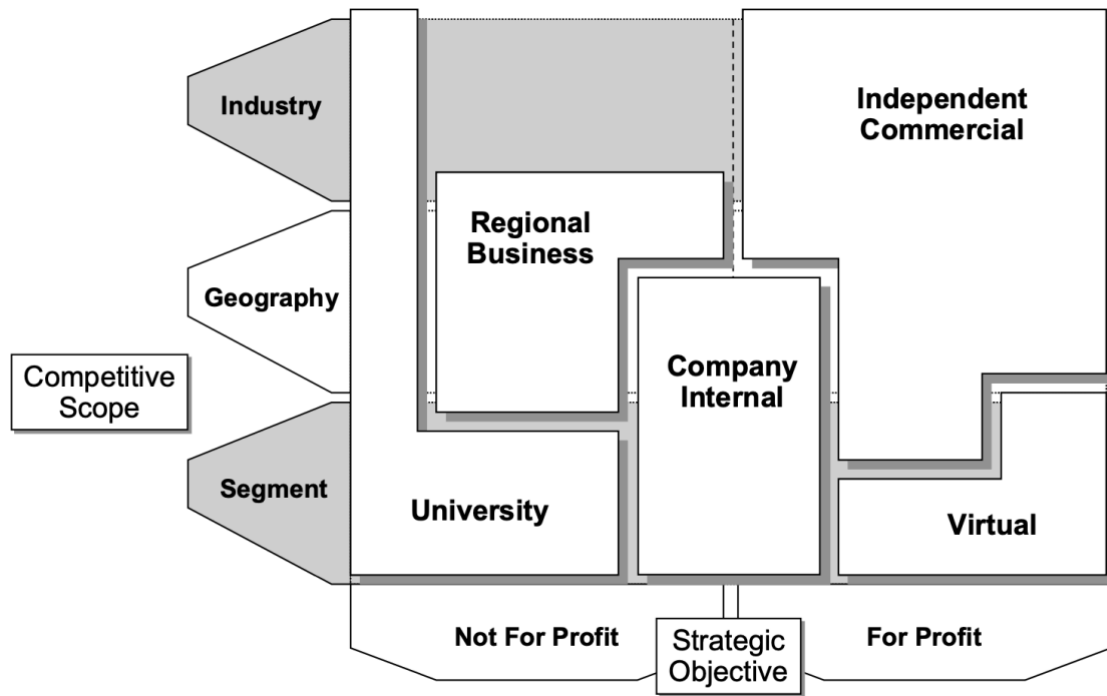


Figure 6. Five archetypes of incubation. (von Zedtwitz, 2003)

In practice, business incubators incorporate element from different archetypes. Regional business incubators and independent commercial incubators are often general incubators, there are no industry specific focus. Regional business incubator model is the most common model. Independent for-profit commercial business incubators, which do not have public funding, are quite rare, since they require private investors or philanthropic attitude for owners and sponsors.

UBI global benchmark business incubators globally based on their capabilities and results. UBI Global (web page)

## 4.5 Accelerators

Accelerators offer dedicated programs for startups and are often operated by for-profit organization. (Cohen, 2013) Acceleration term is also used in the pre-incubator phase as well. However, it must be distinguished from the later-stage accelerator which is aimed at an already established startup company. The goal of the pre-incubator phase acceleration is to prepare a team or startup company for the incubation phase and possibly to receive pre-seed funding right at the time of founding the company.

In this thesis context, acceleration means the activity of a later stage in business incubation or later. Accelerators history has been traced by some (Miller & Bound, 2011) to the US program Y Combinator which was established in 2005 for digital startups. Since that time, numerous accelerator programs have been established in various business areas globally.

Accelerator programs continue typically 3-6 months, so it is significantly shorter than business incubation process. Accelerator programs are also more intensive than business incubator programs. In general, accelerator programs are industry-specific.

Table 3 below shows some characteristics of incubators and accelerators and difference in their activity. Often there are also overlapping features between incubators and accelerators, like mentoring, education, technical assistance, and funding. (Dempwolf, Auer & Fabiani, 2014)

Characteristics	Incubators	Accelerators
<b>Clients</b>	All kinds, including science-based businesses (biotech, medical devices, nanotechnology, clean energy, etc.) and nontechnology; all ages and genders; includes those with previous experience in an industry or sector.	Web-based, mobile apps, social networking, gaming, cloud-based, software, etc.; firms that do not require significant immediate investment or proof of concept; primarily youthful, often male technology enthusiasts, gamers, and hackers.
<b>Selection Process</b>	Competitive selection, mostly from the local community.	Competitive selection of firms from wide regions or even nationally (or globally).
<b>Terms of Assistance</b>	1 to 5 or more years (33 months on average)	Generally 1- to 3-month boot camps
<b>Services</b>	Offers access to management and other consulting, specialized intellectual property and networks of experienced entrepreneurs; helps businesses mature to self-sustaining or high-growth stage; helps entrepreneurs round out skills, develop a management team, and, often, obtain external financing.	“Fast-test” validation of ideas; opportunities to create a functioning beta and find initial customers; linkage of entrepreneurs to business consulting and experienced entrepreneurs in the Web or mobile apps space; assistance in preparing pitches to try to obtain follow-up investment.
<b>Investment</b>	Usually does not have funds to invest directly in the company; more frequently than not, does not take equity.	Invests \$18,000 to \$25,000 in teams of co-founders; takes equity in every investee (usually 4 to 8 percent).

Source: Excerpts from Atkins, D. 2011. What are the new seed or venture accelerators? Available at [http://www.nbia.org/resource\\_library/review\\_archive/0611\\_01.php](http://www.nbia.org/resource_library/review_archive/0611_01.php).

Table 3. Characteristics of incubators and accelerators and difference in their activity. (Dempwolf, Auer & Fabiani, 2014)

#### 4.4 Co-working space

A coworking space is a service where people work in common spaces independently on their own projects and pay a service fee defined by the space administrator, which can include not only the space but also other services. Often, companies do not have joint projects. (DropDesk, 2023)\_Random encounters, however, can contribute to the birth of new ideas.

New ways of sharing a common workspace and various related services continue to develop as new companies and new operating models develop according to Babb, Curtis & McLeod. (Babb, Curtis & McLeod 2018)

Typically, there is a community manager who helps companies with various tasks even though there are no typical incubator services or operations available. However, peer-to-peer learning opportunities are there for startup companies. The community manager has a great influence on the customer satisfaction of the coworking space. The goal is of course the highest possible utilization rate for the coworking space. The community manager has to understand the needs of the customers, just like in any other business. The needs of customers can vary significantly, and so the community manager often has to act as a problem solver (Howell, 2021).

The best community managers organize various social events for customers and other stakeholders to attend. On these occasions, influencers, mentors, and often also potential investors are invited. They maintain common spaces such as a cafeteria and common conference rooms. Since customers can also invite their own customers to the premises, general cleanliness must also be maintained.(CoworkingResources, 2023)

Coworking is the working space in which several workers from different established companies share office space, often achieving cost savings and convenience using common infrastructure, equipment, and different utilities like internet connections. (Babb, Curtis & McLeod 2018)

#### **4.5 Business Ecosystems**

In the 1930s, British botanist Arthur Tansley coined the term ecosystem to describe a community of organisms that interact both with each other and with their environment. In order to succeed and develop, organisms compete and cooperate with each other for available resources. They develop together and adapt together to external disturbances. (Tansley 1935)

James Moore (1993) wrote his Harvard Business Review article "Predators and Prey: A New Ecology of Competition" (Moore 1993) in which he suggested that

“a company is viewed not as a member of a single industry but as part of a business ecosystem that crosses a variety of industries. In a business ecosystem, companies co-evolve capabilities around an innovation: they work cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations. Some case companies can be at same time competitors or partner depending on business case, they are so called coopetitors”.

A business ecosystem has several definitions. One of these definitions was created by Adam Hayes. According to it, a business ecosystem is the network of different organizations, like customers, subcontractors, suppliers, competitors and different governmental or public actors. They are involved in the delivery of a specific product or service through some level of cooperation. The idea is that each entity in the ecosystem affects and is affected by the others. This creates a constantly changing relationships in which each entity must be flexible and adaptable to survive as in a biological ecosystem. (Hayes, 2021)

Over the last twenty years (noted in 2005) the studies of regional innovation systems have been one of the most interesting areas to understand regional economic development. Economic studies have found the territorial dimension of industrial development and technological innovation shifting the focus from the national to the regional and even local specialized dimension. (Muscio, 2005). Regional or local specialized dimension can be defined as “Smart Specialization”, concept defined by Dominique Foray et al. (Foray, David & Hall 2009)

Startup ecosystems should be differentiated from innovation ecosystem, which will be discussed later on. The startup ecosystem system is open and collaborative and have a lot of external supportive resources.

## 4.6 Innovation ecosystems

There have been several definitions during the year for innovation ecosystems. A couple of them are introduced below.

Moore (1993) has introduced one definition of an innovation system. According to it,

*“an innovation ecosystem refers to a loosely interconnected network of companies and other entities that coevolve capabilities around a shared set of technologies, knowledge, or skills, and work cooperatively and competitively to develop new products and services.”* (Moore 1993)

Granstrand and Holgersson (2020) defined innovation ecosystem in their research and conceptual analysis as follows:

*“an innovation ecosystem is the evolving set of actors, activities, and artifacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors”.*

Innovation ecosystems do not have any special focus on startups as it is seen as one activity amongst others. (Granstrand and Holgersson, 2020) Therefore for example Startup Commons see the difference between innovation and startup ecosystems as later illustrated in Figure 6.

It has been highlighted that innovation ecosystems can be built around a specific technology (Jackson, 2011). However, in that case we are entering close to cluster definition.

Figure 6 below describes the principal difference with innovation and startup ecosystem. Innovation ecosystem can be led by big companies of public sector. Often system has closed processes and use mainly internal resources while the startup ecosystem is open, emphasizes collaboration and usage of external resources.

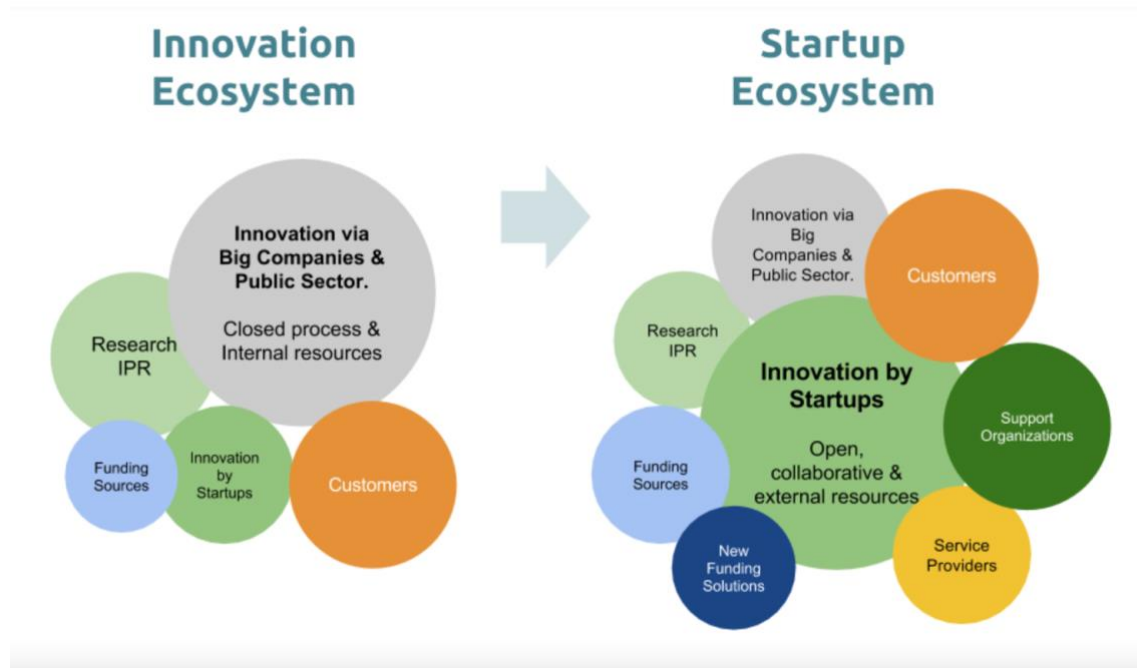


Figure 7. Difference between Innovation ecosystem and Startup ecosystem (Startup Commons, 2023)



In Table 4 Startup Commons have described main factors to clarify transition from innovation ecosystem to startup ecosystem. Startup ecosystem is discussed more in detail in chapter 4.8.

<b>From past:</b>	<b>Today and future</b>
<ul style="list-style-type: none"> <li>• simple linear world</li> </ul>	<ul style="list-style-type: none"> <li>• non linear, globally networked world</li> </ul>
<ul style="list-style-type: none"> <li>• closed, expensive and less creative pressure or freedom</li> </ul>	<ul style="list-style-type: none"> <li>• free &amp; cheap technology, platforms, infra &amp; go to market channels</li> </ul>
<ul style="list-style-type: none"> <li>• dependency on “hosts &amp; gatekeepers”</li> </ul>	<ul style="list-style-type: none"> <li>• innovation via startups fast, flexible, highly motivated, cost effective, supported by private and public parties</li> </ul>
<ul style="list-style-type: none"> <li>• about ideas, invention and research by big companies creating most actual innovations (mainly due cost factors)</li> </ul>	<ul style="list-style-type: none"> <li>• innovation process is more open and more exposed to true market validation</li> </ul>
<ul style="list-style-type: none"> <li>• old models are already working “at their best level” and are difficult to significantly improve, so markets seek for "next level" solutions</li> </ul>	<ul style="list-style-type: none"> <li>• smart big companies are moving towards open innovation</li> </ul>
<ul style="list-style-type: none"> <li>• minimal innovation impact achieved by outsider strategies and methods (customer development)</li> </ul>	<ul style="list-style-type: none"> <li>• working together and acquiring most potential startup and talent</li> </ul>
<ul style="list-style-type: none"> <li>• Innovation requires for someone to take initiative with commitment to make it happen</li> </ul>	<ul style="list-style-type: none"> <li>• startups are “outsourced innovation” for big companies, just like app developers are for software platforms (iOS, Android etc.)</li> </ul>
	<ul style="list-style-type: none"> <li>• Startups and innovative SME's are biggest job creators</li> </ul>

Table 4. Transition factors from Innovation Ecosystems to Startup Ecosystems (Startup Commons, 2023)

In practice, regional ecosystems are often in transition and thus in development phase. Often local ecosystems also have the weight of history, and the change can be relatively slow from an innovation ecosystem to a genuine start-up ecosystem.

## 4.7 Startup ecosystems

Startup companies can also be viewed from the perspective of the ecosystem.

According to Makai, there is relatively much conceptual confusion because some publications refer to innovation ecosystems, others to entrepreneurial ecosystems, and others to startup ecosystems. Therefore, you have to familiarize yourself with the research itself, and you cannot draw quick conclusions about what the current activity is about using the terminology. Regional differences in activity also affect which ecosystem is referred to. The startup ecosystem is naturally part of the entire regional ecosystem, including its own focus areas. (Makai, 2021)

According to Tripathi et al. the startup ecosystem refers to

*“a limited region within 30 miles (or one-hour travel) range, formed by people, their startups, and various types of supporting organizations, interacting as a complex system to create new startup companies and evolve the existing ones”*  
(Tripathi, Seppänen, Boominathan, Oivo Markku & Liukkunen, 2018)

Conceptual framework for startup ecosystem is well illustrated in the Figure 8 below from startup point of view. It also shows the complexity of system, which therefore indicates need for tailored business incubation service and support for startups.

The nature of the companies' operations, funding, expertise, and target markets affect what type of tailored services the startup companies need.

One common mistake is to copy paste business incubation process from other region, since local stakeholders have always different regional functions and goals, which will affect significantly on success of operations. Educational institutions and their education programs naturally have impact on business incubation. Also, regional business world and industrial focus areas can differ significantly depending on the area's strengths, goals and opportunities.

Details of incubator support and activity comes through methodologies, which are discussed later in development project section.

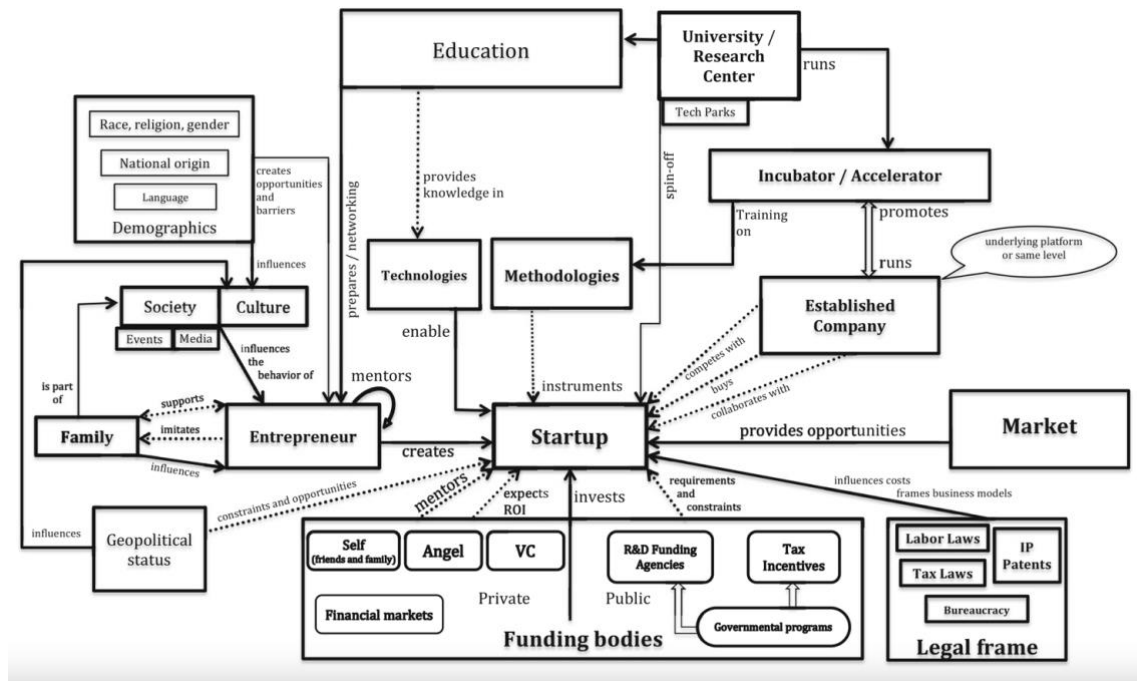


Figure 8. Startup ecosystem conceptual framework. (Cukier & Kon, 2018)

#### 4.8 Entrepreneur ecosystem

Entrepreneur ecosystem can be seen as an extension from startup ecosystem. In entrepreneurial ecosystem includes also cultural and education aspect as seen in the Figure 9.



Figure 9. Entrepreneur ecosystem (TechStartupSchool, 2023)

Techstartupschool is the business accelerator in Ukraine, supporting entrepreneurs from the idea stage all the way to the product launch. They help technology startups, who has scalable business and thus high growth potential. Theirs activity was established to promote and develop entrepreneurship culture and develop teams and their leadership skills. Their goal is to create a strong and sustainable startup ecosystem.

Stam and Spigel has defined entrepreneurial ecosystems as

*“a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory”.*

Furthermore, they claim, that entrepreneurial ecosystem approach is more desirable comparing to innovation system or cluster approach as it appears to be able to solve market failure approach and the system failure approach. Entrepreneurial ecosystems approach leads to efficient entrepreneurial economy and thus can support regional renewal. (Stam & Spigel, 2016)

In the Figure 10 the main elements of entrepreneurial ecosystem are defined. According to Stam and van de Ven, there are many forms of entrepreneurship. They separate

entrepreneurs according to their ambition, into entrepreneurs who strive to create as much value as possible and entrepreneurs who support themselves with their own business. However, for all entrepreneurs, the functioning of the ecosystem's elements is of paramount importance (Stam & van de Ven, 2019). A well-functioning ecosystem creates conditions for both startups and scaleups. With this development, the ecosystem continues to evolve.

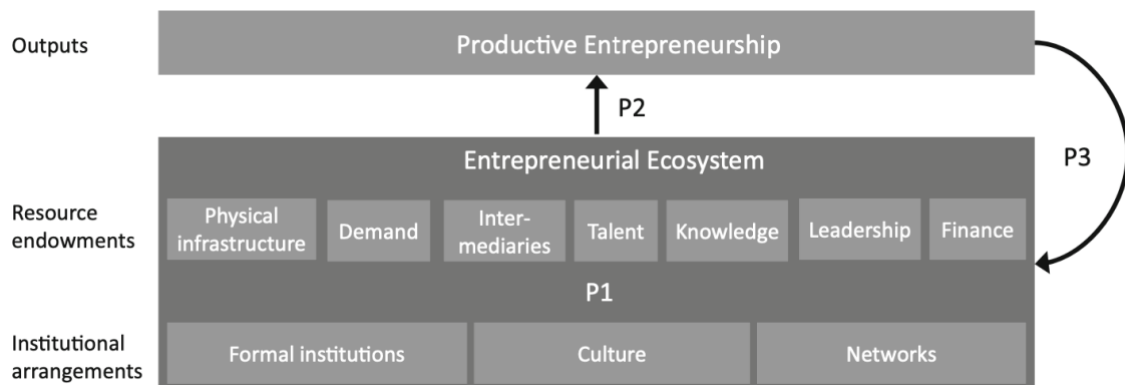


Figure 10: Entrepreneur ecosystem (Stam & van de Ven 2019)

#### 4.9 Clusters

In recent years, the importance of clusters as drivers of favorable business environments, innovation and entrepreneurial ecosystems has been increasingly recognized as emphasized in the EU Entrepreneurship 2020 Action Plan<sup>1</sup> (European Commission, 2013). Entrepreneurs and SMEs need specific, customized expertise that can help them develop competitive advantages. To access global value chain, cluster, business networks and other type of association can help. Through those networks entrepreneurs and SMEs can have access to additional resources and actors from business, research, and human resources. (European Commission, 2008).

According to European Cluster Collaboration Platform clusters can be defined

*“as a group of firms, related economic actors, and institutions that are located near each other and have a sufficient scale to develop specialized expertise, services, resources, suppliers and skills”.* (ECCP , 2023)

In the Figure 11 below some basic examples are noted, how clusters can support entrepreneurship in different stages of startup.



Figure 11: How clusters can support entrepreneurship in different stages of startup. (European Union, 2019)

There are many types of clusters, so it is worth familiarizing yourself with the principles of cluster operation to find out how a startup can utilize the cluster. Often the clusters are led by so-called leading companies, sometimes there is a risk that the support for the startup is not optimum.

In these cases, startup companies must especially take care of their own intellectual property rights. For a startup company, the biggest benefit from the cluster comes through networking and through that possible access to new markets.

## 5 DEVELOPMENT PROJECTS

In the thesis, the events of two separate projects are reported and a summary is made based on both of them. The justification for the first project, was to seek sustainable and effective (high impact) operational environment, which agilely pays attention to new business opportunities together with other operators in the ecosystem. Measures were benchmarking of similar activities and inquiries among current and potential clients about their needs in their startup companies.

One of the goals was new sustainable business incubator concept, which will consider different needs of industry sectors. In Oulu region there are currently not enough startups for one specialized business branch.

During project all incubator actions will be renewed: incubation agreements including selection criteria, incubation services, service models, pricing, service process, client surveys, job description for incubation manager and communication. The focus was mainly internal, even though there were some attempts to build view of activities in the region.

The starting point for the establishment of the Oulu Start Incubator was that the company is non-profit, and that we could find a public financial instrument to support its operations.

The second project was natural continuation, based on challenges found in the first project, when mostly internal focus was driving the project. Main task was to clarify and find sustainable regional concept for business incubation in region.

### 5.1 Fundamentals of Project 1

Project was established in autumn 2020 and continued until autumn 2021.

Project was funded by Centre for Economic Development, Transport and the Environment.

In the first project the focus was the development of private business incubation activity in Oulu Startup Incubator. The project was carried out between October 2020 and September 2021.

Oulu Startup Incubator is business incubation spinoff from Kielo Growth, which focuses on early-stage financing and real estate leasing. Business incubation was one key activity of Kielo Growth since 2016, so there was already substantial amount of experience about regional business incubation. Oulu Startup Incubator was founded 2020. One of the main assumptions for starting the non-profit spin-off company was that the business incubation would receive public funding, in this case mostly funding from the city. After several meetings with city officials, it became very clear, that there is no funding instrument currently available for private business incubation.

On the other hand, the city decided to start its own business incubator and pre-incubation operation. Business incubation was operated by city personnel and pre-incubation was operated by contractor.

Despite the challenges found already in the initial phase, it was decided to continue the project. Four main development working packages were defined. These packages are described below.

Firstly, in the project, business incubation contracts, services, service models, service pricing, service processes, customer surveys, job descriptions of the personnel working in the business incubation and communication about the operation will be revisited and renewed in the project.

The second goal of project was to build a cooperation model with other operators in the region.

The third goal was to define physical functional space, current and possible new additional spaces.

The fourth goal was to define events for startups, and their production are planned. Goal was to establish event organization and find event production partners.

### **5.1.1 Selecting the basic model for regional business incubator**

One of the most important tasks was to understand the basic model of the business incubator, which affects the entire operation. This has been surprisingly little discussed



in the literature, but a good, simplified description was found on the topic, which was presented at the conference "Advancing Innovation in ECA 2007", Figure 12

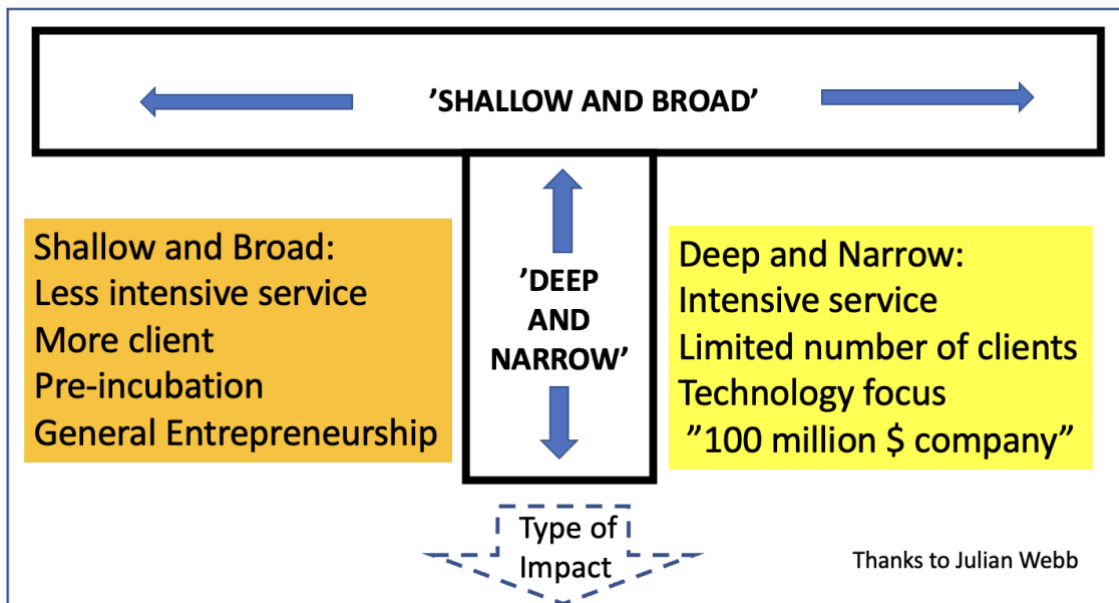


Figure 12 (Fiedler, 2007)

Figure 12 above describes one basic model concerning intensity of incubation services by dividing it to two different basic models “deep and narrow” or “shallow and broad”. Deep and narrow focus in specific industry branch and can go deeper in incubator services in same industry context, while shallow and broad approach do not have industry limitation and thus service focus more in common subjects, like funding, team building and business development.

Of course, the possibilities and capabilities of the local ecosystem are essential when choosing a model. The shallow and broad model is suitable for an ecosystem where the aim is to broadly support different industries or there are not enough startup companies in one industry, in which case the deep and narrow model becomes less effective in terms of operational financing of business incubation. Deep and narrow is suitable for ecosystems with enough startup companies in a certain industry.

It is typical for the "shallow and broad" model that the service is less intensive, the customer base is wider, and activity don't have industry limitations, and often this model

also includes pre-incubation type activities and incubation is more generic. On the other hand, this model offers room for surprising and unpredictable development paths when innovators from different industries meet each other's.

In the "Deep or narrow" model, the services are more intensive, the customer base is often more limited, and the focus is industry-specific, like health or fintech. This model can be used when incubator service take place remotely, having both national and international focus. Virtual business incubation model also can support "deep and narrow" model efficiently having also international incubatee focus.

When considering model for regional business incubator in this case, shallow and broad approach fits better, since there are not currently enough startups for one specific industry sector.

### **5.1.2 Main activities and methodologies of business incubator**

The services of the business incubator were investigated during the project with literature reviews, and discussions with current clients. The needs of startups vary depending on the maturity of the startup and business. Also, the financing situation of startup impact on their capability to pay for the business incubation services.

The following general services stood out in particular:

- Affordable or even free working space on preferential rental terms including basic furniture and internet connections.
- Common areas, like meeting rooms, mailbox, telephone booth and kitchen.
- Co-procurement and resource sharing services like secretarial service, legal, administration and accounting services were also mentioned by many.
- Company-specific and customizable services, like project expertise, business planning was also needed.
- Mentoring, advisor work supported by experienced startup founder was seen very valuable by incubatees.

The thematic trainings were also discussed with a few entrepreneurs, but it is suitable for a business incubator in case there are several entrepreneurs in the same field and the

incubator model is closer to the deep and narrow model. On the other hand, relevant thematic training can be found in regional networks utilizing for example universities.

Incubatees with new innovations need also support to understand, when and how to protect their Intellectual Property Rights (IPR). Depending on case, different types of IPR, like patents, trademarks, copyrights, and trade secrets need to be considered.

Funding consultation including pitch deck preparation for potential investors was also one of the needs of incubatees. Funding will be discussed in some details next section.

Networking with other entrepreneurs was seen as a significant advantage in the incubator environment. It also enables peer-to-peer learning.

### **5.1.3 Funding for innovative teams and startups**

Finance-related advice and networks are at the heart of the business incubators and pre-incubators operations. Innovative teams and start-ups have several financing options and success to get financing depends on many factors. Main factors are trustworthy business plan, good execution team, market understanding, discovered potential customers.

Startup has several development stages and the various financing options are often also tied to them. Figure 13 illustrates different development stages related to funding options.

In pre-incubation phase, when idea and team is emerging main options for funding are: own personal savings, angel financing and suitable public financing. Often at this stage the so-called FFF financing (friends, fools, and family) is relevant. There are also examples when crowd funding has been successful for startups. These cases are mostly related to consumer products with hardware.

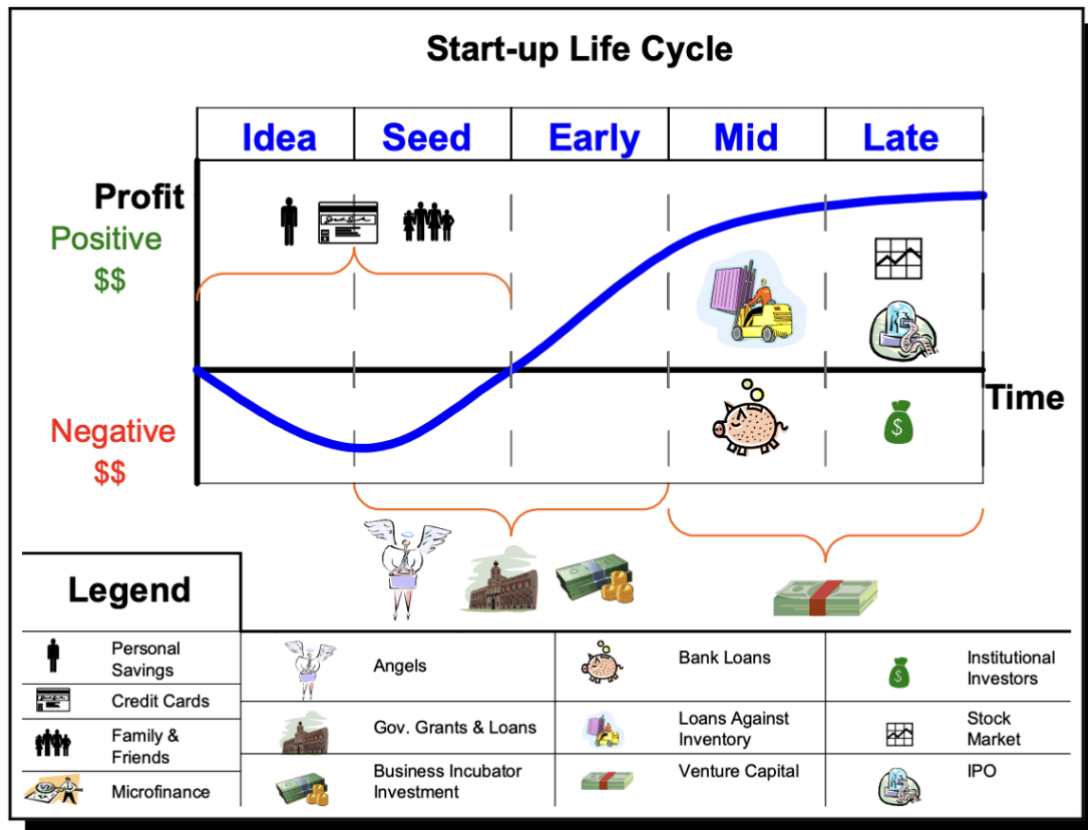


Figure 13, Startup Development Stages and Financing Options (International Journal of Entrepreneurship, 2009)

There are two basic tools to verify the development stage of startup. Tools can be used especially for the assessment of investment eligibility by private and public investors. Tools are Technology readiness level (TRL) and Investment readiness level (IRL).

Technology readiness level concept was originally developed by American National Aeronautics and Space Administration (NASA) during 1970 to understand the maturity of projects. European Union (EU) adapted TRL as an official innovation policy tool to evaluate various technologies. By 2014, the use of TRLs was relatively common in EU-funded project proposals. In the documentation of the 2014-2015 work program of the Horizon 2020 framework program, TRLs are used in some chapters to clarify the technological readiness level of the projects to be financed.(Heder, 2023)

Steve Blank has introduced Investment Readiness Level (IRL) framework 2013. (Blank, 2012). The goal of this tools was to find common languages from enterprises to investors.

The IRL tool can be used to create a reliable picture of the company's investability for investors. There are several different commercial versions of the tool.

European Commission has published a comprehensive report on the utilization of the 2015 Investment Readiness Level tool for different industries. (European Commission, 2015).

#### **5.1.4 Entry and exit criteria for incubation service**

Entry criteria for business incubator operations are typically defined, as well as exit criteria. Most common entry criteria for business incubation is the clear goal for scalable business opportunity. Thus, incubatee should have clear plan for potential scalable business. Other commonly used entry criterions are trustworthy team and competitive service or product innovation. Participation in pre-incubator activities can help meet the entry criteria. It is rather common to have also so-called acceleration programs in pre-incubation phase to coach teams to reach incubation entry criteria. According to Macadam and Marlow the selection criteria into an incubator will majorly focus on start-up businesses that its developers believe to have high potential in their innovation; have a product or service that is based on technological knowledge; are likely to achieve significant growth in three years, in terms of sales and number of employees; and demonstrate considerable export potential. (Macadam & Marlow, 2007)

The most common exit criteria are related to incubation agreement between startup company and business incubation provider. The incubator contract is usually tied to a certain time, which usually is between one to three years, after that it is expected that the company will manage on its own without intensive incubation service.

In the case of corporation incubation programs, main exit criteria are usually official spin-off company registration.

### **5.1.5 Defining the role of incubator manager**

One of the goals in the project was to define job description for incubation manager. The essential part of incubation activity is the role and competence of incubator managers. Their skills and capabilities can make or break a startup's potential and future.

It should be also noticed the there is a difference in focus with traditional enterprise agencies, who support all types of entrepreneurships and do very valuable work for them. Most of entrepreneurs they serve do not have plans for scalable business. In Finland their business counselling service is free of charge and open for everyone, but it is not so intensive counseling, what is needed in business incubation process.

During this project I also participated in training of specialist vocational qualification for business counseling to get more understanding on that field. Incubator manager can be seen as an expert in all fields and a networker. General job description was created for incubator manager in project to reflect goals of business incubation. Of course, the job description must be modified to meet the goals of the respective business incubator (see Appendix 2).

Often business incubator manager must switch between acting like a traditional consultant and coach (Eriksson, Vilhunen, Montonen & Voutilainen, 2016), or even in some cases take role as hands-on resource to be able to help incubate.

As role of thump at least one incubator manager is needed for 10 startup companies in business incubation. A business incubator manager should have extensive networks and the ability to build new networks to meet the needs of startups.

### **5.1.6 Office space and events**

One of scope in project was to define additional office space since current office space for business incubation was fully occupied. Some preliminary investigation was done in the region. Covid-19 changed the situation dramatically since most of the work moved to remote mode. Same happened with planned community events, only some remote events

were arranged. Situation remained same until the development project ended. The additional acquisition of premises was frozen for the time being.

### **5.1.7 Funding elements of business incubator**

Different kind of funding elements and possible revenue models were explored in the project. Most common models are government or public funding, rental models or success sharing models. It was also noticed very quickly that it is not possible to establish a business incubator that survives purely on profits, because early-stage startups do not have sufficient solvency.

Non-profit incubators are mostly funded by public funding. Those incubators are mostly managed by academic institutions and government agencies like city organizations. Private non-profit organization generally are also funded by public instrument around the globe.

Public funding is dominant funding model according Chanra and Fealey in study, where they compared business incubation in the United States, China and Brazil. (Chandra Aruna & Fealey, 2009)

For profit organization rental model and revenue share models are mostly used. In the case of rental model incubatee usually pays rent for the office space. However, to maintain sustainable business incubation rental model requires free of highly subsidized office space for business incubator.

In revenue share or success share model business incubator takes certain amount of shares of incubatee's company, usually 2-5%, depending on the level of service they provide for startup. The risk for business incubation provider on this model is that payback can take several years, and it is relatively challenging to make sustainable business incubation using only this funding element. Often the exit of business incubator in those cases is planned when venture capitalists and other investors come onboard on so called A-round funding. Funding explained (Reiff, 2023).

EBN impact report from 2016 shows data from 2014 of how business incubators are funded in EU. Their data is based on 128 responders. According to the study, 68% of the funding for business incubators comes from the public sector and 32% from the private sector. The Figure 14 below shows more detailed funding sources on both cases.

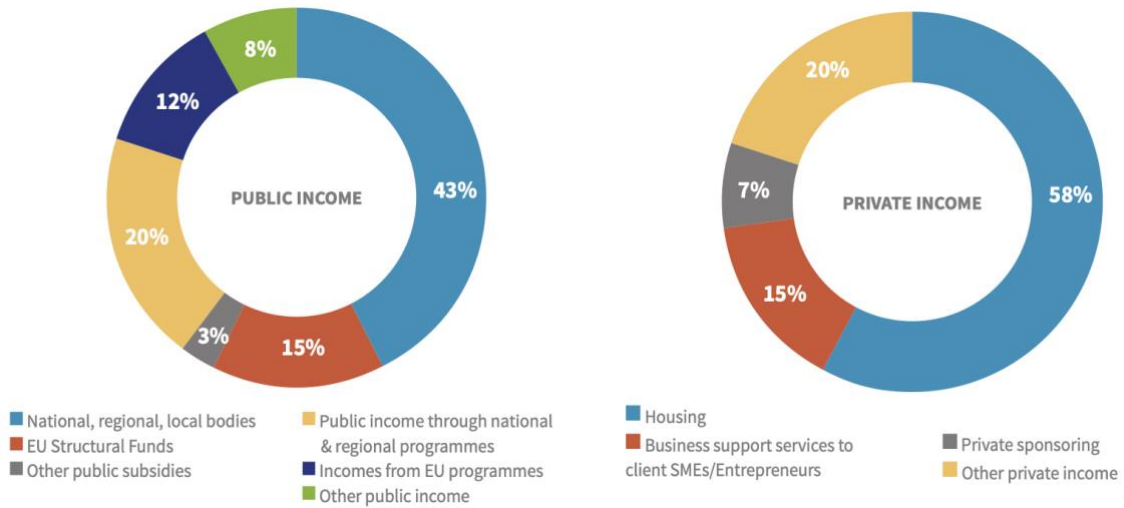


Figure 14. Incubator public subsidies and private funding, (EBN Impact Report 2012)

This information gives a good general indication of how business incubators are financed. In practice, regional funding opportunities and instruments affect how the business incubator can be financed sustainable. Pure revenue model

### 5.1.8 Metrics for measuring incubator success.

It is essential also to measure success of business incubation. There can be both hard and soft measures. Mostly hard measures are used to evaluate the success of business incubation. Soft measures are more difficult to convert to comparable values. Figure 15 illustrate the most common metrics to measure business incubation activity.

The challenge in measuring business incubation success is that in some business branch the real success of startup can be seen after 5-7 years from starting business incubation. In healthcare and medical business areas that timespan can be even longer.



There are hard measures for success related to business incubation clients, like growth of enterprise, which includes turnover and amount of hired employees, profitability of their business. Incubator specific measures are number of clients; however, many Business Incubators have set number of customers they will admit to their service, when they announce new batch entry. One of the measures of activity is often the startup survival rate, which can be measured either on planned exit stage or after some years. Incubator hard measures can be defined and used for evaluation, when for example public funding is granted for business incubation operation. Some of measures are show in Figure 15.

Soft measures often are subjective measures which are more difficult to discover and measure accurately for both incubates and incubator itself. Soft measures related to incubatee are relevant when the development of personal skills of startup team members are considered. Soft measures can include benefits like increased business knowledge, professionalism, business awareness and increased networking with peers.

Soft measures for incubator are naturally development of staff's competence and recognitions from stakeholders and community.

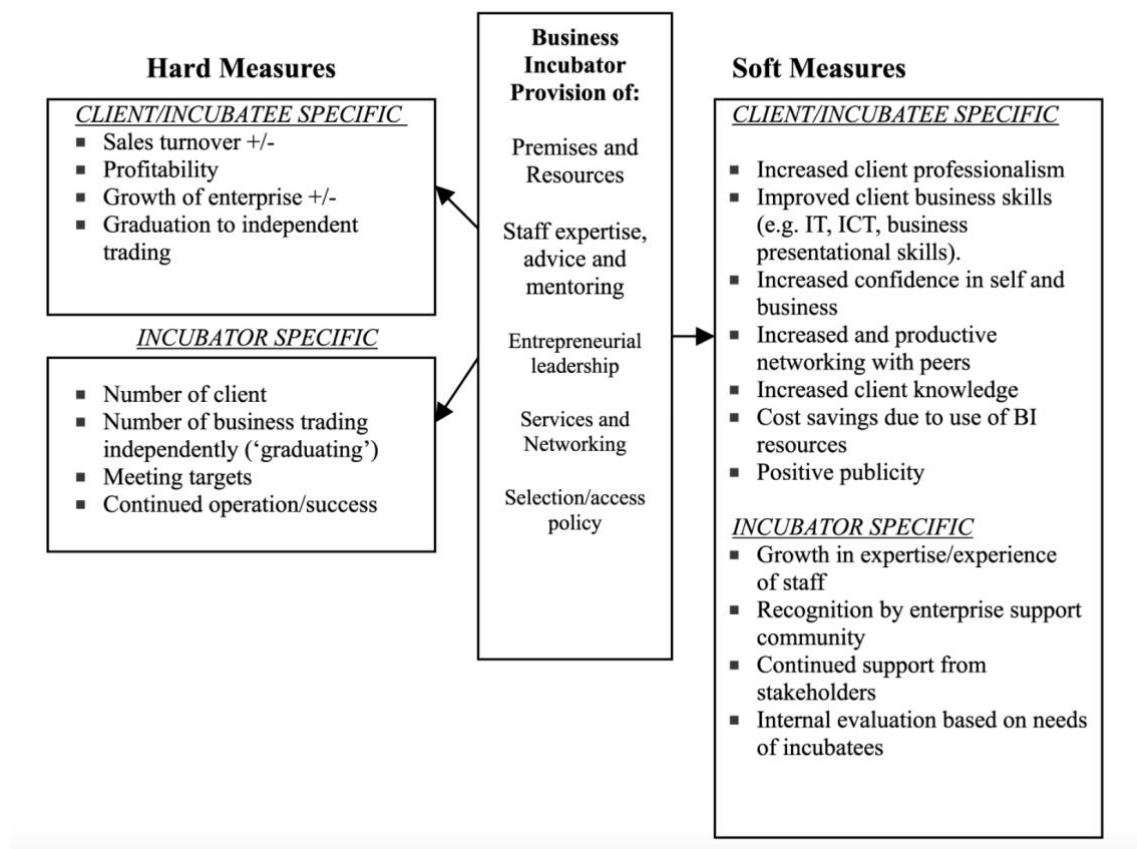


Figure 15. The measurement of success in a business incubation project (Voisey, Gornall, Jones & Brychan, 2006)

There is fair amount of discussion and literature on how to measure the performance of business incubators. Vanderstraeten, Matthyssens and Witteloostuijn in their literature review conclude that there does not yet exist consensus concerning how to measure incubator performance. There is also strong relation to the location and region, where business incubation activity is performed. (Vanderstraeten, Matthyssens & van Witteloostuijn, 2012)

The conclusion that can be drawn from this is that the only way to reliably measure success is a sufficiently long follow-up period, which of course requires that the activity is continuous and on a sustainable basis.

#### **5.1.9 Discussions with entrepreneurs**

An important part of the project was to understand the needs of entrepreneurs by having discussions with them. The goal of discussions was to find out, what type of services innovators, entrepreneurs in startup companies expect from business incubators. Also, one goal was to find ideas that had the potential for scalability and international markets. Discussions were held with ten innovators or sole entrepreneurs and ten early-stage startup companies. Some of companies were co-located with author and some were remote, but regional startup companies. Discussions took place during autumn 2020 and spring 2021.

The entrepreneurs' product and service ideas differed significantly from each other, but still common needs could be found amongst them.

An effort was made to find both common factors and distinguishing factors.

A list of questions was prepared (Appendix 1), but an essential part was the entrepreneur's story, existing know-how and experiences of new business development, as well as their current operating environment. The purpose of the discussion was to increase insight into

what kind of incubator operating environment the entrepreneurs wish for. A few questions had been prepared to get enough information from the discussions to develop the incubator services.

Since most of the discussions were confidential including business plans, the themes will be discussed in summary. The interlocutors were regional inventors and startup companies that had a potentially scalable product or service innovation. A total of 16 discussions were conducted, half of which were inventors and half of start-up companies with at least 2 people.

During the discussions, practical advice was also given within the framework of the time spent on different themes.

At the very beginning, the discussions focused on the inventor's or team's own story. The aim of this was to build an understanding of what people's skills are and how the idea came about and how it has been developed.

Most of the ideas that individuals or teams shared were based on their own observations of potential customer needs. Often, however, the product or service idea had not yet been tested with potential customers. Most of the interlocutors had a long career behind them, on which the development of the idea was also often based. For some, the idea had developed and refined through the hobby.

The ideas of the interlocutors were often at a very early stage and only a few had prepared the so-called pitch deck.

Usually, a pitch deck is created for investors, but it is also a good tool when telling other stakeholders about the idea. Building a pitch deck was recommended to all interlocutors and at the same time tips were also given. The fear of idea theft often came up in discussions, and confidentiality must be considered in the incubator operating environment, especially when the idea is not yet sufficiently protected.

The inventors' general challenge was also the lack of a team and their own use of time, as well as the lack of funding, which also leads to the fact that in the initial stages they do not have the ability to pay for pre-incubation or incubation services. Building a team and finding funding were more important issues in the opinion of the interlocutors. Starting

teams also often faced the challenge of insufficient funding, which also causes that incubation services should be practically free.

The understanding of both public and private possible financial instruments was often incomplete. Therefore, helping to apply for funding in incubator services is a very important element.

The biggest shortcoming among the interlocutors was the perspective of commercialization; only a few had a potential customer with whom discussions had taken place. Only one of the interlocutors had a written letter of intent with the customer regarding procuring and testing the prototype. This is very typical because innovators and startups often focus on developing their service or product without talking to a potential customer. Here we introduced to the interlocutors the so-called MVP, Minimum Viable Product thinking, where at a very early stage of development you go to the customer to get feedback on the product or service being developed. Frank Robinson (2001), who coined the MVP defined it as follows:

*“The MVP is the right-sized product for your company and your customer. It is big enough to cause adoption, satisfaction, and sales, but not so big as to be bloated and risky. Technically, it is the product with maximum ROI divided by risk. The MVP is determined by revenue-weighting major features across your most relevant customers, not aggregating all requests for all features from all customers.”*

Later Eric Ries (2011) popularized MVP term in his book Lean Startup following way:

*“The minimum viable product is that version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort.”*

Only a few interlocutors had practical knowledge of the wider market potential. Often the market potential was said to be great, without being based on any real fact. In fully disruptive inventions, defining this is of course very difficult.

The interlocutors also saw the lack of networks as a kind of challenge. Therefore, they were very interested in what kind of service you can get in a pre-incubator or hatchery

and what kind of existing network is available at the hatchery. The fact that there are other entrepreneurs in the incubator environment was also seen as very important and useful.

An incubator program, where the introduction of certain elements would be tied to a certain time, was not seen as useful. The important thing is to get a service that is aimed at the current need. However, small-scale joint events were seen as useful.

In general, it was hoped that the premises would have internet connections, conference rooms, a cafeteria and, in some cases, HW (hardware workshop) laboratory services when it is necessary to build, for example, prototype of products.

They were also interested in possible shared services, which in themselves are not part of traditional incubator services, such as accounting, legal advice, marketing, and HR services.

In summary, the most important services noted were free or strongly subsidized facilities with common utilities, team building and development, developing networks, helping with customer acquisition, peer-to-peer discussion opportunities. and helping to raise public or private funding depending on the stage of the company.

#### **5.1.10 Stakeholder analysis**

One of task in the project was to make stakeholder analysis. Stakeholder analysis also indicates the complexity of operation in business incubation. This requires systemic approach for business incubation and gives some notable network building requirements for business incubation manager. Analysis result in Figure 16 show also some second- and third-degree stakeholders, which many have impact for local business incubation activity through first-degree stakeholder. All stakeholders have also slightly different expectations from business incubation. In addition, it should be noted that the expectations of different stakeholders are not static, but also change, e.g., due to changes in the ecosystem. This is why constant dialogue is a necessity.

The simplified diagram shows the most significant stakeholders either as an organization or as a function. Different types of financing models and instruments affect the operation of a business incubator either directly or indirectly, for example, the startup company's ability to pay for the service in the case there are no public funding for business incubation environment.

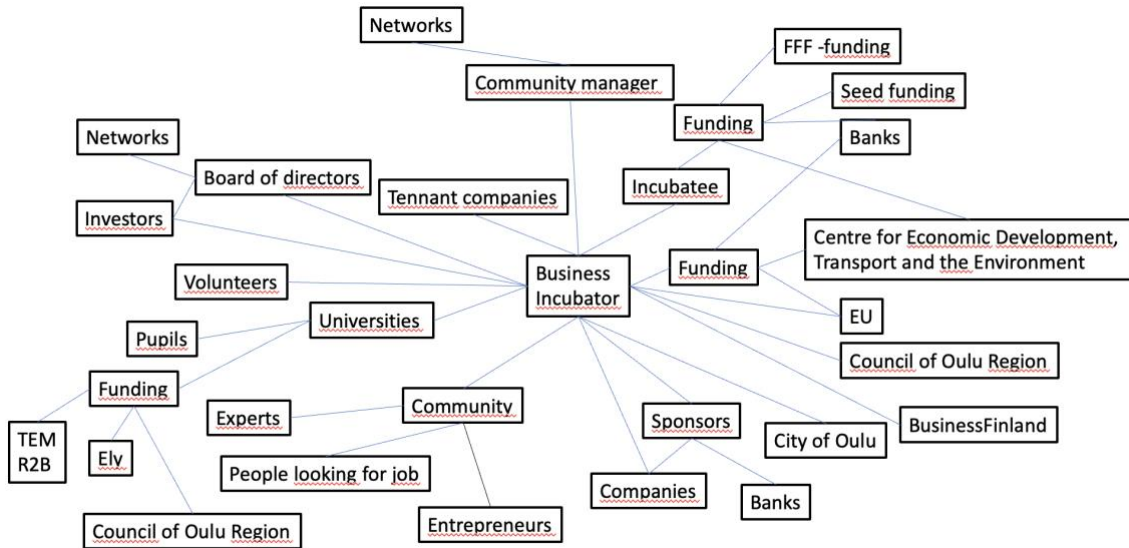


Figure 16. Business Incubation stakeholders

In Table 5 some of regional stakeholder’s interest and involvement with Business Incubator is described.

STAKEHOLDER	INTEREST/INVOLMENT with BUSINESS INCUBATOR
Incubatee	A startup company that is participating in the incubator program
Centre for Economic Development, Transport and the Environment	The Centres for Economic Development, Transport and the Environment (ELY Centres) are responsible for the regional implementation and development tasks of the central government. Provide project funding for startup companies and development of the operating environment funding for public and non-profit organization
Council of Oulu Region	The tasks of the council are regional development, including the preparation and drafting of regional development programs and EU programs in cooperation with other actors, regional planning, advocacy and making the province known.
Universities	Universities have several pre-incubator activities and thus a significant channel for incubator programs.
Community	Community with possible customers for Business Incubation. Events organized in the area for innovators and teams
Sponsors	Sponsors can contribute to the organization of various events and programs
Angel investors	Early investment to startup companies, seed funding
Local companies	Can act as a sponsor for business incubation or in some cases as a customer, when they have spin-offs

Business Oulu	They serve companies through their start-up, growth, and internationalization phases as they develop their operations and operating environment. They also help businesses with their networking as well as recruitment of talented workforce.
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Table 5, Main stakeholders and their interest and involvement.

Hytti, Alson and Ljunggren have studied stakeholders in Nordic countries. Their data shows that business incubators cooperate with several stakeholders, whose operational goals can be sometimes very different. Business incubators operate in a different network, including individuals, companies, public actors, universities, science parks and others.(Hytti, Alson & Ljunggren, 2011)

#### 5.1.11 Conclusion of Project 1

All basic business incubation elements were studied during the project and defined for internal and external activity. Stakeholder analysis was done to define actual business environment. The main challenge was to find the relevant and sustainable funding instruments for private business incubation. One of the findings was that there are no national or regional funding instruments to support sustainable business incubation activities in Finland. That was the most critical finding, since the starting point for the establishment of the Oulu Start Incubator was that the company is non-profit, and that we could find a public financial instrument to support its operations.

At the same time, also the ownership of business incubation activity was briefly explored. Since there were no public funding available, private investors were not willing to invest on business incubation activity. During the Project 1 we clearly noticed that we need to go at least one level up and start to define new project, in which focus is more on the startup ecosystem and co-operation of different stakeholders around business incubation regionally. That project could give better justification for public funding and define better the role of public and private organizations in whole regional startup ecosystem.

## 5.2 Fundamentals of Project 2

Project was established in autumn 2021 and continued until autumn 2022. Project was funded by Council of Oulu Region and managed by Oulu University of Applied Science. In the initial situation, the description of the problem was the fragmentation of local pre-incubation and business incubation services and thus resulting challenges for cooperation and operations overall. The current situation was also affected since beginning of 2020 by the restrictions caused by the Covid-19 virus and the remote work recommendations, which has had a big impact on various services, for example the limitations of usage of physical facilities and office spaces. It also led to that all startup related events that are important to random encounters were canceled.

Project had several goals; analyzing current local situation, benchmarking national and international business incubation activities, discussing startup companies and organizing common workshops for all stakeholders.

### 5.2.1 Exploring current local situation

Discussions were done with local actors and, in addition, all services in a common view were reviewed in the workshop (Figure 17), so that the different services could be defined from the entrepreneur point of view. In the workshops, it was noticed that the same terms are used in different meanings (pre-incubator / incubator / accelerator) depending on role of the incubator operator in the ecosystem, which makes the services appear confusing to the entrepreneur and startups.

Main observations were following:

- Many of the services are project-based, in which case continuity of service is uncertain and an important element may be lost from the service path when project funding ends.
- Governmental financing for private business incubator operators or startups, who participate in programs are not available currently in Finland.



- The strategies and goals that guide the activities of the local operators, as well as the financial instruments, differ significantly from each other. Practically all financing instruments for pre-incubation and incubation are based on project funding.
- The customer base (entrepreneurs and startups) and their needs in pre-incubation and incubation services also differ significantly. There are students and individual, who are consider entrepreneurship, existing startup companies and scaleup companies.
- There are regional services, but the customer paths are not well defined from idea phase to pre-incubation and towards incubation. In the region, there is no clear separate paths for startups whose operations and needs differ significantly from more predictable ordinary business sectors.

### **5.2.2 Benchmarking**

In the benchmarking some national and international start-up communities and incubators were selected.

Basically, what was found out was that most business incubators were publicly funded, as most of them are operated by city or local university personnel. There are some examples of privately funded business incubators. Teams or startups involved in the services in most cases were very early-stage. In pre-incubators connected to universities of applied sciences, the programs were often connected to studies. In pre-incubators connected to universities, operations were often based on the so-called “Research to Business” programs.

Business incubators often did not have a clear or strict incubator program, but themes are noted. In general, the programs are very flexible and focus especially on developing the business and team of business incubator customers flexibly. It is usually possible to participate in incubator services for 1-2 years. A few benchmarked incubator environments also have short-term accelerator programs for advanced startups.

In summary, it can be stated that there is no uniform model for incubator operations in Finland or elsewhere. Most of the pre-incubators or incubators operate at the local level.

Reason for this is that funding comes from city or funding is related to activity in university.

International activities were selected to benchmarking. Variation of operations were quite big and thus not comparable in practice. Based on that fact I have selected two models to discuss more deeply, Startup Estonia model, which is national organization and Luleå, Sweden, which is currently more regional activity yet reaching whole northern part of Sweden.

In Estonia, international aspect in business incubation is notable. They have several international programs in their business incubation service companies. A special aspect in Estonia is that the startup ecosystem including business incubation is coordinated at the national level. Estonia startup is a public organization, which support Estonia's startup ecosystem in national level and different business incubators in various ways.

They have divided their services into 4 categories:

- *“Strengthening the Estonian startup ecosystem – uniting and building the community through different events and activities, creating, and executing unified marketing and branding strategies, assisting regional development and science-based decision-making.*
- *Co-organizing impactful startup events with the community, advocating diversity in age, gender, culture, and background.*
- *Working on educating the local investors and attracting foreign investors to Estonia, helping available resources and vital know-how to reach startups and the community.*
- *Working on eliminating regulative issues and barriers that complicate operating a startup, investing, or raising funding in Estonia, and implementing startup-friendly regulations such as the Startup Visa.”*

Services for innovators, individuals, teams, startups and scaleups are well illustrated and defined in their web-pages (Startup Estonia, 2023) and there are direct links to those services in their webpages.



Figure 17. Startup ecosystem. (Startup Estonia, 2023)

Luleå Arctic Business Incubator's (ABI) operations is very impressive, and they have also been ranked as a 7<sup>th</sup> best business incubator globally 2018 by UBI Global. UBI Global is an organization, who have launched the World Benchmark Study to find common traits and identify best practices globally in business incubator activity.

ABI have developed business incubation operation continuously since their establishment 2005. The activity supports and is integrated in the local startup ecosystem. Operation support whole northern Sweden. As such, it could also be used as a good example for the development of business incubator activities in the Oulu region and northern Finland.

They also benefit from the fact that in Sweden there is a national funding instrument for business incubators arranged by Vinnova. Other financiers of the operation are the region and the cities. Vinnova finances business incubator activities throughout Sweden.

Arctic Business Incubator is owned by LTU Holding, Norrlandsfonden, Region Norrbotten, Luleå Municipality, Skellefteå Industrihus and Piteå Municipality.

This model of financing and ownership has enabled continued sustainable development for the business incubation operation for 18 years. They accept 10 startup companies into their two-year incubation program every six months.

Their main entry criterions for Arctic Business Incubator are following:

1. Scalable business model
2. International potential
3. Uniqueness in offering
4. Innovative technology
5. Team that can execute plan.
6. Ability to attract funding.
7. Own IPR (Intellectual property rights) or clear FTO (Freedom to operate)
8. Contribute positively to Agenda 2030 (United Nations Agenda 2030 for Sustainable Development)

Arctic Business Incubator has defined their core activities as show in the Figure 18. There are clear four stages for startup development and roles.

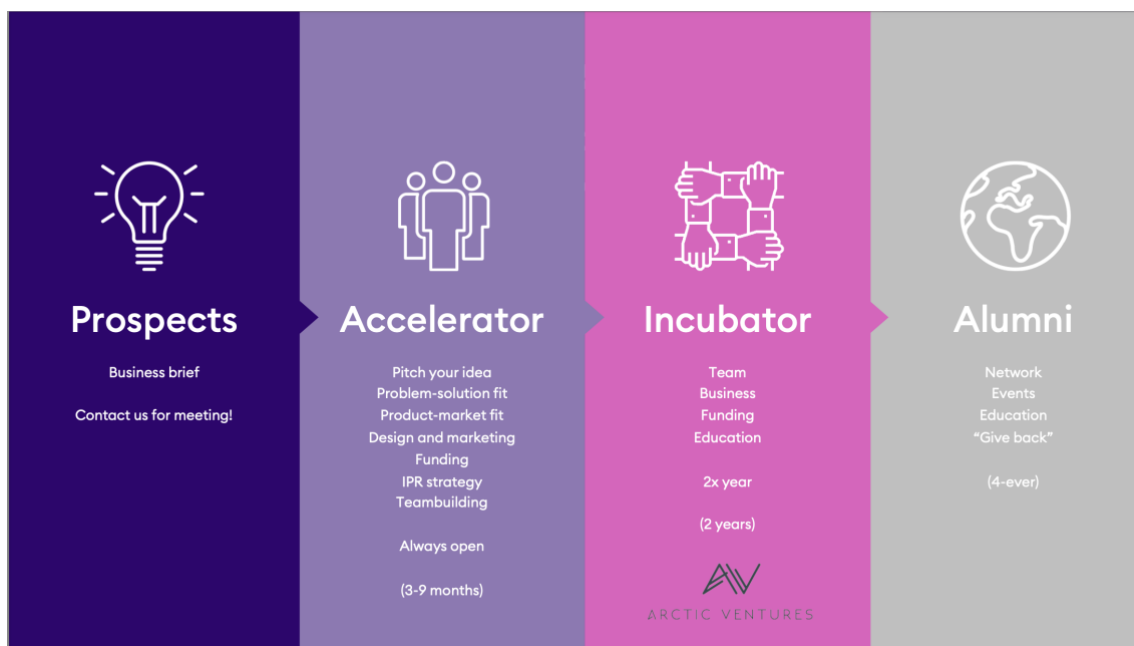


Figure 18. Arctic Business Incubator framework (ABI, 2022)

There is clear analogue also to Startup Estonia framework when comparing Figure 17 and Figure 18. The prospect phase partly describes the possibilities of the startup Mindset phase (Estonia model), which mainly deals with persons with ideas, although in Luleå case it is a bit more sophisticated. In this context, the acceleration phase means the pre-incubation phase, the purpose of which is to prepare for the incubation phase. In the

incubation phase, the focus is mainly on team building, business development, obtaining funding and training.

### **5.2.3 Discussions**

As a part of this process was also discussions with start-up companies about their needs for business incubation. The observations made about them, especially reflecting the development needs of the local ecosystem.

In practice, needs of startups varies in some degree depending on their development stage, available resources, and potential customer base.

Findings were basically the same as in the previous project. New finding was that startups and singular innovators were not aware what type of services are available for them in region and how they could benefit from those services in their own development. That lead to discussion in the project to create a map of available services for startups and entrepreneurs like is done in Estonia model, in which all details and access to services are available through their webpages.

### **5.2.4 Workshops**

Three workshops were held during the project.

The aim of the workshops was to create a common regional situational picture, to find and develop cooperation models for those involved in the incubator operation.

As a result of first workshop currently available different services for entrepreneurs and startup companies were presented. Services were defined for those in different stages of startup company development as follows, since their needs differs.

1. Entrepreneurial mindset
2. Startup mindset
3. Before business ID (before registering company)
4. Early-stage startup
5. Scaleup

In the second workshop, the needs of different customer groups were defined. Business incubator customers were divided as follows:

1. Students with entrepreneurial mindset.
2. Research based startup.
3. Before attaining formal business ID, not seeking strong growth.
4. Established SME, which does not seek strong growth.
5. Pre-startup with growth and scalable business idea.
6. Startup with growth and scalable business idea.
7. Scaleup with growth and scalable business idea.

Goal was to share common understanding, what type of guidance and services different type of businesses need.

In the third workshop main observations of benchmark were presented and discussed.

Workshops were very valuable, since all the actors were joining and creating a common view of activities. Future will show how cooperation will develop.

### **5.2.5 Best practices**

Some best practices were recommended after project.

By following Estonia model, it is effective way to communicate services available for innovators, teams and startups on region, also national level services aspect should be taken in the account.

As a recommendation from project 2 roundtable discussion with relevant parties were initiated. Roundtable discussion parties are actors, both public and private, who work with entrepreneurs and startup companies.

Best practices were established, but experiences from them are not included in the content of this thesis, as they are still under development at the time of publication of this thesis.

### **5.2.6 Conclusion of project 2**

One of the result of project 2 was that formal roundtable discussion was started, and it is in development phase currently. The challenges for the regional cooperation of different incubator operations are still significant because there is no continuous business incubator operation in the region, apart from educational institutions, whose activity is mainly focusing to pre-incubation.

## 6 REFLECTION

### 6.1 Conclusion

It was fascinating reading theories and comparing to practical cases and reflect my own experience from industry. For over 30 years, I have worked in various innovative product development environments, from large companies to startups.

At the same period, I completed the professional qualification of a business advisor to updated on knowledge for business advisor role in general in different businesses. I was also able to build this program to support the first project.

As a conclusion of two development projects following subjects will be discussed and some recommendations noted. In this discussion section, activities are reflected against the development of the regional ecosystem and new business creation. Attention to detailed tasks in development project has been deliberately left out to maintain a broader view.

The discussion is linked to a few key terms and concepts that I have seen to be connected to business incubator operations when activity is looked from systemic point of view.

Furthermore, different kind of support activities for corporations, SMEs and startups are often in discussion confronted to each other from some perspectives. Often the challenge is that the needs for support vary quite a bit between corporations, small businesses, and startup companies. To maintain an efficient regional ecosystem, understanding these different needs is imperative.

#### 6.1.1 The role of business incubation for regional resilience

Resilience as a subject in literature has been mostly related to nature catastrophes and recovering from those. Resilience could be seen also from an economic point of view; how to recover or to be prepared for changes and challenges.

*“Resilience is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely*



*and efficient manner, including through the preservation and restoration of its essential basic structures and functions” (United Nations, 2009)*

The resilience of regions is always unique, and regions are at different stages and face different challenges. They need their own approach, which is sufficiently flexible, and companies can access the services that are relevant to them at a certain moment to support renewal.

Business incubator activities can contribute to the formation of local resilience by creating new business and thus also new jobs. Since most of the new jobs are created into new businesses, efficient business incubation can contribute substantially to regional resilience by helping creation of new industries. We should remember that all present global corporates have been tiny in the beginning.

### **6.1.2 Ecosystem and regional dimension**

When developing business incubation activity, the role of business incubator in the local ecosystem needs to be considered carefully. Local special features, like the current business environment, local know-how, research, and future focus areas, have a significant impact on the success of business incubator operations and needed service levels.

Figure 19 illustrates both regional and operational dimension including main terms and methods related to that. Both regional and operational dimension need to be considered, when designing regional business incubation activity.

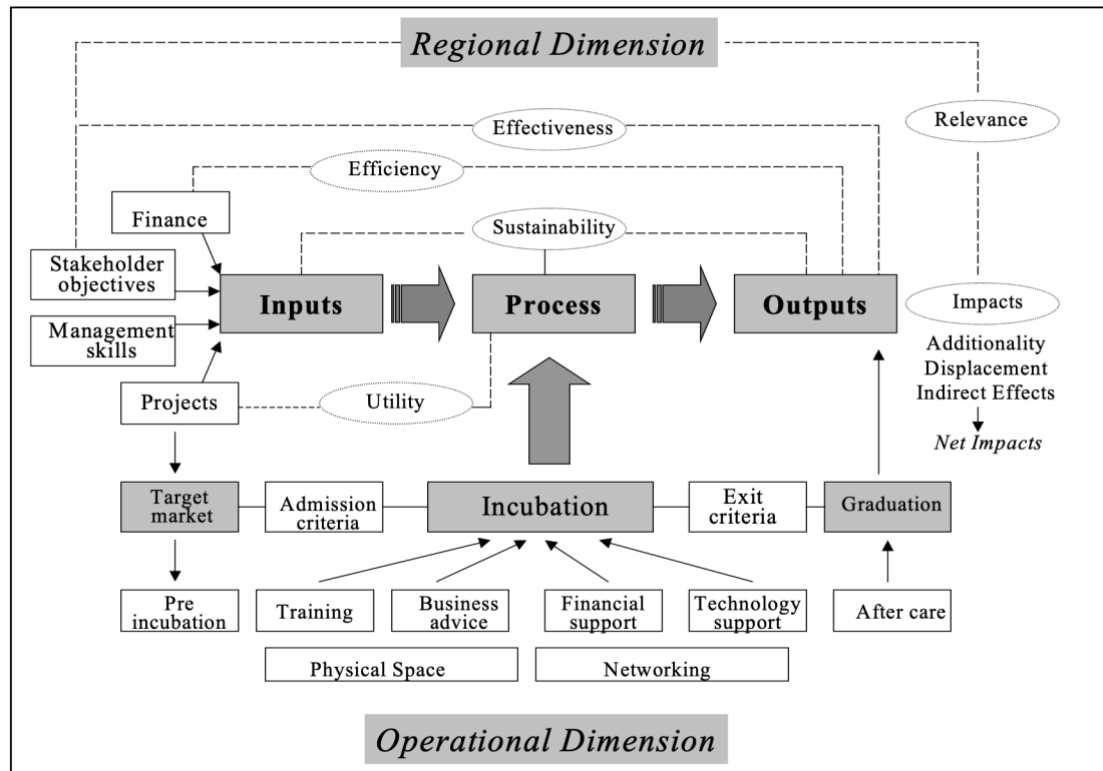


Figure 19. Benchmarking of Business Incubators (European Commission, 2002)

When the business incubation operation is considered as a regional process, it must consider the continuity of the operation and its impact on the economic life of the region. The ability to manage the operation also depends on the ownership base, which should be broad-based and based on trust in the ability and systemic thinking ability of the key personnel involved in the operation.

The physical accessibility of the operation, i.e., the premises, should also be considered in accordance with the purpose.

An essential part of the regional dimension is understanding the goals of stakeholders and their utilization in operational development. On the other hand, there are more and more business incubator activities, which are based on virtual service. In those cases, regional aspect is not so important. Attraction to apply virtual business incubation services include access to funding, which thereby brings opportunities for regional investors. In the projects or this thesis, virtual business incubation process was not studied.

The operative dimension shown in the Figure 17 has been discussed in more detail in earlier chapters. The regional and operational dimensions should be in sync with each

other to avoid conflicts in the direction of operations. However, the continuous development of the operation is at the center of the operation.

### **6.1.3 Knowledge management in business incubation**

Nonaka & Takeuchi (1995) model can be considered as one potential frame for knowledge management in business incubation.

Furthermore, business incubation activity can be also considered as a learning environment for adults and entrepreneurs. Typically, adult learning has been studied in traditional working environment, like in corporations. Nonaka and Konno (1998) have discussed about space for learning and thinking. They refer to learning space with the Japanese concept “ba” which means a shared space for emerging relationships. It can consist of physical, virtual, or mental spaces or a combination of these, and it provides a forum for developing individual and collective knowledge.

Nonaka and Konno have defined 4 different types of environments:

1. Socialization, a space where people can meet face-to-face and share feelings, experiences, and mental models. This is the primary space where the knowledge creation process begins.
2. Externalization space, which provides a space for interaction, making tacit knowledge explicit.
3. Combination space, where documents are exchanged, meetings are used for sharing knowledge.
4. Internationalization space, where explicit knowledge is created to tacit knowledge.

All of the above-mentioned learning environments should be taken into account when developing business incubation operations and development of incubatees.

Knowledge management in business incubator environment could be also something to further study.

#### 6.1.4 Positive psychological capital in business incubation activity

Considering different capital models in incubator operations is a particularly interesting theme. Study with business incubation in Portugal claims, that the more effort is put into improving the human capital, raising financial capital, and developing the networks, the better results will be achieved in business incubator's primary task, which is to support startup companies to develop sustainable business, scale up and compete successfully on the global market. (Rodrigues, Barbosa, da Rosa, Sousa & Campos, 2022). Often, traditional assets, such as money and know-how, are often discussed in the operations of incubators. However, there are also other capitals at the core of incubator operations, which Luthans, Luthans & Luthans have defined in a fascinating way in their publications. In the Figure 20 below, the different types of capital are distinguished in four parts, traditional financial capital, human capital, social capital, and positive psychological capital. (Luthans, Luthans & Luthans, 2003). This area could be very interesting for further study.

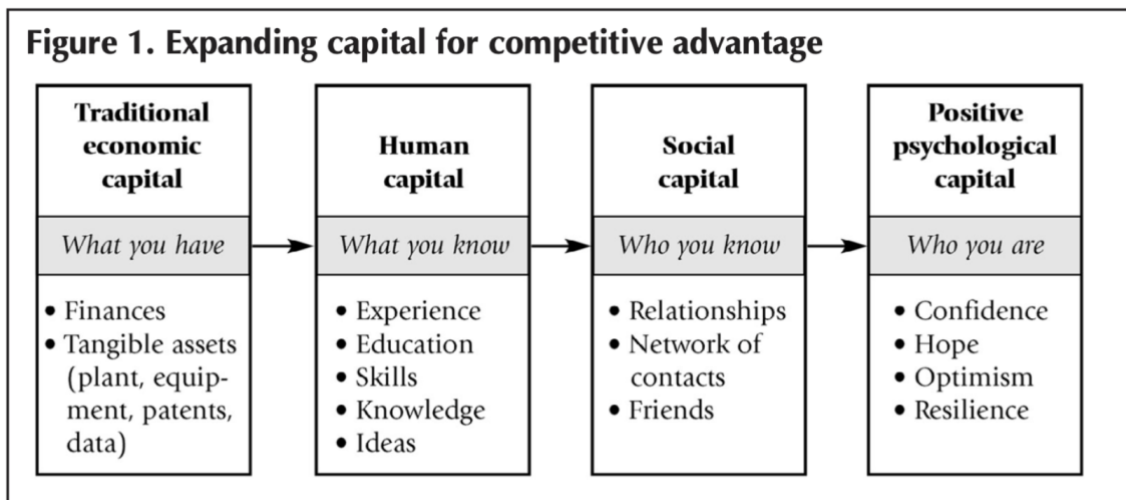


Figure 20. Expanding capital for competitive advantage. (Luthans, Luthans & Luthans, 2003)

This model could be a good basis for the development of incubator activities, because positive social capital is at the heart of new business creation, considering confidence, hope, optimism, and resilience. Finding this concept in the later stage of my thesis, I

wanted to note this, even though I could not explore and utilize it fully in my projects. These themes should be taken into account also when selecting incubator managers; how they can support creation of positive psychological capital for startup companies, especially to foster confidence, hope, optimism, and resilience, which all are necessary features in uncertain startup environment. In well-functioning business incubation environment, there is opportunity to build more positive psychological capital for startup companies, which can lead to business performance.

#### **6.1.5 Sustainability of business incubation activity**

Sustainability of business incubation turned out to be the biggest challenge in the development of business incubator operations. Most of the measures taken over the years were based on projects, which lacked continuity and the necessary continuous development and critical evaluation of operations.

A very critical element affecting sustainable operation of business incubation is especially the financing models of the operating environment, which should mainly come from public funds. At its best, public-private-partnership is manifested in the fact that public money focuses on financing the operating environment and private funding on financing the initial stage of the startup companies involved in the service.

Julian Webb (2007), who has studied business incubation activities since the 1980s around the globe in Creeda program propose long term approach. According to him typical incubator needs more than 5 years to establish. After 10 years you can see real results, so there is need for solid commitment over many years. (Creeda, 2007)

#### **6.1.6 Funding of business incubation and startup ecosystem environment**

The development of innovations is characterized by uncertainty, and they are mostly abandoned even before the startup phase. Innovations that are taken to the startup stage are still affected by high level of uncertainty, and many of them fail. Uncertainty and making startup company operations profitable takes time and differs significantly in different industries. Because of this, most business incubators operating in the world operate with public funding, with a few exceptions. There are also examples of business

incubators operating purely with private money, often their services are more like accelerators lasting a few weeks.

Maria Mazzucato talks about uncertain innovation in her book *The Value of Everything*. Often businesses don't want to take risk, in which they need to make long term investment without clear view of future earnings. (Mazzucato, 2018)

In her article "Mission oriented innovation policies" she points out that so called wicked problems requires co-operation between public, private and third sector. Public sector can provide incubator for starting new businesses, where information is incomplete. (Mazzucato, 2018)

As a result of research and discussions with several parties, I drafted an example on how public and private funding could be divided between different development stages in Figure 21. The focus of public funding is on early-stage activities and operating environment including business incubation environment, where uncertainty is high. The focus of private funding will gradually rise when the certainty of startup success increases. Pure accelerator programs could be funded with private funds. Still, it is common that one successful startup funding done by venture capitalists can replace five failed fundings.

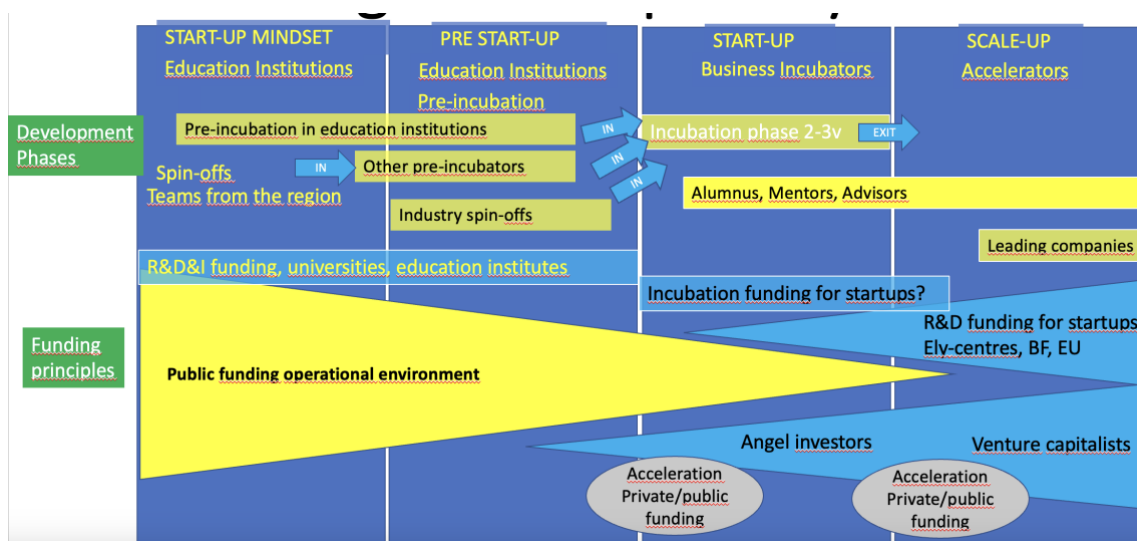


Figure 21. Proposal for distribution of public and private funding in the startup ecosystem.

### **6.1.7 Deal flow to business incubation**

Deal flow is commonly used term in startup investment environment. Investors need certain access to new startups to build solid portfolio. They have well defined own criteria for funding startup. Same kind of phenomena can be discussed in the case of business incubation activity. In practice there should be reasonable number of potential individuals, teams, or startups, who could benefit from joining business incubation activity. So, it is essential to have reasonable deal flow to select incubatees from pre-incubation or from other regional activities to business incubation operations. As described in Figure 21 possible routes to business incubation are education institutes, industry spin-off and other regional innovators and their teams.

## **6.2 RECOMMENDATIONS**

After getting acquainted with a huge amount of previous research during the final work and combining it with the experiences gained in development projects over the course of three years and the results of the projects, it has become very clear that business incubator operations need new public financial instruments, in the best case combining both national and regional instruments. It is currently relatively difficult to combine different financial instruments to support a common goal.

There are a few principles for the operation of a business incubator, but it needs to be developed to support regional development and partially be based on local strengths and cooperation with different stakeholders. In stakeholder cooperation, it is of course necessary to consider both international, national, and local stakeholders.

Since business incubation is especially the development of new business, the forecasting ability of startup companies also needs to be increased. Therefore foresight capability can give additional value for activity.

Public and private cooperation needs further development to support early-stage business activities, now often e.g., various financial instruments break cooperation down. There is

also a need for a discussion about the role of the public and private sector in business development, of which the model developed in Luleå is a very good example. Public funding by a private operator is often the most effective for business incubation. A business incubator's broader owner base contributes to the success of the incubator operation and leads to a more effective operation, because several perspectives are considered, when activities are managed, and goals are set for business incubation operation.



## 7 FINAL CONCLUSION

The goal of thesis was to report development projects, define related terms, find research information and representative figures from research and other literature to describe the elements and stakeholders of business incubation.

There is huge amount of research around business incubation and the challenge is always to adapt theories to practice. During this work I also found out that experience we faced in business incubation development could be found in research literature.

To understand better private and public co-operation, opportunities, and challenges I also participated to “Spanning Boundaries Program” which was led by University Industry Innovation Network (UIIN). I also got a chance to present some of my findings in that program related to my thesis and got valuable feedback.

After all attempts to run our business incubation operation, it finally failed. Main reason was that there are no public funding instruments for operating environment or funding instruments for startups to participate in incubation service. We were forced to participate in many project-based activities and run business incubation operation same time. As a result, the focus to help incubates efficiently was also suffered. This risk was also noted in Julian Webb’s material (Fiedler, 2007).

As a result, business incubation activity focus was slowly moving towards ordinary tenant and co-working business. On the other hand, there were several potential teams, who were interested and could benefit from business incubation. We discussed with several individual inventors and teams over the years, but often the result was that funding for the business incubation service was practically not found. Often the teams also had scalable product and service innovations. Because of very early stage of development there were no funding instrument available for them.

Original goal was to run operation in non-profit limited company. After this experiment there is a need to explore also other approaches, which better consider different financing

models. Next steps will be to further study and recommend new funding instruments for both national and regional level actors. Also, operational models including ownership need to be further investigated for regional business incubation, but that can be done after possible funding instrument support sustainable business incubation environment. Project based funding for creating business incubation activity cannot be recommended as there are several examples of that during the years.

This work made me interested in research work especially on public and private partnership models, which would be interesting to focus on in more detail in the future.

Based on the work done, several detailed research topics can be found.

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- Table 5      Local Business Incubator stakeholders and their interest and involvement

## APPENDICES

### Appendix 1:

1. Questions used in discussions with entrepreneurs.
  1. What is your story and what you are planning to accomplish?
  2. What stage is your idea at?
  3. Do you have a team or partners?
  4. What type of networks you have?
  5. How to see your own role in going forward in development?
  6. How are you planning to commercialize your idea?
  7. How much you can contribute time and money yourself?
  8. Do you have other financing?
  9. Do you have an operating environment to develop your idea forward?
  10. Is your idea protected already, IPR, patent etc.?
  11. Do you think your idea needs to be protected?
  12. What is the target market?
  13. What is the market potential?
  14. Do you already have potential customers?
  15. Is it possible for you to pay for incubation services?
  16. What do you expect from the incubator environment?
  17. What type of services you need?

In addition, some keywords were selected during the discussions.

## Appendix 2:

### Business Incubator Manager's job description Version 31.9.2021

#### Task role:

The incubator manager is the primary contact for entrepreneurs and is responsible for managing the operations, planning, marketing and development of the business / technology incubator. The position requires a team player with leadership qualities, excellent marketing skills, a professional and positive attitude, organization, and reliability. The role is challenging, but at the same time offers endless opportunities and learning. The incubator manager works as a process consultant who walks alongside the company, identifies different needs and tries to bring solutions to them. In the initial phase of incubator clients, the client work is more intensive, decreasing as the client develops.

#### Job duties:

The incubator manager is independently responsible for organizing his own operations.

Tasks include e.g.:

- General planning of incubator operations, resources, budgets, financing, and operations.
- Possible pre-incubator activities: Deal Flow generation, Incubator customer selection and screening (e.g., teams, business blanks, patents and financing),
- Incubation: involving new entrepreneurs; needs mapping of client companies, building incubator plans and their implementation, business plan sparring, continuous development of the incubator process; acquiring operational funding (projects, grants, expanding the case base, etc.)
- Events and workshops: Planning and implementation of various workshops/events/webinars.
- Mentor network: Developing the incubator's mentor network and working with them for the success of the incubator projects.
- Partnerships and networks: Forming partnerships with other organizations to provide services to the hatchery or hatcheries. hatchery marketing, sponsorship, etc. Connection to public actors and industry.
- Marketing and business development of the business incubator: Acting as the face of the incubator and actively promoting it through various channels. Describing service promises.
- Funding for incubator clients' projects: Working in a coordinated manner to find funding from stakeholders (FFF, seed funding, VCs, public grants). Good knowledge of public and private financial instruments.
- Building an incubation team
- Preparation of the necessary reports, including the services provided to customers.
- Business Incubation operation management

#### Requisites:

- Lower university degree
- Experience in incubator operations, business sparring, entrepreneurial experience.
- Must be computer literate.
- Finnish and English language skills, oral and written.